

PRB assessment of RP3 performance plans FAB / Member State assessment factbooks

March 2020

Table of Contents

Introduction	1
Presentation conventions	1
Sections content	2
Austria	6
Bulgaria	37
Croatia	67
Cyprus	97
Czech Republic	126
Denmark	158
Estonia	189
FABEC	220
Belgium	232
France	265
Germany	300
Luxembourg	334
MUAC	350
The Netherlands	369
Switzerland	401
Finland	434
Greece	463
Hungary	493
Ireland	525
Italy	556
Latvia	588
Lithuania	618
Malta	648
Norway	679
Poland	712
Portugal	748
Romania	781
Slovakia	812
Slovenia	842
Spain	871
Sweden	911
The United Kingdom	943

Introduction

Presentation conventions

1. The assessment of each draft performance plan includes a measurement of data against a checklist. The conclusions are given clearly with an indication of whether components have passed that part of the assessment by four indicators as shown in the following table.

	The check is passed, or the answer to the question is yes, or the result is in the range of expected values, or there is no particular issue to be mentioned.
	The check is not passed, or the answer to the question is no.
	Face value, the check is passed, but possibly due to the use of assumptions that do not seem adequate, or, the result is outside the range of expected values.
n/a	The section, the answer or the specific analysis is not applicable since it is not relevant in the specific performance plan.

2. Grey text boxes are text areas including factual analysis developed by the PRB (and Eurocontrol).
3. Green text boxes are text areas drafted by the PRB and generally summarise the important conclusions/recommendations.
4. Text in quotation marks (" ") indicates direct quotes from the performance plan.

Sections content

5. The following table give a summary of the content to be found in each KPA, and where to find it.

1. Safety	
<p>1.1 Summary of safety key data and assessment results</p> <p>1.1.A Target for EoSM for ANSPs</p> <p>1.1.B Measures planned to reach the target</p> <p>1.1.C Interdependencies and trade-offs</p> <p>1.1.D Change management</p> <p>1.1.E PRB conclusions</p>	<p>A summary of key data related to the Safety KPA. In particular, it presents:</p> <ul style="list-style-type: none"> • The EoSM targets set at the level of the ANSPs. • The measures undertaken by Member State and ANSP in order to achieve the targets. • The approach taken by ANSP and a Member State to address the interdependencies between safety and other KPAs. • The description of change management procedures and transition plans.
<p>1.2 Target for EoSM for ANSPs and measures</p> <p>1.2.A Target for EoSM for ANSPs and associated measures</p> <p>1.3 Interdependencies and change management practices</p> <p>1.3.A Interdependencies and trade-offs</p> <p>1.3.B Change management practices</p>	<p>The EoSM targets for each management objective for each year of the RP3 period.</p>
2. Environment	
<p>2.1 Summary of environment key data and assessment results</p> <p>2.1.A Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets</p> <p>2.1.B PRB conclusions</p>	<p>A summary of key data related to the Environment KPA. It presents:</p> <ul style="list-style-type: none"> • Comparison of ERNIP reference values and performance plan targets and an overview of the union wide targets. • The measures undertaken by Member States and ANSP in order to achieve the targets, including: <ul style="list-style-type: none"> ○ Details of MS's commitment to FRA by 2022; ○ Major ERNIP recommended measures committed to or implemented; ○ Status of FUA implementation according to latest LLSIP.

<p>2.2 Measures of Achievement</p> <p>2.2.A Annex IV 2.1 (a): Measures of Achievement</p> <p>2.2.B Annex IV 2.1(f): Incentive schemes</p>	<p>A summary of key data related to the measures committed to in the performance plan, enabling the MS to achieve their targets.</p>
<p>3. Capacity</p>	
<p>3.1 Summary of capacity key data and assessment results</p> <p>3.1.A En route ATFM delay</p> <p>3.1.B Arrival AFTM delay</p> <p>3.1.C Incentives</p> <p>3.1.D Investments</p> <p>3.1.E PRB conclusions</p>	<p>A summary of key data and insights related to the Capacity KPA.</p>
<p>3.2 En route ATFM delay per flight</p> <p>3.2.A Overview of en route ATFM delay per flight</p> <p>3.2.B Review of PP list of capacity enhancement measures vs NOP</p> <p>3.2.C Existing and previous ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC)</p> <p>3.2.D Significant/special events leading to higher delays in some years of RP3 and related enhancement measures</p> <p>3.2.E Review of the measures to increase capacity and address capacity gaps</p> <p>3.2.F PRB Key Points</p>	<p>A review of the measures and data related to the en route ATFM delay per flight.</p>
<p>3.3 Arrival ATFM delay per flight</p> <p>3.3.A Overview of arrival ATFM delay per flight</p> <p>3.3.B Review of targets and comparison with level and trend of past performance during RP2</p> <p>3.3.C Contribution of individual airports to the national target</p> <p>3.3.D Comparison of performance with other similar airports</p> <p>3.3.E PRB Key Points</p>	<p>A review of the measures and data related to the arrival ATFM delay per flight.</p>
<p>3.4 Capacity Incentive schemes</p> <p>3.4.A En route capacity incentive scheme</p> <p>3.4.B Terminal capacity incentive scheme</p> <p>3.4.C Additional capacity incentive scheme</p> <p>3.4.D PRB Key Points</p>	<p>A summary of the en route, terminal and additional incentive schemes.</p>

<p>3.5 Investments</p> <p>3.5.A Determined costs of investments over RP3</p> <p>3.5.B Major investments and justifications for major investments</p> <p>3.5.B.1 New major investments per ANSP (i.e. above 5M€) – Main ANSP</p> <p>3.5.B.2 Justification for major investments (i.e. above 5M€), which are not required by SES legislation</p> <p>3.5.B.3 Other new and existing investments</p> <p>3.5.C Review of investments contribution to capacity</p> <p>3.5.D PRB Key Points</p>	<p>Analyses on how the new and existing investments affect the determined costs, the list of new major investments for the main ANSP and a review of how investments contribute to the capacity target.</p>
4. Cost Efficiency	
<p>4.1 Summary of cost-efficiency key data and assessment results</p> <p>4.1.A Key data underlying en route cost-efficiency targets</p> <p>4.1.B Summary of baseline review</p> <p>4.1.C Summary of cost-efficiency assessment results</p> <p>4.1.D PRB conclusions</p>	<p>Summary of the key cost-efficiency data from the draft performance plan, the assessment results on the criteria listed in Point 1.4 of Annex IV of the Regulation and the conclusions of the PRB.</p>
<p>4.2 Traffic</p> <p>4.2.A Overview of service units forecasts for RP3</p> <p>4.2.B Overview of service units forecasts for RP3</p> <p>4.2.C Review of the PP traffic forecast</p> <p>4.2.D PRB Key Points</p>	<p>An analysis of en route traffic forecast (expressed in service units) underpinning the calculation of the DUC, both for the 2019 baseline and the whole RP3 period.</p>
<p>4.3 Review of determined costs and baseline for en route</p> <p>4.3.A Overview of en route costs in RP2 and RP3</p> <p>4.3.B Baseline review</p> <p>4.3.C Review of the RP3 determined costs and incentives</p> <p>4.3.D PRB Key Points</p>	<p>A review of the determined costs, their components and their evolution in RP3 as well as a review of the 2019 cost baseline submitted in the draft performance plan.</p>
<p>4.3.A Cost of Capital</p> <p>4.3.A.1 Determined costs vs return on equity (RoE)</p> <p>4.3.A.2 Cost of capital comparison: reported in performance plan. efficient cost of capital, maximum risk exposure</p> <p>4.3.A.3 WACC review</p>	<p>An analysis of the cost of capital for the main en route air traffic service provider as submitted by the States.</p>

<p>4.3.A.4 Regulated asset base review 4.3.A.5 PRB Key Points</p>	
<p>4.3.B Pensions 4.3.B.1 Review of en route pension costs for the main ANSP 4.3.B.2 Reporting exceptions and planned changes in assumptions 4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions 4.3.B.4 PRB Key Points</p>	<p>An analysis of the pension information as submitted by the States.</p>
<p>4.3.C Method for cost allocation between en route and terminal 4.3.C.1 Cost allocation overview 4.3.C.2 Review of changes in cost allocation 4.3.C.3 PRB Key Points</p>	<p>An review of the methods given for en route/terminal cost allocation.</p>
<p>4.4 DUC 4.4.A Overview and trends of the DUC 4.4.B DUC consistency 4.4.C Analysis of the DUC deviation for achieving the capacity targets 4.4.D Analysis of the DUC deviation due to restructuring costs 4.4.E PRB Key Points</p>	<p>An overview of DUC trends and perform the cost efficiency target assessment following the criteria listed in Point 1.4 of Annex IV of the Regulation.</p>
<p>4.5 Terminal 4.5.A Overview and trends of the terminal DUC 4.5.B Comparison of performance with similar airports 4.5.C Traffic and Costs review 4.5.D PRB Key Points</p>	<p>Review of terminal cost-efficiency as per point 2.1(c) of Annex IV.</p>

PRB Assessment

AUSTRIA

Draft Performance Plan

Context and scope

Austria

Performance Plan: Draft performance plan (Article 12) Dated: 20.11.2019
 Documents no: 1651, 1652, 1654, 1655, 1656, 1657, 1653

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.6%
 % Costs V. SES 2.1%

Scope

FAB: FAB CE

ANSPs: Austro Control

ATS, CNS, MET, AIS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): NSA Austria

ANS/ATM oversight

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Austria	n/a	No	No	No	
Terminal	Austria - TCZ	6	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group E Other States in the comparator group: Belgium, Netherlands, Switzerland

Currency: € Exchange rate: 1.00000

1. Safety ✔

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Austro Control	Safety policy and objectives	B	B	B	B	C
	Safety risk management	C	C	C	C	D
	Safety assurance	B	B	B	B	C
	Safety promotion	B	B	B	B	C
	Safety culture	B	B	B	B	C

PRB Assessment

The PRB concludes that the safety targets proposed by Austria should be approved.
 - The EoSM safety targets are in line with the Union-wide performance targets.

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that measures provided will not be sufficient to reach the RP3 targets, considering the proposed starting levels.

The PRB understands from the performance plan that no investments are needed to achieve the safety performance targets.

The PRB notes that the change management procedures and transition plans are implemented in accordance with current regulation. The change management practices and transition plans aim at minimising any negative impact of the implementations on the network performance.

2. Environment ✔

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.90%	1.88%	1.86%	1.86%	1.86%

PRB Assessment

The PRB concludes that the environment targets proposed by Austria should be approved.

- Austro Control's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✘

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.95	1.07	1.07	1.07	1.07
National target for terminal and airport ANS ATFM arrival delay per flight (min)	1.25	1.22	1.19	1.16	1.13

PRB Assessment

The PRB concludes that the capacity targets as proposed by Austria should not be approved.

- The capacity targets are not reaching the reference values for each year of the RP3 and do not even converge towards the reference values.

- The measures provided in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious capacity target values would be realistic.

- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency ✔

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	61.41	60.96	60.06	57.48	55.81	-2.1%	-2.1%
Target for determined unit cost (DUC) (€2017) - Terminal	200.15	199.56	197.85	192.57	191.40	n/a	-2.3%

PRB Assessment

The PRB concludes that the cost-efficiency targets as proposed by Austria should be approved.

- Austria is meeting the RP3 DUC trend in terms of average reduction.

- Austria is not achieving the long-term Union-wide DUC trend.

- Austria is consistent with the average DUC baseline of the comparator group.

PRB Recommendations

SAFETY

- Austria should, considering the proposed starting level, define measures to achieve the RP3 safety targets levels.
- Austria should ensure consistency between safety levels achieved for RP2 in 2019 and planned starting levels for RP3.

ENVIRONMENT

- Austria should consider extending its FRA to the western border where airspace is delegated to skyguide and DFS.
- Austria should ensure that the implementation of LARA and A-FUA minimises the impact of airspace reservations/segregation on civil airspace users.
- The merging of both SECSI and SEE FRA should be examined and considered for implementation to maintain Austria's leading performance in cross-border cooperation.

CAPACITY

- Austria should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets.
- Austria should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.
- Austria should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.
- Austria should justify the terminal RP3 capacity targets with respect to RP2 actual performance and with respect to similar airports, or should revise terminal RP3 capacity targets downwards.

AUSTRIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year for RP3. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering the declared starting safety levels as per the performance plan, some relevant measures are provided, however, the measures are not sufficient to assure the achievement of RP3 targets considering the proposed starting levels. The measures in all management objectives should be provided.

1.1.3 Interdependencies and Trade-offs

The performance plan indicates that the interdependencies with safety are addressed by standard processes and that safety will not be compromised during the implementation of the changes.

1.1.4 Change Management

The draft performance plan describes that the major airspace architecture change will be accompanied with relevant process including safety assessment according to the Commission Implementing Regulation (EU) 2017/373.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Austria should be approved.
- The EoSM safety targets are consistent with the Union-wide performance targets.

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that measures provided will not be sufficient to reach the RP3 targets, considering the proposed starting levels.

The PRB will closely monitor the implementation of measures over the RP3 to ensure that the maturity levels do not degrade between RP2 and RP3 in its "RP3 watchlist".

The PRB understands from the draft performance plan that no investments are needed to achieve the safety performance targets.

The PRB notes that the change management procedures and transition plans are implemented in accordance with current regulation. The change management practices and transition plans aim at minimising any negative impact of the implementations on the network performance.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Austro Control	Safety policy and objectives	B	B	B	B	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	B	B	B	B	C	✓	
	Safety promotion	B	B	B	B	C	✓	
	Safety culture	B	B	B	B	C	✓	

The EoSM targets have been defined for each year for RP3. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3. Austro Control starts RP3 with maturity levels that are lower than the RP3 targets. These levels continue throughout RP3 and meet the RP3 targets in 2024.

The draft performance plan indicates that the resources for safety actions to achieve the targets are planned, the details of the activities will be further developed once the AMC/GM is available. The draft performance plan describes the measures in the area of safety culture, especially training and awareness and safety cooperation that will be further strengthened by intensifying cross-border safety surveys.

Considering the declared starting safety levels set out in the draft performance plan, the measures are relevant, however, not sufficient. The measures in all management objectives should be provided.

1.3.1 Interdependencies and Trade-offs

The draft performance plan addresses the changes with regards to safety related ATM functional systems (upgrade of COOPANS/ Topsy, update of Vice Communication Systems, implementation of the A-SMGCS). The changes are not motivated by safety improvement as such, but by the other KPAs.

Safety implications related to those changes are managed by standard processes required by legislation such as safety assessments.

The draft performance plan underlines safety will not be compromised at any time. In case of a situation that staff resources are not sufficient to cope with unpredictable high traffic demand, capacity will be deteriorated in order to ensure safety level.

1.3.2 Change Management Practices

The draft performance plan describes that the major airspace architecture change will be accompanied with relevant processes including safety assessments according to the Commission Implementing Regulation (EU) 2017/373.

The major implementations will be supported by the specific project related roadmaps and implementation plans that aim at minimising any negative impact on the network performance.

AUSTRIA

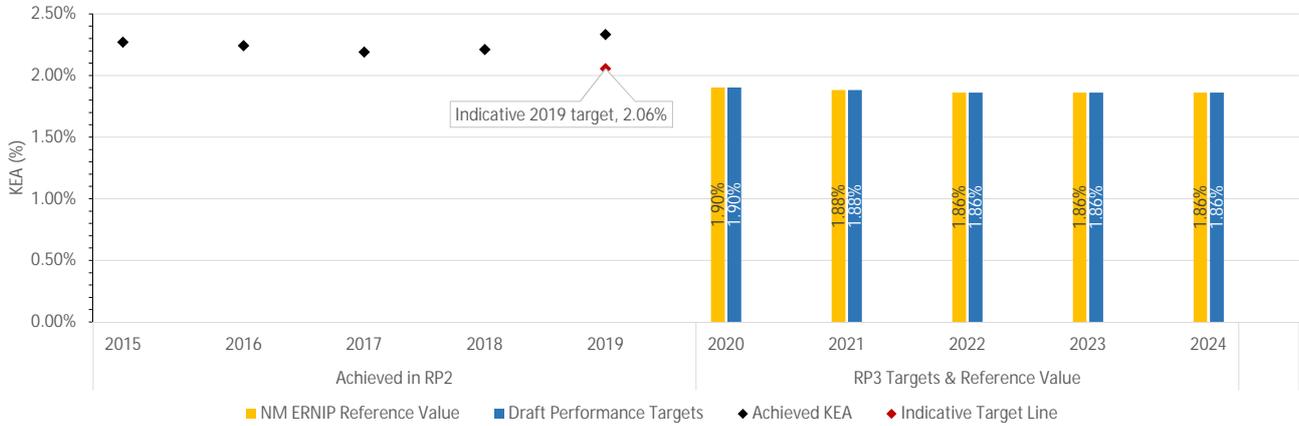
Environment KPA

2.1 Summary of environment key data and assessment results

Austria

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.90%	1.88%	1.86%	1.86%	1.86%
Draft performance targets	1.90%	1.88%	1.86%	1.86%	1.86%
Comparison of draft performance targets with reference values	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Austria should be approved.

- Austro Control's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✘	Reference in PP	Reference in LSSIP
Austria implemented FRA from GND to FL660 inside the Vienna FIR in November 2016. Austria is yet to extend FRA across to its western airspace, which is delegated to DFS and Skyguide.			3.2.1(b)	Page 38
Major ERNIP Recommended Measures:		1	Reference in PP	Reference in ERNIP
Measure included within performance plan?			Implemented	Page 13
Implementation of SECSI (South East Common Sky Initiative) FRA		✔		
FUA Implementation according to latest LLSIP		Implementation		
1		✔		
2		✔		
3		✔		

The chart in section 2.1.1 shows that Austria achieved a KEA of 2.33% in 2019 and needed to meet an indicative target of 2.06% to achieve the planned target of 1.90% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achieved value and the 2020 reference value.

Austria undertook initiatives to expand FRA beyond its national borders by supporting SECSI in line with ERNIP recommendations. SECSI merged SAXFRA and SEAFRA to create a large volume of cross border FRA among SES and non-SES States. It is estimated that this has saved 650,000 nautical miles of flight per year.

Despite the offering of FRA, airspaces in central/southern Austria between GND and FL660 are marked for military training and are managed through an AUP. This can prevent the application of a true FRA since Austria estimated that current FUA procedures may require affected airspace users to fly up to five additional nautical miles through its airspace. Austria committed to improving this.

Additionally, Austria mentioned that it plans to examine the possibility of further cross-border free route airspace work, particularly the merger of SECSI and SEEN free route airspace.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Austria plan for an environmental incentive scheme?	✘
Austria does not plan to apply an optional incentive scheme for the environment KPA.	

AUSTRIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

National targets are set at the NOP delay forecast values, which are significantly higher than national reference values. Target values do not converge towards national reference values.

Capacity enhancement measures are derived from the NOP. Planned number of ATCOs is inconsistent with capacity plans.

Austria is expected to experience a capacity gap, the size of which depends on NM measures and staffing levels.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	0.58	0.70	0.80	0.88	0.88
2. NOP delay forecast is lower or equal to the PP capacity target	✓	!	!	!	!

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.1.2 Arrival ATFM Delay

Although the proposed targets for RP3 continue in the same line as the past RP2 targets and include a gradual improvement, the targets are still well above the observed performance during RP2, which was slightly worse than the performance observed at similar airports at Vienna, Innsbruck and Salzburg.

3.1.3 Incentives

En route incentives: The scheme listed in the performance plan excludes between 20-30% of en route traffic within Austria that is not controlled by Austro Control. For the incentive scheme applicable to Austro Control, the maximum bonus and maximum penalty should be 0.5% of revenue. The delay forecast in the NOP has been proposed as the national target and indicates that the ANSP performance will incur neither penalty nor bonus and will be between 0.95 and 1.07 minutes delay per flight (as opposed to the reference value of between 0.37 and 0.19 minutes delay per flight over RP3). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: The low risk of penalty and the result (maximum penalty only 0.5%) does not seem to incentivise to improve or guarantee the current performance. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

All major projects are planned to enter into operation only in 2024/2025, generating no tangible benefits for capacity in RP3.

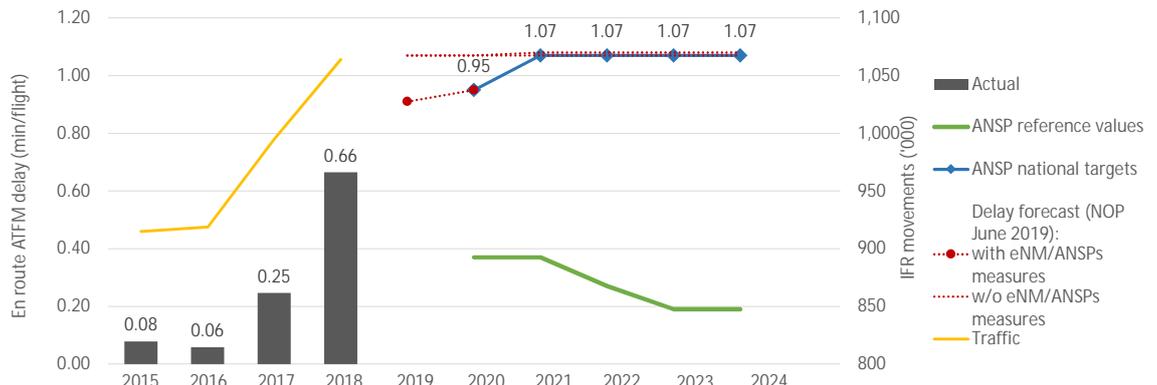
A justified link between investments and capacity enhancement could not be established.

3.1.5 PRB conclusions ✗

The PRB concludes that the capacity targets as proposed by Austria should not be approved.

- The capacity targets are not reaching the reference values for each year of the RP3 and do not even converge towards the reference values.
- The measures provided in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious capacity target values would be realistic.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight ✖



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual ATFM delay per flight	0.08	0.06	0.25	0.66						
ANSP reference values						0.37	0.37	0.27	0.19	0.19
ANSP national targets						0.95	1.07	1.07	1.07	1.07
Forecast with eNM/ANSPs measures*					0.91	0.95				
Forecast w/o eNM/ANSPs measures*					1.07	1.07		1.07-1.08		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✖	✖	✖	✖	✖
Deviation target v. reference value (minutes per flight)	0.58	0.70	0.80	0.88	0.88
2. NOP delay forecast is lower or equal to the PP capacity target	✔	⚠	⚠	⚠	⚠

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✖

Description of capacity enhancement measures

The performance plan refers to the NOP when listing the capacity enhancement measures, which are as follows:

- Continued effort to increase staffing levels;
- Continued alignment of traffic demand and sector opening times at sector group level;
- Network weather mitigation measures;
- Implementation of the eNM/ANSPs proposed measures;
- Central/South East Europe airspace restructuring project.

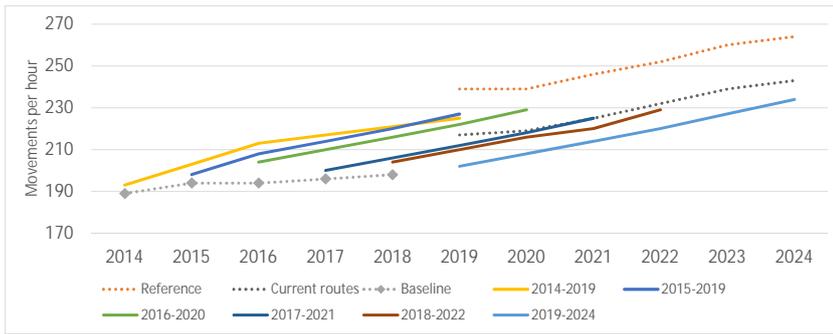
It is not clear how the planned increase in the number of ATCOs is justified: following significant increases in 2021 and 2022, there are only marginal increases in the remaining years of RP3. It is not clear how this is consistent with the increasing capacity gap.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Vienna ACC (LOVV)	Additional ATCOs in OPS to start working in the OPS room	0	8	5	10	10	10	10	+25
	ATCOs in OPS to stop working in the OPS room	0	3	3	0	3	7	7	
	ATCOs in OPS to be operational at year-end	126.6	131.6	133.6	143.6	150.6	153.6	156.6	
Total - Austro Control (en route)	Additional ATCOs in OPS to start working in the OPS room	0	8	5	10	10	10	10	+25
	ATCOs in OPS to stop working in the OPS room	0	3	3	0	3	7	7	
	ATCOs in OPS to be operational at year-end	126.6	131.6	133.6	143.6	150.6	153.6	156.6	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ❌

Vienna ACC (LOVV)



- Historical data shows an average increase of 1.2% in the baseline values over RP2, including zero increase for 2015. Planned values are consistently above the baseline values.
- Latest capacity plans show a steady increase of around 3% for every year of RP3.
- When compared against the reference profile, latest capacity plans show -12.8% to 15% capacity gap in RP3. If compared to current routes profile the capacity gap is significantly lower, between -3.8% and -5.5%.
- Vienna ACC is expected to experience a capacity gap throughout RP3. The capacity gap is expected to be significantly smaller if airspace users continue to fly the current routes.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						239	239	246	252	260	264
Current routes						217	219	225	232	239	243
Baseline	189	194	194	196	198						
2014-2019	193	203	213	217	221	225					
2015-2019		198	208	214	220	227					
2016-2020			204	210	216	222	229				
2017-2021				200	206	212	218	225			
2018-2022					204	210	216	220	229		
2019-2024						202	208	214	220	227	234

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

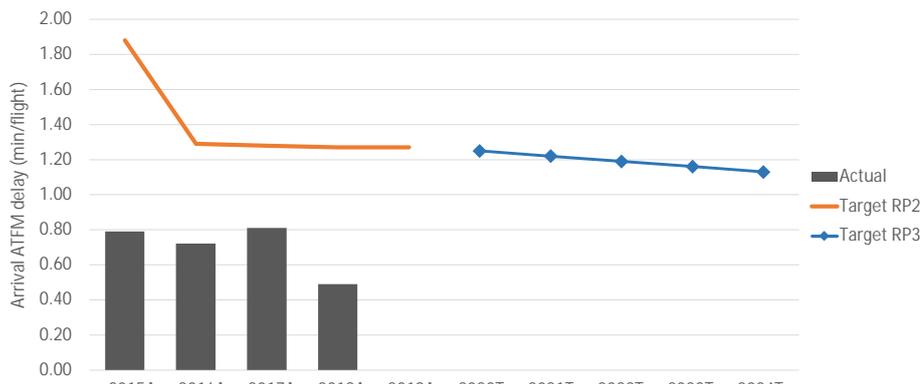
3.2.5 Review of the measures to increase capacity and address capacity gaps ❌

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure
The performance plan contains no additional measures compared to the NOP. ❌
- b) Measures proposed by the NM are implemented in the Performance Plan
The measures proposed by the NM are implemented in the performance plan. ✓
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM
The measures proposed by the NM are implemented in the performance plan. ✓
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values
There is no information regarding additional measures proposed by the NSA in the performance plan. ❌
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)
There is a continuous increase planned in the number of ATCOs, although according to the capacity plans, it is not sufficient to close the capacity gap. Increase in the number of ATCOs is not consistent with the growing capacity gap over the period. ❌
- f) Flexible use of operational staff is planned and ensured
The performance plan contains no information regarding flexible use of operational staff. ❌
- g) Limitations of ATM system/infrastructure is mitigated
There is no information in the Performance Plan regarding ATM system/infrastructure related limitations, nor the mitigation thereof. n/a

3.2.6 PRB Key Points ❌

- National targets are set at the NOP delay forecast values, significantly above the national reference values, without any trend to converge towards the reference values.
- Capacity plans, capacity enhancement measures and the NOP indicates that there will be a capacity gap in Austria, however, the size of the gap is largely dependent on the measures of the NM.
- There is inconsistency in between the planned number of ATCO FTEs and the planned capacity profiles.
- There is inconsistency in the performance plan regarding capacity enhancement measures and proposed targets. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious capacity target values would be realistic.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.79	0.72	0.81	0.49	-	1.25	1.22	1.19	1.16	1.13
Vienna (LOWW)	1.06	0.96	1.08	0.64	-	1.27	1.24	1.21	1.18	1.15
Graz (LOWG)	0.00	0.00	0.00	0.00	-	0.01	0.01	0.01	0.01	0.01
Innsbruck (LOWI)	0.01	0.05	0.22	0.15	-	0.15	0.15	0.15	0.15	0.15
Klagenfurt (LOWK)	0.00	0.00	0.00	0.00	-	0.01	0.01	0.01	0.01	0.01
Linz (LOWL)	0.00	0.00	0.00	0.00	-	0.01	0.01	0.01	0.01	0.01
Salzburg (LOWS)	0.07	0.12	0.05	0.11	-	0.11	0.11	0.11	0.11	0.11

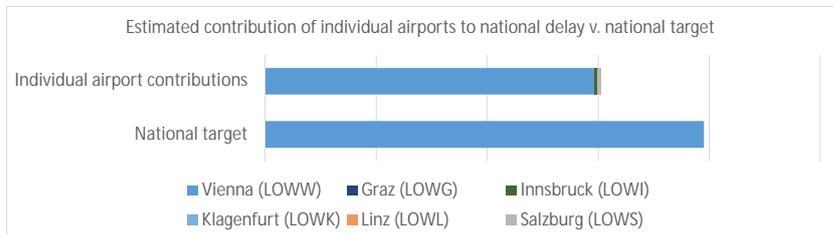
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

The targets for RP3 continue the same trend as the targets for RP2, with a small gradual improvement (0.03 minutes delay reduction each year). Nevertheless, these targets (1.25 to 1.13 minutes delay per arrival) are still well above the observed past performance in RP2 (average 0.70 minutes delay per arrival).

Austria uses the STATFOR base forecast for TCZ, which estimates an increase of 5.9% IFR movements in 2020, although the CAGR for 2019-2024 is 2%.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Vienna (LOWW)	1.21
Graz (LOWG)	0.01
Innsbruck (LOWI)	0.15
Klagenfurt (LOWK)	0.01
Linz (LOWL)	0.01
Salzburg (LOWS)	0.11
National Target	1.19



Vienna is the main contributor in terms of delay (as it is in terms of IFR movements) but the breakdown of the targets per airport does not correspond to the national target, assuming the same traffic share. That is, the potential delay associated to the target of the individual airports is well below the delay associated with the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Vienna (LOWW)	GROUP I	0.87	0.93	+0.06	1.21	+0.34
Graz (LOWG)	GROUP IV	0.01	0.00	-0.01	0.01	+0.00
Innsbruck (LOWI)	GROUP IV	0.01	0.11	+0.10	0.15	+0.14
Klagenfurt (LOWK)	GROUP IV	0.01	0.00	-0.01	0.01	+0.00
Linz (LOWL)	GROUP IV	0.01	0.00	-0.01	0.01	+0.00
Salzburg (LOWS)	GROUP IV	0.01	0.09	+0.08	0.11	+0.10

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The performance of Vienna in the past reference period is slightly worse than the median of similar airports (+0.06 minutes delay per arrival). The target set for RP3 represents a further worsening with respect to the actual performance of similar airports (+0.34 minutes more delay per arrival).

Similar is observed with Salzburg and Innsbruck (second and third busiest airports in Austria). The performance in RP2 and the targets for RP3 are worse than the reference value for that category of airports. Both airports suffer from delays mainly in the ski season, due to specific high traffic weekends.

- Although the proposed targets for RP3 continue in the same line as the past RP2 targets and include a gradual improvement, the targets are still well above the observed performance during RP2, which was slightly worse than the performance observed at similar airports at Vienna, Innsbruck and Salzburg.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.04 min	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.37	0.37	0.27	0.19	0.19
Alert threshold (Δ Ref. value in fraction of min)	±0.059	±0.059	±0.054	±0.050	±0.050
Performance Plan targets	0.95	1.07	1.07	1.07	1.07
Pivot values for RP3	0.95	1.07	1.07	1.07	1.07

Threshold review

The threshold is symmetrical about the pivot value. However, the pivot value is not based on the reference values published in the NOP (0.37 - 0.19 minutes per flight), but instead is based on the national targets which are significantly higher (0.95 - 1.07 minutes per flight).

Modulation review

No further modulation is applied.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty are fixed at 0.5% of revenue. Since the national targets are directly derived from the delay forecasts in the NOP, it is likely that the ANSP performance will not incur either a penalty or a bonus.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±25.0%	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.625	±0.610	±0.595	±0.580	±0.565
Performance Plan targets	1.25	1.22	1.19	1.16	1.13
Pivot values for RP3	1.25	1.22	1.19	1.16	1.13

Threshold review

The terminal incentive scheme includes a deadband of ±25% around the pivot value (not modulated) that allows for small variations in the arrival ATFM delay with no resulting bonuses or penalties.

Modulation review

Austria has opted for pivot values based on the performance targets (not modulated).

Review of financial advantages/disadvantages

The maximum bonus is as high as the penalty (0.5%). The low risk of penalty (given the fact that past delays are well below the target) and the result (only 0.5% penalty) does not seem to incentivise to improve or maintain the current performance.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✗

En route incentives:

- The scheme listed in the performance plan excludes between 20-30% of en route traffic within Austria that is not controlled by Austro Control. For the incentive scheme applicable to Austro Control, the maximum bonus and maximum penalty would be 0.5% of revenue.
- The delay forecast in the NOP has been proposed as the national target and indicates that the ANSP performance will incur neither penalty nor bonus and will be between 0.95 and 1.07 minutes delay per flight (as opposed to the reference value of between 0.37 and 0.19 minutes delay per flight over RP3).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

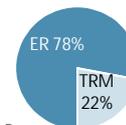
Terminal incentives:

- The low risk of penalty and the result (maximum penalty only 0.5%) does not seem to incentivise to improve or guarantee the current performance.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	32.0	33.2	35.1	34.2	32.8	167.4
	En route	M€ (nominal)	24.7	25.8	27.4	26.9	130.6
	Terminal	M€ (nominal)	7.3	7.4	7.7	7.3	36.8

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State. The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Voice Communication	Keeping the voice communication system alive, total exchange of VCS for ENRO in RP3 followed by local Terminal Units in RP4. Adaption of Voice- and Data-Recording (Compliance).	12.0	No	No	0.0	0.0
2	NAV Infrastructure	Continue ILS EoL Exchange program (5) including infrastructure compliance. EoL investments of 7 DMEs and Direction finders.	13.3	Yes	No	0.0	0.0
3	Carrier Infrastructure	Further development on Carrier Infrastructure to fit to future requirements (Capacity,...) and exchange of system constituents.	4.5	No	Yes	0.0	0.0
4	Airport Throughput	Advanced Surface Movement Control System, Surveillance Sensors and related Systems.	11.4	Yes	Yes	0.0	0.0
5	COOPANS	COOPANS TopSky ATM systems operated in Vienna with connected ATS units.	26.3	Yes	Yes	0.0	0.0
6	ATS-Enabler	Provide required ATS-Services to meet compliance, safety, capacity, security, environment, operational, service-resilience and ATCO-training goals, e.g. - New Requirements (Sub-Systems outside COOPANS-Topsky) - SWIM, LAN and Firewall adaptations, - Improve Controller Working Positions, ATS – Monitor Renewal, - Server and Workstation Replacement, - Simulator upgrade, - Contingency System enhancements	11.5	Yes	No	0.0	0.0
7	ANS Enabler	ANS-Enabler are needed to provide required ANS-Services to meet compliance, safety, capacity, security, environment, service-resilience and operational goals, e.g. - Technical Monitoring and Control System TMCS - Air Condition for ANS-Infrastructure - Electric power supply adaptations - Lightning Protection, Automatic Fire Detection, ... - Facility Infrastructure - Server Virtualisation	14.4	No	No	0.0	0.0
8	AIM Infrastructure	Functional Evolutions, Infrastructure changes, Static Data Management evolution and electronic Terrain and Obstacle Database measures.	5.2	Yes	No	0.0	0.0
9	MET Infrastructure	ATS-Enabler are needed to provide required ATS-Services to meet compliance, safety, capacity, security, environment, operational and service-resilience goals, e.g. - Integrated Terminal Weather System - Infrastructure measures to enable TBS - MET Sensors incl. Weather Radar System - Service Evolution (incl ACWIS) - Evolution of tailored MET-Services for ATCOs	6.2	Yes	Yes	0.0	0.0
Total:						0.0	0.0

Airspace user feedback regarding major investments

IATA expressed its concern about Austria not planning to reimburse the overcharged depreciation costs from RP2 to the airspace users. Comments were also made on the lack of breakdown and details of the investments, and on the fact that RP3 investments will rather maintain RP2 service levels, particularly in terms of environment and capacity instead of providing additional capacity. Concerns were also expressed regarding the information provided by Austria in terms of the lifecycle of investments and their planned date of entry into operation.

Review of investments

Austria does not provide the annual breakdown of determined cost per investment, nor per investment category (i.e. new major, other new and existing investments).

New major investments represent 79% of the total determined costs of investments over RP3. Investments #1, #2, #8 and #9 were planned in RP2 and are also included in the RP3 investment plan. 2015-2018 actual CAPEX delivery reaches 78% of the planned values for the same period and the amount underspent is 28.41M€. It is unlikely that this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	Voice Communication	Network, Local	Safety, Capacity, Cost-efficiency	Voice Communication Systems over IP are enablers for new operational concepts (Remote Tower, Centralized Approach units) Investments in Radio Infrastructure close existing coverage gaps.
3	Carrier Infrastructure	Local	Safety, Capacity, Cost-efficiency	The Carrier Infrastructure is an enabler for new operational concepts (Remote Tower, Centralized Approach units).
7	ANS Enabler	Network, Local	Safety, Environment, Capacity, Cost-efficiency	Airspace users benefit from more resilient ATM-systems.

Additional information

- Voice Communication: retention of the Voice Communication System (VCS) for ENRO (ACC) and the complete change of the ACC VCS within RP3. Change of VCS for the Austrian regional airports (GIKLS) foreseen in RP4.
- Carrier Infrastructure: the carrier infrastructure project ensures a redundant and resilient and future-proof carrier data connection. This project is an important enabler for existing and future services.
- ANS Enabler: Technical Monitoring and Control System (TMCS), Air Condition for ANS Infrastructure, electric power supply adaptations, lightning protection, automatic fire detection, facility Infrastructure, Server Virtualisation etc.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	34.1	27.2	0.0	0.0	0.0	0.0	0.0	0.0
Existing investments			0.0	0.0	0.0	0.0	0.0	0.0

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Austria does not provide the annual breakdown of determined cost per investment nor per investment category (i.e. new major, other new and existing investments).</p> <p>Other new investments represent 21% of the total determined costs of investments of investments over RP3, while the performance plan states there are no existing investments. However, there are several investments from RP2 which had the planned date of entry into operation in 2020.</p> <p>Regarding other new investments, Austro Control provided information during the consultations:</p> <ul style="list-style-type: none"> - Renewal of Hardware (monitors, server, workstations, touch input panels, etc.) and ATCO potentially Simulator upgrades - Develop integrated CWP concept (ICWP), Camera solutions, RVT, centralizing APP units - UTM: primarily registration of drones and drone-flights planned. Next steps will be defined within HEADING 030. - Development of SIEM/SOC, security architecture,... - Electric Power Supply - Investments in corporate IT, service desk, measuring devices, <i>technical facilities in ACG's new Headquarter</i> EB-Department, Spare Parts, dependent changes
--	---

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand ⓘ
- Austria failed to provide required capacity in second half of the RP2. According to the capacity plan in the NOP 2019 - 2024, for the RP Austria provides capacity 3 to 4% lower than previous NOP. With actual capacity gaps estimated for duration of entire RP3, Austria is not expected to meet the reference values and is going to generate delays at higher levels than the network capacity requirements despite all introduced measures.
- There is very limited and only general information provided on the investment investments which contain several sub-investments and activities in the performance plan. This fact makes the assessment of the investments' contribution to capacity increase difficult. Many of the investments in 3.5.2.1 above marked as having 'No' justified link with measures to achieve capacity could actually have a link if more details are provided to enable the proper assessment.
- As the major investments are planned to enter operation only in 2024/2025, it is not possible with the given level of provided information, to assess the link between the investments and the capacity enhancement measures due to different timing of the measures in the NOP.
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ⓘ
- Limited information regarding the investments make the assessment difficult. All the major investments are planned to enter into operation at the end (2024) or even beyond (2025), bringing the benefits only in the future reference periods. From the limited description of the projects, it seems that the major investments do not reflect capacity needs and traffic level in RP3. The demand could be reflected by other new and existing investments overlapping from the RP2. However, more information is needed for the assessment.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ⓘ
- There is no information on timing of expenditures in the performance plan, thus assessing the plan is not possible. The reason is justified by Austria (section 2.1.1 of the performance plan) as due to grouping of many different sub-projects and activities under 5M€ with different life-cycles and entries into operations into bigger investment clusters.

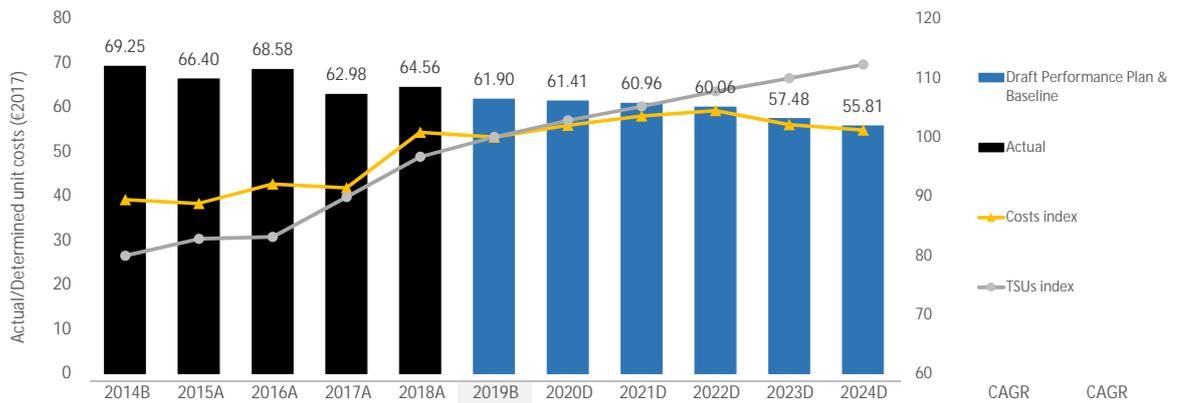
3.5.4 PRB Key Points ✖

- Austria does not provide the annual breakdown of determined cost per investment nor per investment category (i.e. new major, other new and existing investments). Generally, Austria provides limited information regarding the investments planned.
- Major investments are planned to enter operation only in 2024/2025. Major investments are clusters of many different sub-projects and activities under 5M€ with different life-cycles and entries into operations.

AUSTRIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	178	177	185	187	210	-	218	225	231	229	231	-	+2.7%
Total costs	M€ (2017)	183	182	189	187	206	205	209	212	214	209	207	+0.2%	+1.2%
TSU	'000	2,645	2,739	2,750	2,974	3,198	3,310	3,403	3,480	3,564	3,638	3,715	+2.3%	+3.5%
AUC/DUC	€ (2017)	69.25	66.40	68.58	62.98	64.56	61.90	61.41	60.96	60.06	57.48	55.81		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	69.25	66.40	68.58	62.98	64.56	61.90	61.41	60.96	60.06	57.48	55.81		
Annual change	%		-4.1%	+3.3%	-8.2%	+2.5%	-4.1%	-0.8%	-0.7%	-1.5%	-4.3%	-2.9%	-2.1%	-2.1%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified? 61.90 €2017 ✘

The 2019 traffic baseline is in line with STATFOR October 2019 base forecast, which is -1.75% lower than the STATFOR February 2019 base forecast. The use of STATFOR October forecast came with the update of the draft performance plan in November 2019 (after the completeness verification) while the draft performance plan submitted in October 2019 was using the February forecast. This update was not expected.

Austria indicates that the 2019 cost baseline has been established on the latest actual budgets for the year 2018 and the first quarter of 2019. No detailed explanations are provided on the planned changes for individual cost items. The 2019 cost baseline is close to the 2018 actual costs.

4.1.3 Summary of cost-efficiency assessment results

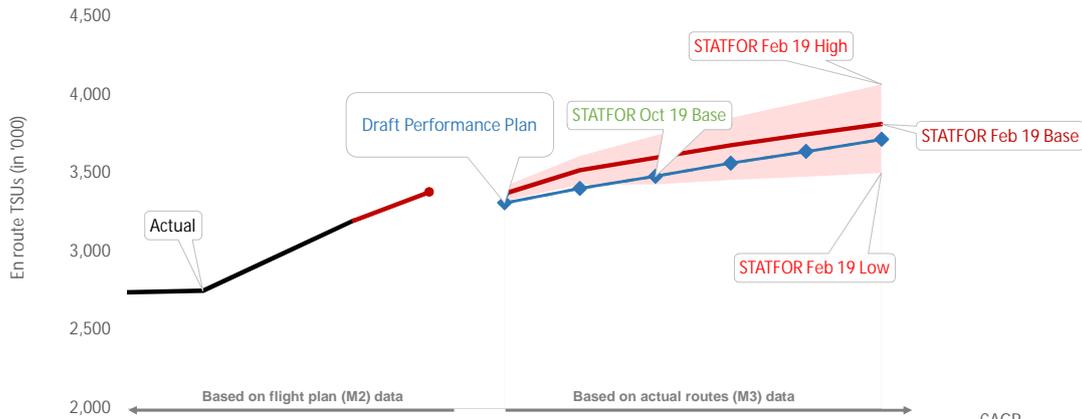
- a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? -2.1% ✔
 The DUC is planned to decrease on average by -2.1% between 2019 and 2024, which is better than the RP3 Union-wide trend (-1.9%). The target is achieved on average and not as a reduction per year.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? -2.1% ✘
 The DUC is planned to decrease on average by -2.1% between 2014 and 2024, which is worse than the long-term Union-wide trend (-2.7%). The 2024 determined costs include some exceptional items (IAS 19 transition effect spread over 14 years from 2016 onwards). If excluding these exceptional items from the 2024 determined costs, the long-term trend would be -2.6%.
- c) DUC level (2019 baseline) lower than the average of comparator group (E) average (78.81 €2017)? -21.5% ✔
 The 2019 DUC level is -21.5% lower than the average of the comparators group. The gap is planned to further increase during RP3, reaching -30.6% in 2024.
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? n/a
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? n/a

4.1.4 PRB Conclusions ✔

The PRB concludes that the cost-efficiency targets as proposed by Austria should be approved.

- Austria is meeting the RP3 DUC trend in terms of average reduction.
- Austria is not achieving the long-term Union-wide DUC trend.
- Austria is consistent with the average DUC baseline of the comparator group.

4.2.1 Overview of service units forecasts for RP3



	2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	2,739	2,750	2,974	3,198							
Annual change	%		+0.4%	+8.1%	+7.5%							
STATFOR Feb 19 Base	'000 TSUs				3,379	3,369	3,519	3,599	3,678	3,747	3,813	+2.5%
Annual change	%				+5.6%	+5.3%	+4.4%	+2.3%	+2.2%	+1.9%	+1.8%	
STATFOR Oct 19 Base	'000 TSUs				-	3,310	3,403	3,480	3,564	3,638	3,715	+2.3%
Annual change	%				-	+3.5%	+2.8%	+2.3%	+2.4%	+2.1%	+2.1%	
Performance Plan	'000 TSUs					3,310	3,403	3,480	3,564	3,638	3,715	+2.3%
Annual change	%					+3.5%	+2.8%	+2.3%	+2.4%	+2.1%	+2.1%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months
2019B (PP baseline, M3)	3,310		
2019F (as in the Reporting tables, M2)	3,310		
2019B/ 2019F	0.00%	-0.29%	-0.41%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	3,310			
2019F (STATFOR Feb 19, M3)	L 3,321	B 3,369	H 3,415	-1.75%
2019F (STATFOR Oct 19, M3)	L 3,287	B 3,310	H 3,332	=B

The 2019 traffic baseline is in line with the STATFOR October 2019 base forecast, which is -1.75% lower than the STATFOR February 2019 base forecast.

Looking at year-to-date actual developments (until November 2019), the traffic increases between 2018 and 2019 is +4.4%, which is between the February and the October forecasts of STATFOR.

The 2019 traffic forecast presented in the en route reporting tables is the same as the baseline (3,310 TSUs), despite the fact that the forecast shown in the reporting tables should be expressed in M2 (planned route) instead of M3 (actual routes).

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Austria mentioned in its response to the completeness verification process that October was the latest STATFOR forecast available.

Review of the PP traffic forecast

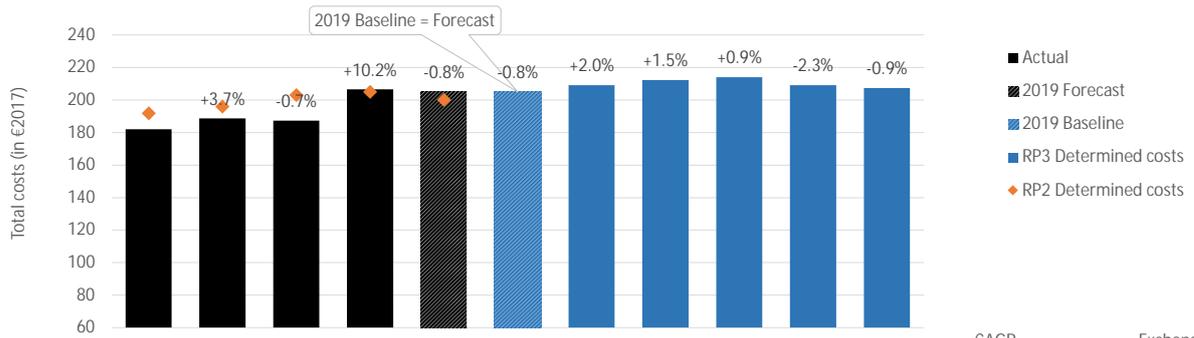
The use of STATFOR October forecast came with the update of the draft performance plan in November 2019 (after the completeness verification) while the draft performance plan submitted in October 2019 was using the February forecast. This update was not expected.

Between 2019 and 2024, the October forecast corresponds to a CAGR of +2.3%, which is slightly less than the +2.5% from the February forecast.

4.2.4 PRB Key Points

- The use of STATFOR October 2019 forecast came with the update of the draft performance plan in November 2019 (after the completeness verification) while the draft performance plan submitted in October 2019 was using the February forecast. This update was neither required nor expected.

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	177	185	187	210	211	-	218	225	231	229	231	-	€:€
Annual change	%	-	+4.5%	+1.1%	+12.1%	+0.4%	-	-	+3.1%	+2.5%	-0.7%	+0.8%	-	1.00000
Inflation index	2017 = 100	96.9	97.8	100.0	102.1	103.6	103.6	105.6	107.6	109.8	112.0	114.2	+2.0%	
Total costs	M€ (2017)	182	189	187	206	205	205	209	212	214	209	207	+0.2%	
Annual change	%	-	+3.7%	-0.7%	+10.2%	-0.8%	-0.8%	+2.0%	+1.5%	+0.9%	-2.3%	-0.9%		
Total costs	M€ (2017)	182	189	187	206	205	205	209	212	214	209	207	+0.2%	

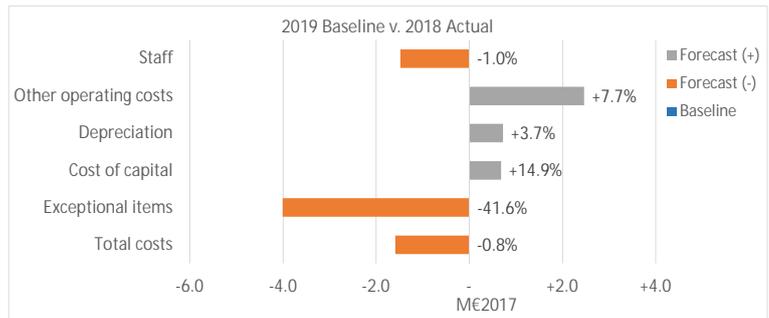
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

The inflation rates used in the performance plan for the years 2019-2023 are slightly below the IMF forecasts. By the end of RP3, the cumulative effect on the inflation index is less than 1 index point. The impact on the results of this analysis is negligible.

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	-1.6	-0.8%
2019F v. 2019 RP2 DC	+4.9	+2.4%
2019F v. average 2015-2018	+13.8	+7.2%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

Austria indicates that the 2019 costs forecast has been established on the latest actual budgets for the year 2018 and the first quarter of 2019. No detailed explanations are provided on the planned changes for individual cost items.

The 2019 forecast is -0.8% lower than the 2018 actual costs mainly due to the reporting of lower exceptional costs in 2019. The exceptional costs reported by Austria reflect the effect of application of IAS19 by Austro Control (end of the application on the corridor approach at 31 December 2012). Such costs are spread over 14 years (starting in 2016) with varying amounts charged to airspace users depending on the years in RP2. If excluding these exceptional costs, the 2019 forecast would be +1.2% above the 2018 actual costs and +7.3% above the 2015-2018 average.

Finally, the 2019 costs forecast is 2.4% higher than the 2019 determined costs from RP2, while actual traffic by the end of RP2 is likely to be 10% higher than expected.

2019 baseline analysis

The 2019 cost baseline is in line with the 2019 cost forecast.

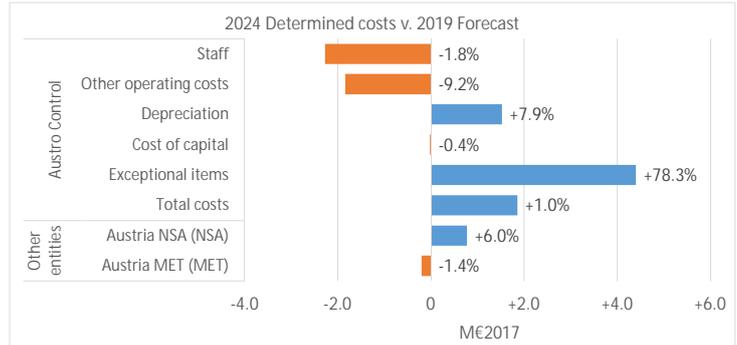
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✗ Investments (see details in 3.5)
- ✓ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



Between 2019 and 2024, the total costs for Austro Control are planned to increase by +1.0% (or +1.9M€2017) mainly due to the combination of:

- increase in depreciation costs (+7.9% or +1.5M€2017) and exceptional costs (+78.3% or +4.4M€2017); partially compensated by
- decrease in staff costs (-1.8% or -2.3M€2017) and other operating costs (-9.2% or -1.8M€2017).

Austria does not provide a very detailed description of the main factors explaining the planned variations over the reference period. It is understood from the information provided in Annex A of the performance plan that staff costs and non-staff operating costs are planned to increase in nominal terms due to the recruitment of ATCOs and their training but that these increases are already compensated by inflation. Concerning the observed increase in exceptional items, as mentioned above, it reflects the charging of a higher amount in 2024 than in 2019 for the IAS19 conversion effect.

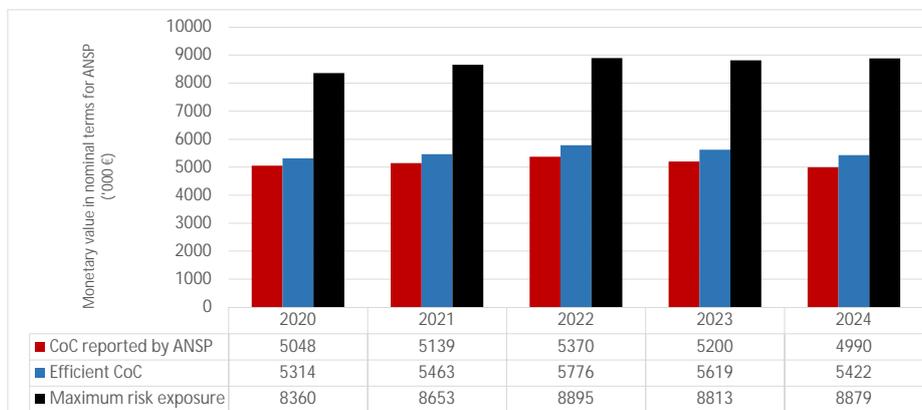
4.3.4 PRB Key Points

- The level of costs are impacted by the reporting of exceptional items (IAS19 transition effect). If excluding these exceptional costs, the 2019 forecast would be +1.2% above 2018 actual costs and +7.3% above the 2015-2018 average.
- The 2019 costs are close to 2018 actual. They are higher than the 2015-2018 average but traffic was some +10% higher than planned, which can possibly explain this deviation.
- Between 2019 and 2024, the total costs for Austro Control are planned to increase by +1.0% (or +1.9M€2017).
- Only limited information regarding the investments has been provided in the performance plan.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	189,997	196,652	202,164	200,286	201,798
Monetary value of Return on Equity	5,048	5,139	5,370	5,200	4,990
Ratio RoE/DC (%)	2.7%	2.6%	2.7%	2.6%	2.5%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.3%	8.5%	7.3%	8.7%	7.3%	9.0%	7.3%	9.2%	7.3%	9.3%
Interest on debts	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
Capital structure (% debt)	84.0%	84.0%	84.0%	84.0%	84.0%	84.0%	84.0%	84.0%	84.0%	84.0%
WACC	4.0%	4.2%	4.0%	4.3%	4.0%	4.3%	4.0%	4.3%	4.0%	4.3%

Is the interest on debts in line with the market? **Yes**

- Austro Control does not have any loans at the moment but does not exclude the possibility for the need at a later stage. However, the cost of debt has been calculated based on the CAPM model assuming that 84% is financed via debt. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.
- The efficient cost of capital is computed in line with competitive market practices and with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

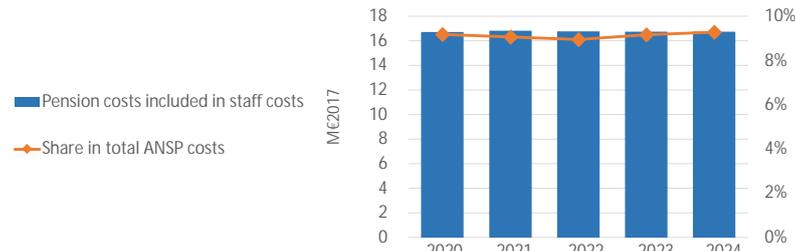
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	126,188	128,483	134,250	129,998	124,743
Net current assets	0	0	0	0	0
Adjustments total assets	0	0	0	0	0
Total asset base	126,188	128,483	134,250	129,998	124,743

- The fixed asset base slightly decreases over the period, partially in line with the investments described in section 3.5 of this document, that increase just 1% over the period.
- There are no net current assets.
- The RAB does not include adjustments to the total asset base.
- The total asset base slightly decreases over the period, in line with the fixed asset base.

4.3.A.5 PRB Key Points

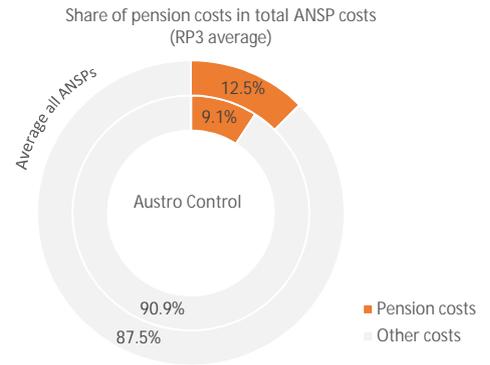
- The cost of capital is in line with the maximum risk exposure and does not present major issues.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	16.7	16.8	16.8	16.7	16.8
Year on year variation	% change		+0.6%	-0.3%	-0.2%	+0.1%
Share in total ANSP costs	%	9.2%	9.1%	9.0%	9.2%	9.3%
Year on year variation	p.p.		-0.1p.p.	-0.1p.p.	0.2p.p.	0.1p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Slight increase**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

Although in its financial accounts Austro Control reports the interest expenses relating to its defined benefit obligation as a financial cost, Austria confirms that these interest expenses are classified as staff costs in Annex A of the performance plan.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

Austro Control contributions to the State pensions are part of its social security contributions and are not identified as a separate element. These pension contributions are not included in the pension costs reported in Annex A of the performance plan.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer contribution rates to the two defined contribution schemes are planned to remain stable during RP3.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

The employer contribution rates to the defined benefit schemes are planned to remain stable during RP3.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Staff joining after 1997 is only eligible for membership to the defined contribution scheme.

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Austria did not mention changing the cost allocation methodology with respect to RP2.
- The types of costs are allocated to cost centres. These cost centres are distributed actively based on the cost units by service. The allocation is done directly or by justified shares in line with the Eurocontrol principles to the different air navigation services.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

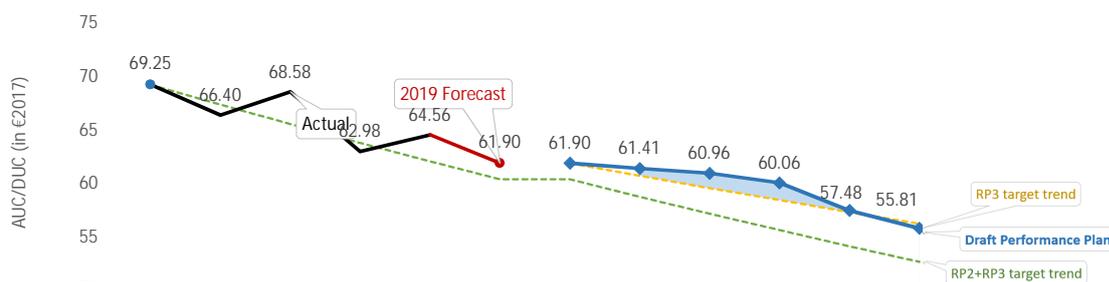
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.3.C.3 PRB Key Points ✔

- Austria did not mention changing the cost allocation methodology with respect to RP2.
- No major issues have been identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
AUC/DUC	€2017 69.25	66.40	68.58	62.98	64.56	61.90	61.90	61.41	60.96	60.06	57.48	55.81	-2.1%	-2.1%
Annual Change	%	-4.1%	+3.3%	-8.2%	+2.5%	-4.1%	-4.1%	-0.8%	-0.7%	-1.5%	-4.3%	-2.9%		

4.4.2 DUC consistency

- ✓ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	-2.1%	Union-wide trend	-1.9%	Difference	-0.2p.p.
PP trend	-2.1%	Union-wide trend	-2.7%	Difference	+0.6p.p.
PP 2019 baseline	61.90	Average comp. group	78.81	Difference	-21.5%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The DUC is planned to decrease on average by -2.1% between 2019 and 2024, which is better than the RP3 Union-wide target (-1.9%).

The DUC is also planned to decrease by -2.1% per year between 2014 and 2024, which is worse than the long-term Union-wide trend (-2.7%). However, the 2024 determined costs include some exceptional items (IAS19 transition effect spread over 14 years from 2016 onwards). If excluding these exceptional items from the 2024 determined costs, the long-term trend would be -2.6%.

The 2019 DUC level is -21.5% lower than the average of the comparators group. The gap is planned to further increase during RP3, reaching -30.6% in 2024.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs

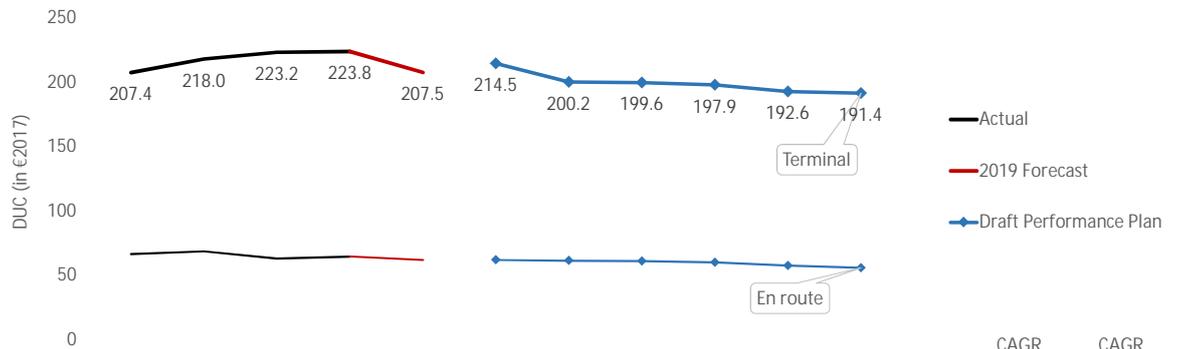
n/a

4.4.5 PRB Key Points

✓

- Austria is meeting the RP3 DUC trend in terms of average reduction.
- Austria is not achieving the DUC long-term Union-wide trend.
- Austria is consistent with the average DUC baseline of the comparator group.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal	€2017	207.4	218.0	223.2	223.8	207.5	214.5	200.2	199.6	197.9	192.6	191.4	-2.3%	+0.0%
Annual Change	%		+5.1%	+2.4%	+0.2%	-7.3%	-4.1%	-6.7%	-0.3%	-0.9%	-2.7%	-0.6%		
AUC/DUC - En route	€2017	66.4	68.6	63.0	64.6	61.9	61.9	61.4	61.0	60.1	57.5	55.8	-2.1%	
Annual Change	%		+3.3%	-8.2%	+2.5%	-4.1%	-4.1%	-0.8%	-0.7%	-1.5%	-4.3%	-2.9%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Vienna (LOWW)	GROUP I	139.5	180.7	+29.5%	130.5	159.5	+22.3%
Linz (LOWL)	GROUP IV	673.8	493.7	-27.7%	647.6	539.8	-16.7%
Salzburg (LOWS)	GROUP IV	673.8	290.6	-56.9%	647.6	282.6	-56.4%
Innsbruck (LOWI)	GROUP IV	673.8	379.7	-43.6%	647.6	368.1	-43.2%
Graz (LOWG)	GROUP IV	673.8	405.7	-39.8%	647.6	430.3	-33.6%
Klagenfurt (LOWK)	GROUP IV	673.8	964.3	+43.1%	647.6	1008.1	+55.7%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

- Overall, the RP3 terminal DUC trend (-2.3%) is slightly better than the en route DUC trend (-2.1%).
- Vienna, the main airport, had a DUC +29.5% higher than the comparators group average over 2015-2018. The gap is planned to be reduced to +22.3% on average over RP3.
- Other airports (with the exception of Klagenfurt) were much cheaper than the comparators group average over 2015-2018. This situation is planned to be maintained during RP3.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	207.8			
2019F (STATFOR Feb 19)	L 206.5	B 207.1	H 207.4	+0.34%
2019F (STATFOR Oct 19)	L 207.7	B 207.8	H 207.9	=B

Costs

2019 forecast & baseline review	M€2017	%
2019 Forecast v. 2018 Actual	-1.2	-2.7%
2019 Forecast v. Avg. 2015-2018 Actual	+2.2	+5.3%
2019 Baseline v. 2019 Forecast	1.5	+3.4%

Austria used the STATFOR October 2019 base forecast. Contrary to en route, the STATFOR October 2019 base forecast for terminal traffic is slightly higher than the STATFOR February 2019 base forecast.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

No specific justification beyond mentioning that this is the latest available STATFOR forecast.

Review of the PP traffic forecast

Contrary to en route, the STATFOR October 2019 base forecast for terminal traffic is slightly higher than the STATFOR February 2019 base forecast.

Determined costs (terminal)

Is inflation in PP in line with IMF (April 2019 forecast)?

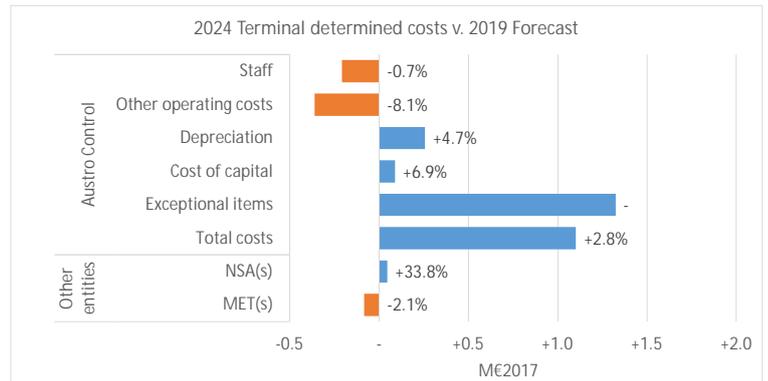
Deviation from index < 1p.p. in 2024

Cost elements - Austro Control (terminal)

- ✗ Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- With respect to the total costs, the share of terminal investment costs (22%) is higher than share of terminal costs (18%).
- Terminal WACC and its parameters are equal to the ones for en route.
- Changes in the different cost items follow a similar pattern as for en route, with exceptional items being the main driver for the planned increase.

4.5.4 PRB Key Points

- The Terminal RP3 DUC trend is -2.3%, which is better than the en route RP3 DUC trend of -2.1%.
- The Terminal RP3 DUC trend is -2.3%, which is better than the Terminal RP2 DUC trend of +0.0%.
- Vienna, the main airport, had a DUC 29.5% higher than the average of its comparator group over RP2. The difference is expected to be +22.3% over RP3. The other airports included in the performance plan range from a DUC 56.9% lower to 43.1% higher over RP2. The differences are expected to range from 56.4% lower to 55.7% higher over RP3.
- Austria used the STATFOR October 2019 base forecast for terminal traffic. The baseline of this forecast is slightly higher (+0.34%) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to an increase in exceptional items.

PRB Assessment

BULGARIA

Draft Performance Plan

Context and scope

Bulgaria

Performance Plan: Draft performance plan (Article 12) Dated: 18.11.2019
 Documents no: 1620, 1628, 1621, 1622, 1623

Relative weight compared to the SES area (2018):	
% Flight-hours v. SES	1.3%
% Costs V. SES	0.9%

Scope

FAB:	DANUBE FAB
ANSPs:	BULATSA
Other entities (as per Article 1(2) last para. of Regulation 2019/317):	EUROCONTROL Bulgarian NSA

ATM/ANS
Other NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Bulgaria	n/a	No	No	No	<p>ER 100% TRM 0%</p>
Terminal	n/a	n/a	n/a	n/a	n/a	
Changes in the CZs from RP2		Yes				
No terminal charging zone has been included in the RP3 performance plan.						

Comparator group:	Group C	Other States in the comparator group:	Croatia Czech Republic Hungary Poland Portugal Romania Slovakia Slovenia
-------------------	---------	---------------------------------------	---

Currency:	BGN	Exchange rate:	1.95543
-----------	-----	----------------	---------

1. Safety



Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
BULATSA	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Bulgaria should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures proposed are found sufficient at ANSP level, however additional measures should be defined at the NSA level derived from Commission Implementing Regulation (EU) 2017/373 to achieve the RP3 safety targets levels.
- The PRB notes that no investments are needed to achieve the safety performance targets.

2. Environment



Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.95%	1.91%	1.87%	1.87%	1.87%

PRB Assessment

The PRB concludes that the environment targets proposed by Bulgaria should be approved.

- BULATSA's horizontal flight efficiency targets are consistent with its reference values published in the June 2019 ERNIP.

3. Capacity



Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.17	0.16	0.14	0.10	0.10
National target for terminal and airport ANS ATFM arrival delay per flight (min)	n/a	n/a	n/a	n/a	n/a

PRB Assessment

The PRB concludes that the capacity targets proposed by Bulgaria should be approved.

- The PRB notes that the incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.
- The PRB will monitor the effects of the opening of the new airport in Istanbul on the European ATM Network over the years of RP3.

4. Cost-efficiency



Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	28.08	27.41	26.75	26.22	25.66	-1.2%	-2.2%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	n/a	-

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Bulgaria should not be approved.

- Bulgaria artificially meets the Union-wide RP3 DUC trend due to the utilisation of an in-house traffic forecast.
- Bulgaria does not achieve the Union-wide long-term trend.
- DUC baseline is lower than the average of the comparator group.
- The cost deviation from cost-efficiency long-term trend is not exclusively considered related to capacity measures.

PRB Recommendations

SAFETY

- Bulgaria should define explicit measures at the NSA level derived from Commission Implementing Regulation (EU) 2017/373

ENVIRONMENT

- Bulgaria should ensure that application of the FUA concept minimises the impact of airspace reservations/segregation on civil airspace users

CAPACITY

- Bulgaria should revise the incentive scheme so that it has a material impact on the revenues and motivates the ANSP to improve its performance.

COST EFFICIENCY

- Bulgaria should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Bulgaria should apply the STATFOR base scenario in the computation of the en route determined unit cost.

BULGARIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering the starting safety levels, the ANSP will need to improve in the safety risk management area. The draft performance plan provides the relevant and sufficient measures to improve safety risk management at the ANSP level. Additional measures at the NSA level are required to ensure compliance by the NSA with Commission Implementing Regulation (EU) 2017/373.

1.1.3 Interdependencies and Trade-offs

The draft performance plan describes that the mechanism to monitor the impact of the changes to the ATM Functional system on safety relies on the standard safety assessment processes and the specific internally developed mechanism called "Balanced Score Card system."

1.1.4 Change Management

The draft performance plan declares that the BULATSA change management process is endorsed by DG CAA and oversighted by the NSA. One of the objectives of the change management plan is to assess if there is any negative impact on the network performance.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Bulgaria should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures proposed are found sufficient at ANSP level, however additional measures should be defined at the NSA level derived from Commission Implementing Regulation (EU) 2017/373 to achieve the RP3 safety targets levels.

The PRB notes that no investments are needed to achieve the safety performance targets.

The PRB will closely monitor the implementation of measures derived from Commission Implementing Regulation (EU) 2017/373 during RP3 in its "RP3 watchlist".

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
BULATSA	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan demonstrates that BULATSA has a very mature safety management system that achieved level C at the end of RP2. Over the period of RP3, BULATSA needs to improve in the area of safety risk management from C to D. The draft performance plan proposes the specific ANSP measure indicating an enhancement of safety risk management by introducing a highly detailed systemic approach related to the assessment of changes to the ATM Functional system, for identification of hazards and risk management processes to the control of the safety risks in order to maintain the right balance between operational production and protection. The measure is relevant for the ANSP, however additional measures at the NSA are required to ensure compliance by the NSA with Commission Implementing Regulation (EU) 2017/373.

1.3.1 Interdependencies and Trade-offs

The draft performance plan declares that over the RP3 period, there are no planned investments that would negatively impact safety. The interdependencies between safety and other KPAs are monitored internally by specific indicators derived from the "Balanced Score Card system". The Balanced Score Card system, specific to BULATSA, takes into account timeliness of safety investigations, timeliness of safety directives implementation, number of safety assessments of changes performed on schedule, number of safety assessments updates and number of specific ATM occurrences as indicators.

1.3.2 Change Management Practices

Although no specific change management plans are listed, the draft performance plan declares that the BULATSA change management processes are endorsed by DG CAA and oversights by the NSA. The change management processes assess the safety impact of changes in the ATM Functional systems of the ANSPs together with its external interfaces, including the interfaces with the Network Manager in order to assess if there is any negative impact on the network performance. Assurance is provided through monitoring of the performance of risk controls and mitigation measures in the transitional phases to the implementation and post-implementation period of the change.

BULGARIA

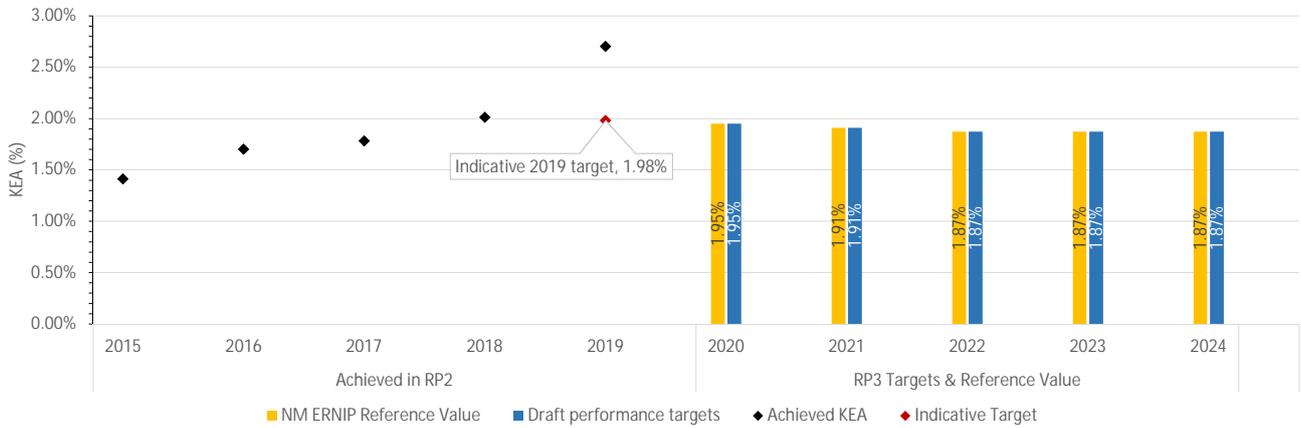
Environment KPA

2.1 Summary of environment key data and assessment results

Bulgaria

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.95%	1.91%	1.87%	1.87%	1.87%
Draft performance targets	1.95%	1.91%	1.87%	1.87%	1.87%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Bulgaria should be approved.

- BULATSA's horizontal flight efficiency targets are consistent with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
Since November 2019, BULATSA has offered airspace users SEE FRA - the 24-hour FRA including Romania and Hungary.		Annex P	Page 47
Major ERNIP Recommended Measures:	2	Reference in PP	Reference in ERNIP
Measure included within performance plan?		Annex P	Page 121
Implementation of SEE FRA	✓	Annex P	Page 90
Implementation of SEEN FRA Phase 2	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Bulgaria achieved a KEA of 2.70% in 2019 and needed to meet an indicative target of 1.98% in 2019 to achieve the planned target of 1.95% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achieved value and the 2020 reference values.

BULATSA offers a 24-hour FRA to its airspace users in partnership with Romania and Hungary. However, Bulgaria's lowest available limit is higher than its partners' offering. Despite the offering of FRA, BULATSA operates several TRAs for air combat training between GND and FL245 which may affect airspace users.

Bulgaria's horizontal flight inefficiency increased in each year of RP2 with performance at the beginning below 1.50% and rising above 2.00% in 2018. In 2019, Bulgaria's KEA drastically increased due to a change in the data underlying the KPI calculation. Bulgaria provided a comprehensive explanation in Annex P of its draft performance plan to explain the issues it is facing. Bulgaria claims that:

- KEA was heavily influenced by the geopolitical situation in Ukraine;
- An additional ban imposed on Russian aircraft in Ukrainian airspace further increased pressures;
- Airline preferences for routes vary due to jet stream conditions;
- There is some "completely wrong data" regarding flights which skew calculations.

In terms of the latter issue, the PRB finds that Bulgaria maintained a strong local efficiency and that network inefficiency had risen over RP2. Since this is not entirely within Bulgaria's control, the PRB acknowledges these explanations. However, it must be stressed that this does not mean there is "wrong data".

2.3.1 Annex IV 2.1(f): Incentive Scheme

Does Bulgaria plan for an environmental incentive scheme?	✗
Bulgaria does not plan to apply an optional incentive scheme for the environment KPA.	

BULGARIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The capacity targets follow national reference values, NOP delay forecasts are below these.

Capacity enhancement measures and capacity plans are in line with the planned capacity profile, making the targets realistic.

Bulgaria plans a buffer of capacity in agreement with the NM to handle extra traffic to and from the new Istanbul airport.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay n/a

3.1.3 Incentives

Pivot value is based on the reference values provided in the NOP. The delay forecast in the NOP shows that the ANSP expects to easily achieve the targets and the full bonus (0.01 minutes per flight annually in 2020-2024). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

The main capacity benefits in RP3 are expected from other new and existing investments (such as upgrade of the ATM system) in support of the operational measures (such as full FRA, sectorisation and ATFCM improved procedures).

The major investment projects #1 and #2 are capacity related, however, project #1 (new ATM system) will enter into operations in RP4 and project #2 is a surveillance system replacement, although, with capacity supporting features and functionalities.

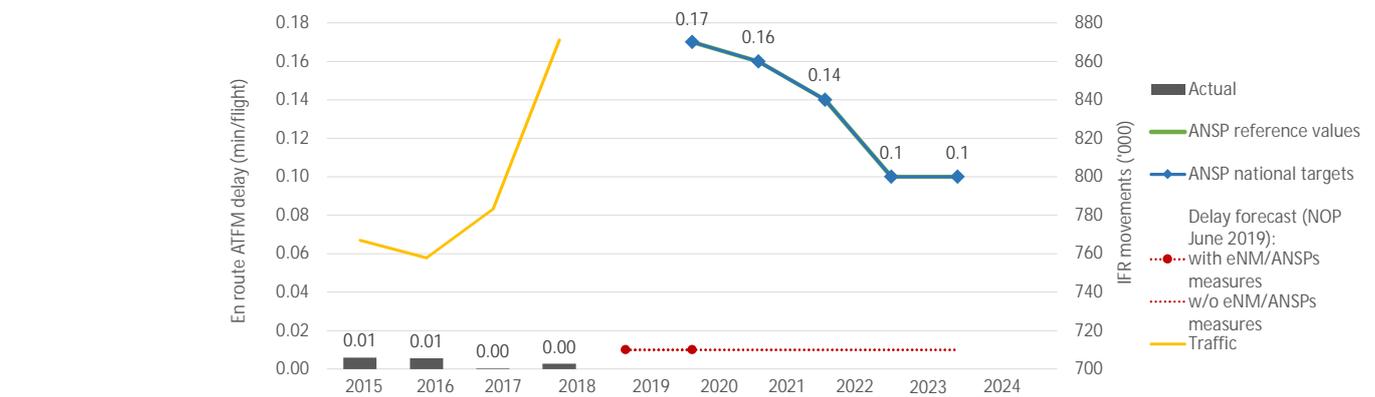
3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets proposed by Bulgaria should be approved.

- The PRB notes that the incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.
- The PRB will monitor the effects of the opening of the new airport in Istanbul on the European ATM Network over the years of RP3.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+12.2%	-1.2%	+3.4%	+11.2%						
Actual ATFM delay per flight	0.01	0.01	0.00	0.00						
ANSP reference values						0.17	0.16	0.14	0.10	0.10
ANSP national targets						0.17	0.16	0.14	0.10	0.10
Forecast with eNM/ANSPs measures*					0.01	0.01				
Forecast w/o eNM/ANSPs measures*					0.01	0.01		0.01		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- Increased number of ATCOs;
- Investments into ATM systems to increase the number of sectors;
- Flexible use of ATCO personnel, flexible rostering.

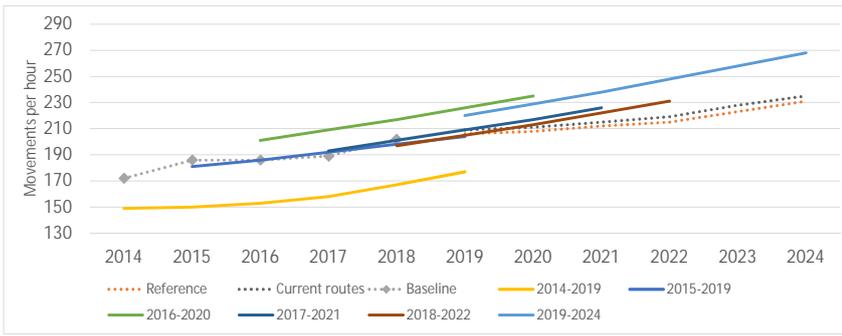
Measures outlined in the performance plan are in line with those of the NOP.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Sofia ACC (LBSR)	Additional ATCOs in OPS to start working in the OPS room	0	15	16	16	16	16	16	+76
	ATCOs in OPS to stop working in the OPS room	0	2	0	1	0	2	1	
	ATCOs in OPS to be operational at year-end	146	159	175	190	206	220	235	
Total - BULATSA (en route)	Additional ATCOs in OPS to start working in the OPS room	0	15	16	16	16	16	16	+76
	ATCOs in OPS to stop working in the OPS room	0	2	0	1	0	2	1	
	ATCOs in OPS to be operational at year-end	146	159	175	190	206	220	235	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Sofia ACC (LBSR)



- Historical data shows that baseline values increased by an average annual growth of 4.2% over RP2. Capacity plans are consistently higher than baseline values from 2016 onwards.

- Latest capacity plans show a steady annual growth of around 4% for each year of RP3. This results in capacity profiles which are 9.2-13.8% higher than the reference profile, thus showing a capacity surplus for all years.

- The capacity surplus visible in the planned profile is due to Bulgaria planning against the 'High Traffic Growth Hypothesis Capacity Profile' as per the discussions with the Network Manager to allow for the extra capacity need generated by the opening of the new Istanbul airport.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						206	208	212	215	223	231
Current routes						209	211	215	219	228	235
Baseline	172	186	186	189	202						
2014-2019	149	150	153	158	167	177					
2015-2019		181	186	192	198	204					
2016-2020			201	209	217	226	235				
2017-2021				193	201	209	217	226			
2018-2022					197	205	213	222	231		
2019-2024						220	229	238	248	258	268

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- National targets follow the national reference values and the NOP delay forecasts are below the national reference values.
- Capacity enhancement measures are detailed and generate a capacity surplus based on the latest capacity plans.
- Bulgaria is planning for a buffer to cater for the extra demand stemming from the opening of the new airport in Istanbul.

3.3. Arrival ATFM delay per flight (not applicable)

Bulgaria

Bulgaria has not established any terminal charging zone for RP3.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.05 min	0.200%	0.400%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.17	0.16	0.14	0.10	0.10
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.17	0.16	0.14	0.10	0.10
Pivot values for RP3	0.17	0.16	0.14	0.10	0.10

Threshold review

Threshold is symmetrical around pivot value, which is based on reference values provided in the NOP.

Modulation review

No modulation mechanism will be applied, with caveat that no bonus will be payable if traffic levels are below published forecast traffic levels.

Review of financial advantages/disadvantages

Full bonus of 0.2% of the revenue countered with full penalty of 0.4% of the revenue. Delay forecast in the NOP shows that the ANSP expected to easily achieve targets and full bonus (0.01 minutes per flight annually 2020-2024).

3.4.2 Terminal capacity incentive scheme n/a

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✘

- Full bonus of 0.2% of the revenue countered with full penalty of 0.4% of the revenue. Delay forecast in the NOP shows that the ANSP expected to easily achieve targets and full bonus (0.01 minutes per flight annually 2020-2024).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0
En route	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0
Terminal	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0

RP3 investment ratio ER/TRM

TRM 0%

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	New ATM system (incl. en-route AMAN and backup)	Procurement and deployment of a new automated ATC system for the main and the contingency ACC to implement the Common projects and the SESAR deployment program	40.9	Yes	Yes	0.6	0.0
2	New PSRs and SSRs East part of Sofia FIR	New Mode S TMA PSRs and SSRs at Varna and Burgas airports replacing the existing radars and new en-route Mode S radar at Shabla.	16.4	Yes	Yes	6.9	0.1
3	Building of Contingency and Data Center and Equipment	Construction of a contingency ACC & data center. The center will consist of operational & technical room and data center that will support contingency operations and intercenter connectivity in case of significant degradation or interruption of main ACC center operations.	11.3	Yes	No	1.9	0.0
Total:						9.4	0.1

Airspace user feedback regarding major investments

Airspace users are concerned about the ambitious level of investments planned. They required Bulgaria to present cost benefit analysis of the proposed projects, as well as their correlation with the KPAs. Bulgaria claimed to have provided appropriate analysis in the performance plan.

Review of investments

New major investments represent 9% of the total determined costs over RP3. Investment #1 - "New ATM system" and Investment #3 - "Building of Contingency and Data Center and Equipment" are reported in RP3 as new major investments. However, these investments were included in RP2 and the CAPEX originally planned is lower than the actual expenditure in RP2 to date.

2015-2018 actual CAPEX delivery reaches 70% of planned for the same period and the underspend amounts to 22.14M€. It is uncertain if this amount will be given back to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	72.6	66.8	1.7	4.5	7.6	10.0	11.3	35.0
Existing investments			17.1	14.9	12.6	11.3	10.5	66.4

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 31% of the total determined costs of investments over RP3, while existing investments represent 60%. These investments are listed in Annex E of the performance plan:</p> <ul style="list-style-type: none"> - An upgrade of the existing ATM system (already signed in the 2Q 2019); In view of the physical planned expansion of the present ATM system Bulgaria is considering new investments over RP3 and one more upgrade during RP3. This is combined with the necessary supporting investment for changes in the OPS room; - Cybersecurity enhancement; - COM and IT infrastructure maintenance, enhancement and replacement; - NAV aids implementation; - Others, including those related to the implementation of the SES.
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand



During RP2, Bulgaria performed well in the Capacity KPA with zero delays. According to the NOP 2019-2024, the capacity plan introduced by Bulgaria for RP3 provides for required capacity for the whole reference period for all traffic scenarios. Apart from improvement in airspace management and ATFCM procedures, the capacity plan includes measures that are linked with the investment projects #1 and #2 provided by the performance plan, although the benefits from the investment #1 are expected to materialise not sooner than in RP4. Some of the projects make up for the postponed activities planned already for RP2. All investments are in line with the current ATM Master Plan, ESSIP and LSSIP, as well as in accordance with the investment needs and replacement cycle of the entity to ensure seamless operations. The contribution to the capacity increase in RP3 is expected mainly from the operational measures and the other new and existing projects.

Investment #1 is an implementation of the new ATM system with extended functionalities providing capacity enhancement measures; the project will build on the current ATM system upgrade (2019-2020) which is part of the existing investments;

Investment #2 is a replacement of PSR/SSR on the Black Sea Coast; it has been identified by the NOP as a capacity enhancement measure. It is expected to support the required capacity of the surveillance system responding to expected traffic growth in the area.

The other new (35.2M€) and existing investments (66.4M€) aim to guaranty the implementation of the ongoing projects. The level of details provided in the description of all investment projects, together with the uncertainty of the traffic volumes expected in the area, make the evaluation of whether the investment level is scaled to demand difficult.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan



The investment projects are aligned with the other capacity enhancement measures planned for RP3. According to the NOP 2019-2024, the projects timing and implementation is going to provide required capacity with reasonable surplus to respond to the high traffic profile growth. The first half of RP3 is capacity-wise supported by the operational measures and by the individual projects covered by the programmes included in the other new and existing projects. The seamless continuation of the capacity provision in RP4 will be supported by most of the major investment projects (#1 and #2).

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented



Bulgaria provided sufficient capacity in RP2 and is expected to continue so in RP3. Investments #1 (capacity relevant) and #3 (not capacity relevant) were reported already in RP2. Investment #1 (new ATM system) is not expected to provide capacity enhancement during RP3, as the planned date of entry into operation falls on 2026. The capacity benefits for early RP3 are expected from the upgrade of the ATM system (other new and existing investments in 2019/2020).

3.5.4 PRB Key Points

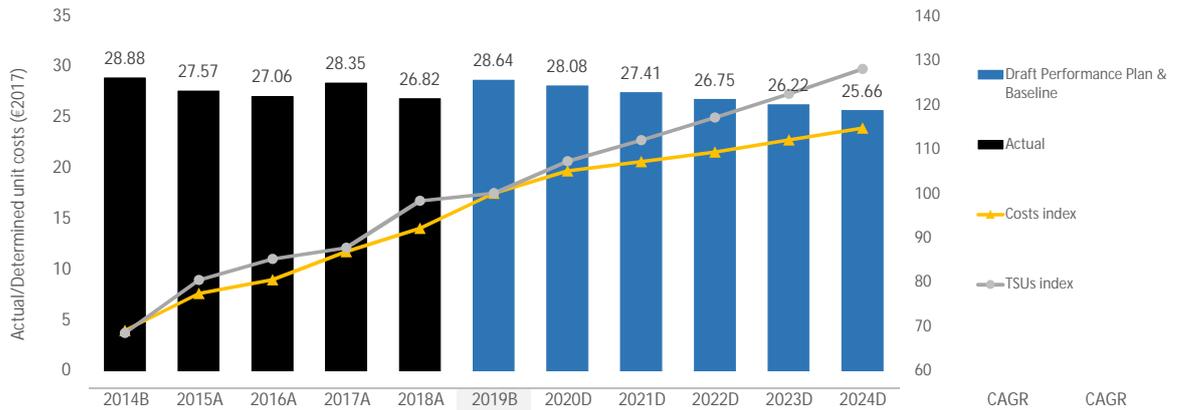


- Some of the reported major new investments were already included in RP2 and Bulgaria has delivered 70% of the CAPEX in RP2.
- The main capacity benefits in RP3 are expected from the other new and existing investments (such as upgrade of the ATM system) into support of the operational measures (such as full FRA, sectorisation and ATFCM improved procedures). The level of detail however, does not allow to make a proper evaluation of the level of contribution to the capacity increase.
- Investment #1 and #2 are capacity-related. However, investment #1 will enter into operation in RP4 and investment #2 is a surveillance system replacement (with capacity supporting features and functionalities).

BULGARIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MBGN (nom)	156	174	179	195	210	-	249	258	268	278	290	-	+6.4%
Total costs	MBGN (2017)	155	174	181	195	207	224	236	240	245	251	257	+2.8%	+5.2%
TSU	'000	2,744	3,223	3,413	3,513	3,938	4,005	4,292	4,484	4,687	4,900	5,125	+5.1%	+6.4%
AUC/DUC	BGN (2017)	56.48	53.90	52.91	55.44	52.45	56.01	54.91	53.59	52.31	51.27	50.18		
Exchange rate	BGN:€				1.955									
AUC/DUC	€ (2017)	28.88	27.57	27.06	28.35	26.82	28.64	28.08	27.41	26.75	26.22	25.66		
Annual change	%		-4.6%	-1.8%	+4.8%	-5.4%	+6.8%	-2.0%	-2.4%	-2.4%	-2.0%	-2.1%	-2.2%	-1.2%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	28.64 €2017	ⓘ
<p>The 2019 baseline TSUs selected in the performance plan are -4.2% below the STATFOR February 2019 base forecast. The choice of a lower baseline traffic for Bulgaria (compared to STATFOR forecast) is supported by the latest available TSU figures, which show that actual TSUs for 2019 were +2.9% above those recorded in 2018 (cumulative data until October 2019).</p> <p>Baseline costs are +8.6% above 2018 actual costs, in real terms. They reflect the determined costs (in nominal terms) adopted in the RP2 performance plan, which was revised for the years 2017-2019. According to the latest available RP2 monitoring report, the actual en route costs, in nominal terms, were -11.2% and -7.8% below determined costs for 2017 and 2018 respectively.</p>		

4.1.3 Summary of cost-efficiency assessment results

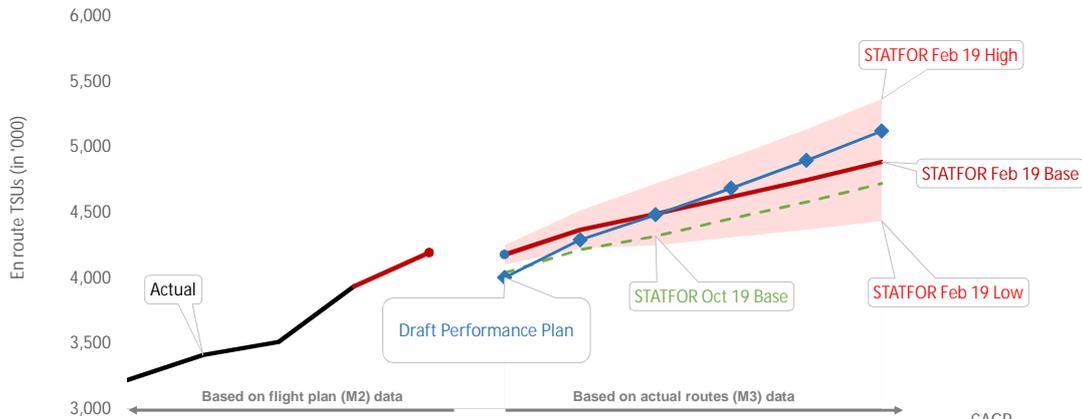
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-2.2%	ⓘ
<p>The RP3 DUC trend for Bulgaria of -2.2% is consistent with the RP3 Union-wide trend. However, the TSU forecast selected by Bulgaria for RP3 positively affects the resulting DUC trend. If Bulgaria had selected the STATFOR February 2019 base TSU forecast (including baseline), the resulting RP3 DUC trend would be on average -0.4% p.a.</p>		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-1.2%	✗
<p>The long term DUC trend for Bulgaria over 2014-2024 of -1.2% is above the Union-wide DUC trend of -2.7%.</p>		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (42.32 €2017)?	-32.3%	ⓘ
<p>The Bulgarian 2019 baseline DUC is -32.3% below the average of the comparator group. Ceteris paribus, Bulgarian DUC is expected to remain -38.7% below the average of comparator group by the end of RP3. Bulgarian 2019 baseline DUC is among the five lowest in all European States. It is expected to remain one of the lowest by the end of RP3.</p>		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		✗
<p>The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the long-term cost-efficiency target trend is +84.9M€2017. However, the cost deviations are not exclusively considered related to capacity measures.</p>		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?	n/a	

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Bulgaria should not be approved.

- Bulgaria artificially meets the Union-wide RP3 DUC trend due to the utilisation of an in-house traffic forecast.
- Bulgaria does not achieve the Union-wide long-term trend.
- DUC baseline is lower than the average of the comparator group.
- The cost deviation from cost-efficiency long-term trend is not exclusively considered related to capacity measures.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	3,223	3,413	3,513	3,938								
Annual change	%		+5.9%	+2.9%	+12.1%								
STATFOR Feb 19 Base	'000 TSUs					4,196	4,180	4,370	4,491	4,621	4,750	4,889	+3.2%
Annual change	%					+6.6%	+6.1%	+4.6%	+2.8%	+2.9%	+2.8%	+2.9%	
STATFOR Oct 19 Base	'000 TSUs					-	4,041	4,219	4,321	4,456	4,583	4,724	+3.2%
Annual change	%					-	+2.6%	+4.4%	+2.4%	+3.1%	+2.8%	+3.1%	
Performance Plan	'000 TSUs						4,005	4,292	4,484	4,687	4,900	5,125	+5.1%
Annual change	%						+1.7%	+7.2%	+4.5%	+4.5%	+4.6%	+4.6%	

4.2.2 Baseline review

✓ M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	✗ Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (PP baseline, M3)	4,005			2019B (PP baseline, M3)	4,005	
2019F (as in the Reporting tables, M2)	4,016			2019F (STATFOR Feb 19, M3)	L 4,102 B 4,180 H 4,249	-4.19%
2019B/ 2019F	-0.29%	-0.38%	-0.26%	2019F (STATFOR Oct 19, M3)	L 4,015 B 4,041 H 4,059	-0.89%

Baseline TSUs selected in the performance plan are -4.2% below STATFOR February 2019 base TSU growth forecast. According to the information provided in Annex F of the performance plan, the choice of the lower baseline TSU figure was driven by the traffic development observed in the first seven months of 2019. Furthermore, according to the RP3 performance plan, the impact of the NM measures, implementation of FRA, uncertainties related to Brexit and changes in traffic flows due to new "problematic" ACCs have also been considered. Indeed, this is supported by the latest available TSU figures, which show that actual TSUs for 2019 were +2.9% above those recorded in 2018 (cumulative data until October 2019), which is a much lower growth rate than the +6.1% foreseen in STATFOR February 2019 base scenario for 2019.

4.2.3 Review of the PP traffic forecast

✗ Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

According to the information provided in Annex D of the performance plan, Bulgaria prefers using in-house planning expertise since it allows to consider detailed local circumstances and factors, which are not necessarily available to STATFOR. It is assumed, that the situation in Ukraine (Simferopol and Dnipropetrovsk FIRs) will not improve during RP3, therefore, traffic flows to/from Turkey, Middle East and South-East Asia will continue to be concentrated in the Bulgarian airspace.

During RP2, actual TSUs were significantly above the STATFOR base forecasts and above the determined TSUs in the RP2 performance plan (+22.7% in 2015 and +28.0% in 2016), as a result of which Bulgaria revised its RP2 performance plan for the years 2017-2019.

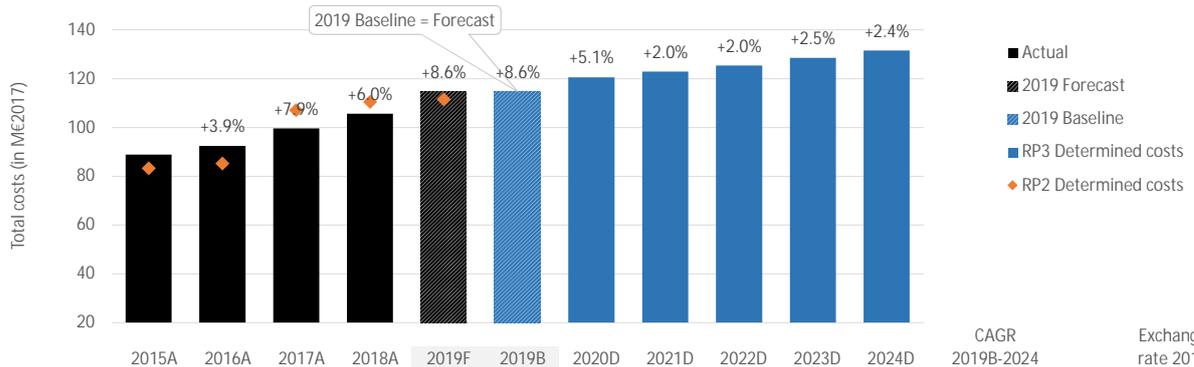
Review of the PP traffic forecast

The TSU forecast selected in the performance plan falls between STATFOR February 2019 low scenario (at the beginning of the period) and high scenario (at the end of the period). In this regard, it is noted that this distribution to TSUs (i.e. lower starting point, higher end) positively affects the calculated DUC vis-à-vis the Union-wide target trend (see section 4.4 for details). During the consultation with airspace users, Bulgaria was requested to provide a comparison of internally developed traffic forecasts, STATFOR and actual figures to verify the accuracy of forecasts. It is understood that this comparison has been provided in Annex D of the performance plan.

4.2.4 PRB Key Points

- Baseline TSUs selected in the performance plan are -4.2% below STATFOR February 2019 base TSU growth forecast.
- Bulgaria prefers using in-house planning expertise since it allows to consider detailed local circumstances and factors, which are not necessarily available to STATFOR. The forecast adopted does not seem to be supported by recent traffic evolutions. The lower starting point and higher end positively affects the calculated DUC vis-à-vis the Union-wide target trend. The PRB does not agree with the view expressed by Bulgaria that these factors were not sufficiently addressed by the STATFOR base forecast and hence considers that the use of a divergent local traffic forecast was not justified.

4.3.1 Overview of en route costs in RP2 and RP3



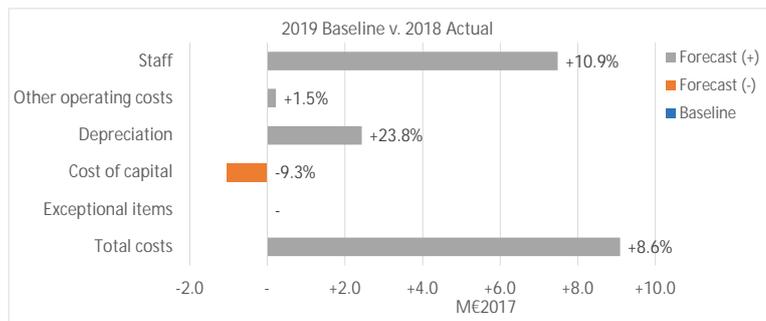
	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017	
Total costs	MBGN (nom)	174	179	195	210	233	-	249	258	268	278	290	-	BGN:€
Annual change	%		+2.9%	+8.8%	+8.1%	+10.6%	-	+3.8%	+3.7%	+4.0%	+4.1%	+2.3%	1.95543	
Inflation index	2017 = 100	100.1	98.8	100.0	102.6	105.1	105.1	107.5	109.9	112.5	115.0	117.7		
Total costs	MBGN (2017)	174	181	195	207	224	224	236	240	245	251	257	+2.8%	
Annual change	%		+3.9%	+7.9%	+6.0%	+8.6%	+8.6%	+5.1%	+2.0%	+2.0%	+2.5%	+2.4%		
Total costs	M€ (2017)	89	92	100	106	115	115	121	123	125	128	132	+2.8%	

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+9.1	+8.6%
2019F v. 2019 RP2 DC	+3.2	+2.9%
2019F v. average 2015-2018	+18.1	+18.7%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 cost forecast reported by Bulgaria, in nominal terms, is in line with latest adopted RP2 determined costs for 2019, which according to the information in Annex F of the performance plan, are very close to the actual outturn to date for 2019. In this respect, it is relevant that during RP2 Bulgaria revised upward its en route determined costs for the years 2017-2019 (+67.9M€2017 over the three years).

The 2019 forecast costs, in real terms, are well above the 2018 actual costs (+8.6%, or +9.1M€2017), primarily due to much higher staff costs (+10.9%, or +7.5M€2017) and depreciation costs (+23.8%, or +2.4M€2017), while cost of capital is much lower (-9.3%, or -1.1M€2017). No detailed information on the nature of these variations is provided in the performance plan or the accompanying annexes. According to the latest available RP2 monitoring report, actual en route costs, in nominal terms, were some -11.2% and -7.8% below determined costs for 2017 and 2018 respectively.

2019 baseline analysis

The 2019 baseline costs are in line with the 2019 forecast costs, in real terms. See box above for detailed analysis.

4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ! Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ! Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.20%
Maximum penalty (% of determined costs)	0.40%
Additional incentives?	No



Between 2019 forecast and 2024, the costs are planned to grow on average by +2.8% annually, resulting in an overall increase of some +14.7% over the period. Major contributor, in terms of volume to this planned increase in costs, is BULATSA (+13.5%, or +14.6M€2017), while the costs for NSA are also planned to increase (+33.8%, or 2.2M€2017). According to Annex C of the performance plan, the growth in costs for NSA is driven by requirement for additional resources linked to the increased supervision tasks.

For BULATSA, the planned increase in costs is driven primarily by additional staff costs (+12.5%, or +9.4 M€2017) and, to a lesser extent, depreciation costs (+30.2%, or +3.8 M€2017). What concerns the planned increases in depreciation costs, these costs are closely linked to the investment programme (see section 3.5 for more details). At the same time, the increase in staff costs, according to Annex R of the performance plan, is explained by:

- Planned significant intake of ATCOs in OPS starting in 2019, aimed at providing necessary capacity considering the forecast traffic growth over RP3. According to the information in the RP3 performance plan, the net increase of +76 ATCO FTEs is foreseen in Sofia ACC by the end of RP3 (some +48% increase compared to 2019).
- Salary growth in line with inflation over the period, as well as gradual increase in the social security costs.
- According to Annex Q of the performance plan, planned ATCO intake for Sofia ACC is necessary in order to adhere to local capacity targets in RP3 (see section 3.2 of this document for detailed analysis on en-route capacity). On the other hand, it is understood that the number of administrative staff is expected to remain stable over RP3, while CNS/IT staff is planned to increase marginally throughout the reference period (i.e. some +1% in total).

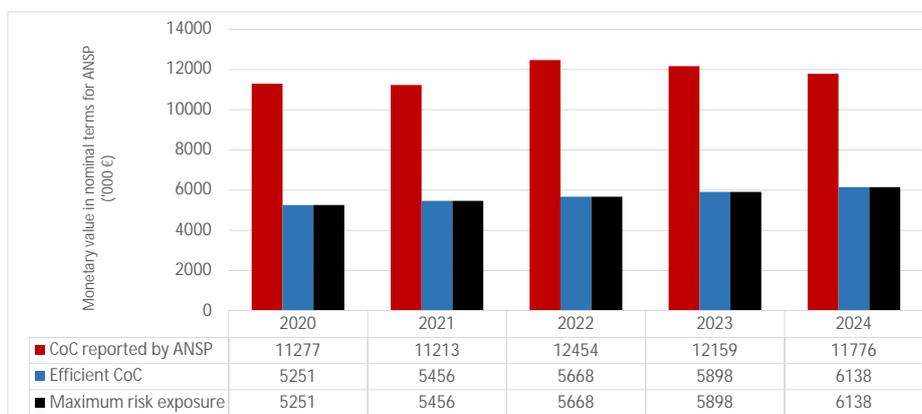
4.3.4 PRB Key Points

- The 2019 cost forecast reported by Bulgaria, in nominal terms, is in line with latest adopted RP2 determined costs for 2019, which according to Annex F of the performance plan, are very close to the actual outturn to date for 2019.
- Between 2019 forecast and 2024, the costs are planned to grow by +2.8% annually, resulting in an overall increase of some +14.7% over the period. Major contributor, in terms of volume to this planned increase in costs is BULATSA (+13.5%, or +14.6M€2017), while the costs for NSA are also planned to increase (+33.8%, or 2.2 M€2017).
- For BULATSA, the planned increase in costs is driven primarily by additional staff costs (+12.5%, or +9.4 M€2017) and, to a lesser extent, depreciation costs (+30.2%, or +3.8 M€2017).

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	119,331	123,998	128,824	134,045	139,503
Monetary value of Return on Equity	11,277	11,213	12,454	12,159	11,776
Ratio RoE/DC (%)	9.5%	9.0%	9.7%	9.1%	8.4%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	6027	5757	6786	6261	5638

Total 2020-2024	30,469
-----------------	--------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.0%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	7.0%	3.3%	7.0%	3.4%	7.0%	3.2%	7.0%	3.4%	7.0%	3.6%

Is the interest on debts in line with the market? n/a

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 30.47M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 8.4%-9.7%).

4.3.A.4 Regulated Asset Base review

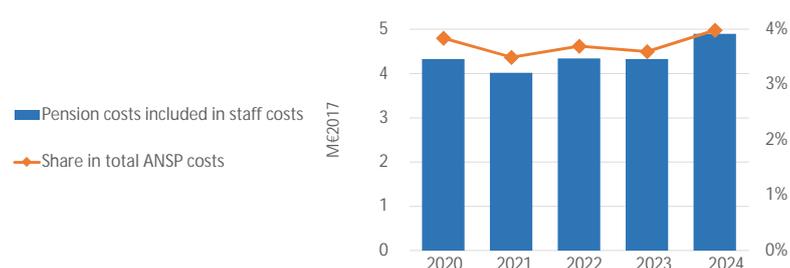
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	114,568	122,956	129,052	128,097	129,605
Net current assets	46,537	37,230	48,864	45,606	38,626
Adjustments total assets	0	0	0	0	0
Total asset base	161,106	160,185	177,916	173,703	168,231

- The fixed asset base will increase within the period. This is partially in line with the investments described in section 3.5 of this document.
- The net current assets seems excessive considering the expected cash flow.
- The RAB does not include adjustments to the total asset base.
- The total asset base will fluctuate over RP3, this is mainly driven by the fluctuation of the net current assets and the fixed asset base.

4.3.A.5 PRB Key Points

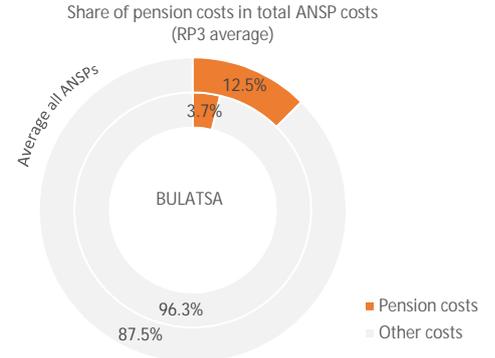
- The reported cost of capital is 30.47M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 8.4%-9.7%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	4.3	4.0	4.3	4.3	4.9
Year on year variation	% change		-7.2%	+8.0%	-0.3%	+13.2%
Share in total ANSP costs	%	3.8%	3.5%	3.7%	3.6%	4.0%
Year on year variation	p.p.		-0.3p.p.	0.2p.p.	-0.1p.p.	0.4p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight increase**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

n/a

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **Yes**

Two different contribution rates are applied for ATCOs and support staff (i.e. 21.02% and 11.02% respectively at the beginning of RP3). A gradual increase in employer contribution rate of 2% overall is planned for both staff categories between 2020 and 2024.

Furthermore, it is noted that the calculation of social security contributions in Bulgaria are based on certain level of maximum social security income, which is understood to be set annually by law. Ceteris paribus, it is understood that an increase in maximum social security income would translate into higher level of contributions.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

n/a

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **Info not available**

No detailed assumptions on the pension costs stemming from the occupational defined benefits scheme are provided in the RP3 performance plan.

The costs relating to this pension scheme account for some 36% on average of total pension costs reported by BULATSA over RP3. It is understood from the information provided in the RP3 performance plan that the defined benefit pension scheme offered by BULATSA refers to a lump-sum payment paid to employees upon retirement subject to certain conditions based on years of service and age.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

According to the information in the RP3 performance plan, with reference to State pension costs: "The number of personnel is under the control of the management and is used as a tool to mitigate possible unfavourable effects to a certain extent. However, it cannot be expected that ANSP staffing should accommodate all unfavourable developments against the ANSP determined costs." On the other hand, no actions related to the management of cost-risk related to the occupational "Defined benefits" scheme are provided.

4.3.B.4 PRB Key Points

- Despite a slight increases in contribution rate to state pension scheme, there is only a small impact on the DUC trend.
- There is a lack of transparency in "Defined benefits" scheme assumptions that could be an issue for RP3 cost exempt verification if Bulgaria claims costs exempt.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Bulgaria did not change the cost allocation methodology with respect to RP2.
- Total costs are allocated between en route and terminal using allocation keys, as specified in the EUROCONTROL Principles, as well as composite keys being derived from them. ICAO guidance stated in the ICAO Manual on Air Navigation Services Economics (Doc. 9161) is also being used for cost allocation. Thus, the full costs are determined for each ANS services bundle of provided by BULATSA based on the resources employed for each operational unit: by type, by service and each of both attributable to en-route and terminal navigation service provision.
- The criteria used to allocate costs between en route and terminal are: ATCO WPs, number of sectors, number of flights, assessment for the use of equipment based on distance flown and/or time spent in airspace controlled for ACC/APP/TWR units, number of frequencies, keys specified in EUROCONTROL Principles and ICAO Doc. 9161, combined criteria, etc.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

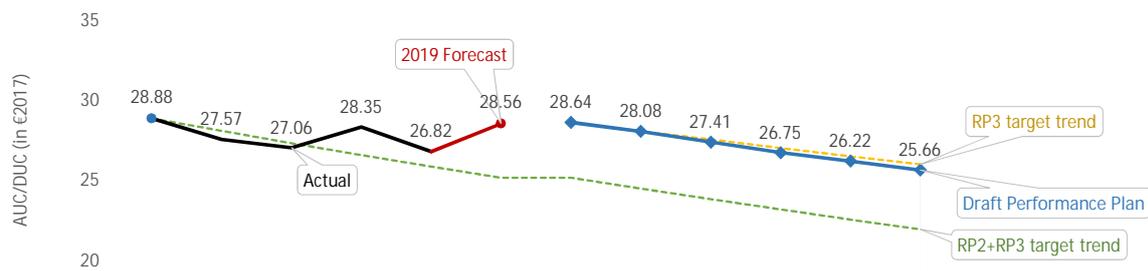
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.3.C.3 PRB Key Points ✓

- Bulgaria did not change the cost allocation methodology with respect to RP2.
- No major issues have been identified.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024	
AUC/DUC	€2017	28.88	27.57	27.06	28.35	26.82	28.56	28.64	28.08	27.41	26.75	26.22	25.66	-2.2%	-1.2%
Annual Change	%		-4.6%	-1.8%	+4.8%	-5.4%	+6.5%	+6.8%	-2.0%	-2.4%	-2.4%	-2.0%	-2.1%		

4.4.2 DUC consistency ✖

- ⓘ DUC consistency with the Union-wide RP3 DUC trend
- ✖ DUC consistency with the Union-wide long-term DUC trend
- ✔ DUC level consistency

PP trend	-2.2%	Union-wide trend	-1.9%	Difference	-0.3p.p.
PP trend	-1.2%	Union-wide trend	-2.7%	Difference	+1.5p.p.
PP 2019 baseline	28.64	Average comp. group	42.32	Difference	-32.3%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 DUC trend of -2.2% planned for Bulgaria exceeds the RP3 Union-wide trend (-1.9%). As discussed in section 4.2.3, the TSU forecast selected by Bulgaria for RP3 positively affects the resulting DUC trend. If Bulgaria had selected the STATFOR February 2019 base forecast (including baseline), the resulting RP3 DUC trend would be -0.4%, instead of the current -2.2%.

The long-term DUC trend planned (-1.2%) is not achieving the Union-wide DUC long-term term (-2.7%).

Bulgarian 2019 baseline DUC is -32.3% below the average of the comparator group. Ceteris paribus, Bulgarian DUC is expected to remain the lowest among its peers throughout RP3.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets ✖

Deviation (in M€2017):		v. RP2+RP3 trend over the period 2020-2024	+84.8
ATCO planning (en route) (see details in 3.2.2 (1b))			
	Cumulative change of ATCOs in OPS during RP3 (FTEs*)	Additional ATCO costs (M€2017)*	+21.5
	+193.0 * assuming recruitment on 1st July of the year	* calculated using ACE2017 ATCO in OPS unit costs	
Determined costs related to investments (en route)			
	Total determined costs of new major investments (in M€2017)	of which, related to capacity (see Section 3.5 for details)	7.5
	9.4		

Analysis

The deviation from Bulgaria's long-term trend corresponds to estimated additional costs of +84.8M€2017 over RP3.

The estimated cumulative additional costs for ATCOs planned to be working in Sofia ACC by the end of the RP3 constitute around +21.5M€2017 (approximated using the average unit cost for ATCO in OPS reported by BULATSA in ACE 2017 report), which is significantly below the total planned cumulative increase in staff costs of +53.8M€2017. As already indicated in the analysis of en route capacity (see section 3.2 of this document for details), it is understood that these additional ATCOs are required to ensure necessary staffing for the planned additional sectors in Sofia ACC (from 18 to 24 sectors), which, according to the information in Annex Q are necessary in order to adhere to local capacity targets in the RP3.

Of the +9.4M€2017 CAPEX related to new major investments, 80% are directly linked to capacity (see section 3.2 of this document for details). On the other hand, it is understood that these investments (especially #1 and #3) are planned to be commission in 2026, therefore no benefits are expected over the RP3. At the same time, BULATSA also reported significant planned CAPEX amounts for other new (+35.2 M€2017) and existing investments (+66.4 M€2017). While the nature of these investments is not disclosed in detail in the submission of the RP3 performance plan, it can be inferred that some of these investments are also related to capacity enhancement.

It should be noted that based on actual performance during the RP2, BULATSA recorded no capacity related ATFM delays (see also section 3.2 for further details). On the other hand, according to the scenario presented in the Annex Q to the RP3 performance plan, in case these capacity related measures are not implemented, Bulgaria expects ATFM delays to start growing rapidly as of 2021.

While part of the additional costs can be considered to be related to capacity enhancement measures, based on the historical performance of BULATSA, it cannot be clearly established that these significant investments in human resources and CAPEX are indeed pivotal for the achieving the RP3 capacity targets.

✖ Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets?

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✖

- Bulgaria artificially meets the Union-wide RP3 DUC trend due to the utilisation of an in-house traffic forecast.
- DUC baseline is lower than the average of the comparator group.
- The cost deviation from cost-efficiency long-term trend is not exclusively considered related to capacity measures.

4.5 Terminal (not applicable)

Bulgaria

Bulgaria has not established any terminal charging zone for RP3.

PRB Assessment

CROATIA

Draft Performance Plan

Context and scope

Croatia

Performance Plan: Draft performance plan (Article 12) Dated: 15.11.2019
 Documents no: 1535, 1536, 1537, 1146, 1150, 1539, 1540, 1148, 1144, 1149

Relative weight compared to the SES area 2018:

% Flight-hours v. SES	1.2%
% Costs V. SES	1.0%

Scope

FAB: FAB CE

ANSPs: Croatia Control

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 CCAA
 SAR

ATS, CNS, AIS, MET (ATFM and ASM)

NM, CRCO
 National Supervisory Authority
 SAR activities

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Croatia	n/a	No	No	No	
Terminal	n/a	n/a	n/a	n/a	n/a	
Changes in the CZs from RP2		Yes				
No terminal charging zone has been included in the RP3 performance plan.						

Comparator group: Group C Other States in the comparator group: Bulgaria
 Czech Republic
 Hungary
 Poland
 Portugal
 Romania
 Slovakia
 Slovenia

Currency: HRK Exchange rate: 7.46175

1. Safety ✓

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Croatia Control	Safety policy and objectives	B	B	B	B	C
	Safety risk management	B	B	B	C	D
	Safety assurance	B	B	B	B	C
	Safety promotion	B	B	B	B	C
	Safety culture	B	B	B	B	C

PRB Assessment

The PRB concludes that the safety targets proposed by Croatia should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that measures provided will not be sufficient to reach the RP3 targets, considering the proposed starting levels.

The PRB notes that no investments are needed to achieve the safety performance targets.

The PRB notes that change management practices described are sufficient to control impact on safety in particular.

2. Environment ✓

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.49%	1.48%	1.47%	1.47%	1.47%

PRB Assessment

The PRB concludes that the environment targets proposed by Croatia should be approved.

- Croatia Control's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✗

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.43	0.42	0.33	0.15	0.15
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	n/a	n/a	n/a	n/a	n/a

PRB Assessment

The PRB concludes that the capacity targets proposed by Croatia should not be approved.

- National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in 2020, 2021 and 2022.

- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency ✗

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	44.92	44.08	43.24	42.42	41.14
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a

CAGR 2014-2024	CAGR 2019-2024
-2.0%	-1.9%
n/a	-

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Croatia should not be approved.

- Croatia is meeting the RP3 DUC trend in terms of average reduction.

- Croatia is not meeting the Union wide DUC long-term trend.

- Croatia is not consistent with the average DUC baseline of the comparator group.

- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

PRB Recommendations

SAFETY

- Croatia should define measures for the management objectives to achieve the RP3 safety targets levels.
- Croatia should ensure consistency between safety levels achieved for RP2 in 2019 and planned starting levels for RP3.

ENVIRONMENT

- Croatia should consider reviewing the lowest available limit of its FRA to remain consistent with its partners and improve the available airspace for users.
- Croatia should consider measures to increase the resilience of its airspace for a more robust performance.
- Croatia should ensure their capacity plans match the anticipated demand in an optimal manner (given the performance plan does not aim to achieve the 2019 NOP reference values for the first three years of RP3 despite it also stating that capacity issues may impact environmental performance).

CAPACITY

- Croatia should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets in each calendar year of RP3.
- Croatia should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.
- Croatia should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- Croatia should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.

CROATIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The Effectiveness of Safety Management (EoSM) targets have been defined for each year.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan indicates that the ANSP in the past achieved or exceeded the safety maturity targets. The ANSP argues that the Safety Management System is very mature and that the application of some specific safety tools (e.g. ETOKAI, ASMT, CMMS, etc.) allows for the monitoring of safety performance. Despite this, no specific measures are described in order to demonstrate how the ANSP will reach the safety targets and improve from planned maturity levels in 2020 to achieve targets in 2024.

All management objectives need to improve as per the performance plan.

1.1.3 Interdependencies and Trade-offs

The draft performance plan does not include investments required to achieve the safety maturity target level. The draft performance plan underlines the priority of safety with respect to changes to ATM Functional systems. In case of trade-off between safety and other KPAs is unavoidable, safety will not be compromised.

1.1.4 Change Management

The change management processes have been established for major changes to ATM Functional systems in order to ensure the minimisation of the negative impact on network performances.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Croatia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The PRB will closely monitor the implementation of measures over the RP3 to ensure that the maturity levels do not degrade between RP2 and RP3 in its "RP3 watchlist".

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that measures provided will not be sufficient to reach the RP3 targets, considering the proposed starting levels.

The PRB notes that no investments are needed to achieve the safety performance targets.

The PRB notes that change management practices described are sufficient to control impact on safety in particular.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the COMMISSION IMPLEMENTING DECISION (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Croatia Control	Safety policy and objectives	B	B	B	B	C	✓	
	Safety risk management	B	B	B	C	D	✓	
	Safety assurance	B	B	B	B	C	✓	
	Safety promotion	B	B	B	B	C	✓	
	Safety culture	B	B	B	B	C	✓	

The Effectiveness of Safety Management (EoSM) targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan underlines that the ANSP has achieved or exceeded the safety targets levels in the past, i.e. during RP2. The performance plan argues that the safety management system is already very mature, and that the application of some specific safety tools (e.g. ETOKAI, ASMT, CMMS, etc.) will enable the ANSP to monitor safety performances.

With the planned maturity levels at the start of RP3, improvements will be required in all five management objectives to reach the RP3 targets. The main measures defined do not demonstrate how such improvements can be achieved by the ANSP. Indeed, the measures are very generic and refer to the current safety performance and maturity of the current safety management system.

1.3.1 Interdependencies and Trade-offs

The draft performance plan describes changes to the safety related ATM Functional systems (e.g. implementation of FDPS of COOPANS system and airspace re-sectorisation). The draft performance plan underlines that safety will always have the highest priority, hence other targets will need to take into account any negative safety implications. The draft performance plan notes that the biggest risk is the lack of sufficient resources, which, when prioritising safety, may lead to a negative impact on capacity. This implies the ANSP is trading-off of capacity to ensure safety.

1.3.2 Change Management Practices

The draft performance plan indicates two main implementations during RP3: airspace change and sectorisation and the upgrade of FDPS within the COOPANS Alliance. Both implementations are accompanied with specific change management processes. The airspace change and re-sectorisation will be conducted in cooperation with the network manager to assure the optimal capacity gains and to minimise any negative impact on the network performance. The FDPS upgrade will be implemented together with COOPANS change management module to assure a safe and seamless transition.

CROATIA

Environment KPA

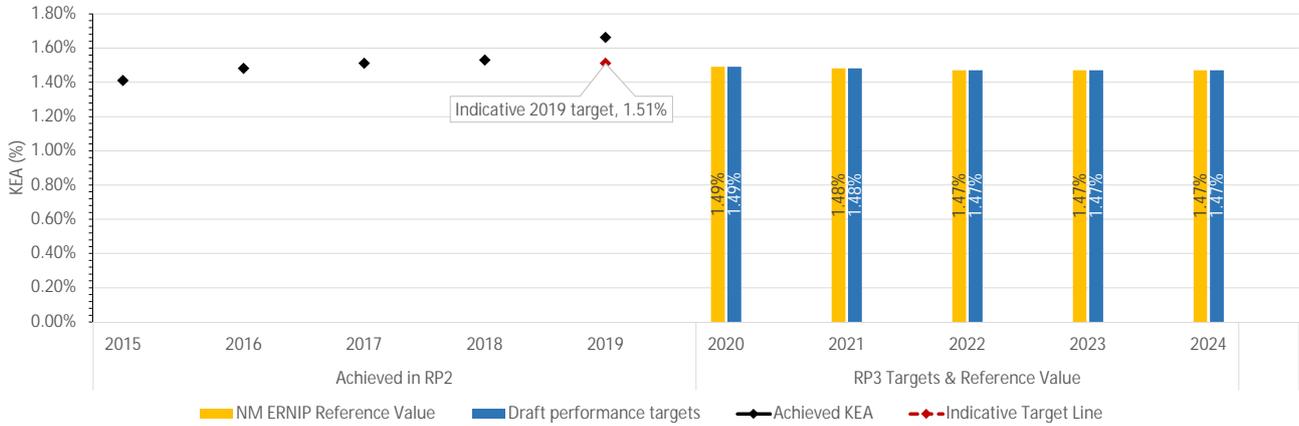
2.1 Summary of environment key data and assessment results

Croatia

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets



	2020	2021	2022	2023	2024
Reference values	1.49%	1.48%	1.47%	1.47%	1.47%
Draft performance targets	1.49%	1.48%	1.47%	1.47%	1.47%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Croatia should be approved.
 - Croatia Control's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement ✓

Commitment to FRA by 2022? CCL implemented free route airspace within the Zagreb FIR from FL 205 in 2018.	✓	Reference in PP 3.2.1(b)	Reference in LLSIP Page 47
Major ERNIP Recommended Measures: Measure included within performance plan?	1	Reference in PP Implemented	Reference in ERNIP Page 13
Implementation of SECSI (South East Common Sky Initiative) FRA	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Croatia achieved a KEA of 1.66% in 2019 and needs to meet an indicative target of 1.51% in 2019 to achieve the planned target of 1.49% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achieved value and the 2020 reference value.

In 2015, CCL implemented SEAFRA, its cross-border FRA with Bosnia and Herzegovina and Serbia above FL325. In 2018, SEAFRA was merged with SAXFRA (the Slovenian and Austrian cross-border FRA) providing airspace users with significant free route airspace. However, a volume of airspace delegated to Brindisi ACC is operated with a route network.

According to its AIP, Croatia expects the average flight extension due to reserved airspace is approximately five nautical miles, although since more than 90% of its airspace reservations or segregations is used, this is not a concern as it may not impact airspace users unnecessarily.

Croatia claimed that weather and airspace user route choices predominantly drives its environmental performance. The PRB analysed this claim and finds that there is some merit in this assertion since Croatia's local performance closely tracks the lowest possible horizontal flight inefficiency (discounting network inefficiencies). Nonetheless, room for improvement does remain as Croatia's local inefficiency is sensitive to network issues (i.e. a 1% increase in network inefficiency worsens local inefficiency by up to 1.56%). Croatia should work to improve its resilience to its traffic patterns and with regional partners to ensure its resilience to network issues.

Lastly, Croatia also claimed that potential capacity shortfalls in its airspace may impact its ability to offer direct routings to airspace users. At the same time, the capacity component of Croatia's performance plan does not aim to achieve the 2019 NOP reference values for the first three years of RP3. To avoid impacting its environmental performance, Croatia should strongly consider its capacity plans and ensure it matches the anticipated demand in an optimal manner.

2.2.2 Annex IV 2.1 (f): Incentive Scheme ✗

Does Croatia plan for an environmental incentive scheme?	✗
Croatia does not plan to apply an optional incentive scheme for the environment KPA.	

CROATIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En-route ATFM delay

Targets defined in the performance plan are not consistent with the national reference values during the first three years of the RP3 (still lower than the forecasted delay), while during the last two years of the RP3, they match the NOP reference values. Justification for higher national capacity targets was provided in terms of significant traffic growth, effect of NM measures and handing over the Bosnian Upper Airspace to BHANSA.

Analysis of the current capacity profiles also indicates that potential capacity gap could be expected during the RP3 depending on the evolution and distribution of traffic demand. The ANSP should update the capacity plan to show all improvements from the measures proposed, or introduce additional measures to make the targets realistic.

It should be noted that increased ATCO numbers and measures described in the NOP indicate that this increase in ATCO numbers was not taken into account in the current capacity plan, thus not providing adequate evidence that Croatia would reach the proposed capacity target by the end of the RP3.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✓	✓
Deviation target v. reference value (minutes per flight)	0.10	0.09	0.08	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✗	⚠	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values?

Capacity target in the year 2024 is less than or equal to the 2024 reference value?

3.1.2 Arrival ATFM Delay

3.1.3 Incentives

En route incentives: The pivot value is not based on reference values published in NOP for first three years of RP3. For the final two years of RP3, the pivot value is equal to the published NOP reference values. Modulation is applied on the potential penalty/bonus by comparing actual traffic against a customised traffic forecast. The customised forecast is fixed for the entire reference period. Achieving the forecasted delays published in the NOP would result in no penalty/bonus for the first two years of RP3 followed by penalties for the final three years (amount of penalty influenced by traffic level). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

RP3 performance plan has introduced two major investments in total cost 19.7M€ in RP3, one of which is related to capacity improvement measures. It is difficult to assess the level of contribution and effectiveness of individual elements due the low level of details provided in projects' descriptions. Enlisted projects provide mainly technological and operational support to the capacity improvement measures introduced by Croatia in the NOP 2019 - 2024. All projects are complex, including many elements, some of which are related to capacity management. Due to their complexity and the fact that they are supposed to become fully operational only at the end of RP3 (2024), it is impossible to assess the benefits brought to airspace users during RP3 and to be sure that the project is finalised on time.

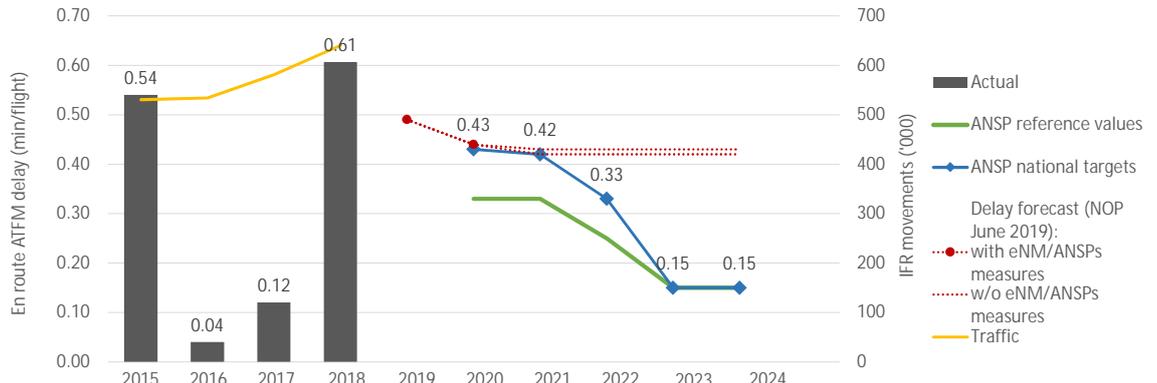
Low level details on other and existing investments.

3.1.5 PRB conclusions ✗

The PRB concludes that the capacity targets proposed by Croatia should not be approved.

- National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in 2020, 2021 and 2022.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en-route ATFM delay per flight ✘



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual ATFM delay per flight	0.54	0.04	0.12	0.61						
ANSP reference values						0.33	0.33	0.25	0.15	0.15
Traffic						0.43	0.42	0.33	0.15	0.15
Forecast with eNM/ANSPs measures*					0.49	0.44				
Forecast w/o eNM/ANSPs measures*					0.49	0.44		0.42-0.43		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✘	✘	✓	✓
Deviation target v. reference value (minutes per flight)	0.10	0.09	0.08	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✘	⚠	✘	✘	✘

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ⓘ

Description of capacity enhancement measures

The Croatian performance plan for RP3 contains measures such as:

- New airspace sectorisation, whereas airspace re-sectorisation will be used as a tool to meet increasing capacity needs in the Zagreb FIR. According to the plan, capacity enhancement measure should enable a 32.5% reduction in delay, when compared to a future expectation of delay under a “do nothing” scenario.
- Operational improvements, which would include a review of the sector opening schemes and the rostering pattern adjustments (if needed) and new enhanced ATFCM measures.

Described capacity enhancement measures are mainly in line with the latest NOP edition.

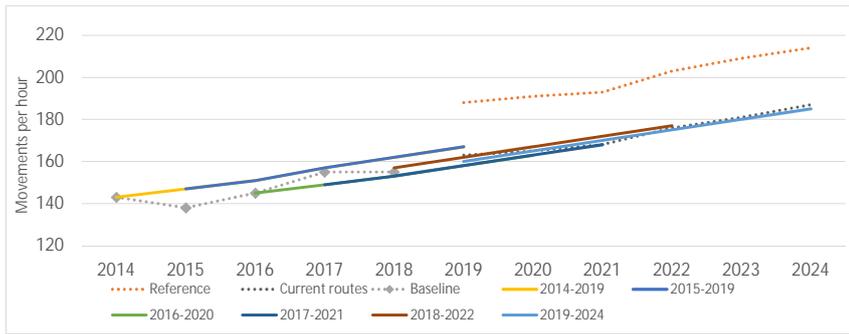
ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Zagreb ACC (LDZO)	Additional ATCOs in OPS to start working in the OPS room	0	4	12	12	12	6	12	+42
	ATCOs in OPS to stop working in the OPS room	0	0	3	3	1	0	5	
	ATCOs in OPS to be operational at year-end	107	111	120	129	140	146	153	
Total - Croatia Control (en-route)	Additional ATCOs in OPS to start working in the OPS room	0	4	12	12	12	6	12	+42
	ATCOs in OPS to stop working in the OPS room	0	0	3	3	1	0	5	
	ATCOs in OPS to be operational at year-end	107	111	120	129	140	146	153	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC)



Zagreb ACC (LDZO)



- Historical analysis of the capacity plans during the RP2 period shows minor variations between the planned capacity profile and baseline value. At the same time delay performance deteriorated in 2018 mainly due to higher than planned traffic growth.

- Latest capacity plans developed by the ANSP outline the capacity profile which in the last three years of the RP3 is slightly lower than the current route profiles (around 1%). The latest ANSP planned capacity profile is lower between 11.9% and 13.9% when compared to the reference profiles during the RP3 period. This means that the potential capacity gap could be expected during RP3 depending on the evolution and distribution of traffic demand.

- It should be noted that delay forecasts in the latest NOP are higher than the reference delay values which indicates that additional measures need to be put in place to close the capacity gap.

- The ANSP should either update the planned capacity profile to show all improvements from the measures proposed, or introduce additional measures in the performance plan (and also update planned profiles based on these) to make the targets realistic.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						188	191	193	203	209	214
Current routes						163	165	168	176	181	187
Baseline	143	138	145	155	155						
2014-2019	143	147	151	157	162	167					
2015-2019		147	151	157	162	167					
2016-2020			145	149	153	158	163				
2017-2021				149	153	158	163	168			
2018-2022					157	162	167	172	177		
2019-2024						160	165	170	175	180	185

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures



Review of the special events leading to higher delays in some years of RP3

Croatia provided justification in terms of providing higher targets for the first three years of the RP3, such as:

- Significant traffic growth in the last few years of RP2 and expected traffic growth in RP3;
- Effect of the NM measures on the Croatian airspace;
- Handing over ATS provision of a portion of the upper airspace (FL325 to FL660) over Bosnia and Herzegovina to BHANSA.

Review of the capacity enhancement measures related to special events

n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps ✓

- | | | |
|----|--|-----|
| a) | Performance plan contains additional capacity enhancement measures planned to address the gap closure
The performance plan provides additional number of ATCOs during the RP3 period by around 40%. | ✓ |
| b) | Measures proposed by the NM are implemented in the Performance Plan
The performance plan contains capacity enhancement measures from the latest version of the NOP. | ✓ |
| c) | The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM
n/a | n/a |
| d) | The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values
n/a | n/a |
| e) | Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)
The performance plan provides additional number of ATCOs during the RP3 period by around 40%. | ✓ |
| f) | Flexible use of operational staff is planned and ensured
n/a | n/a |
| g) | Limitations of ATM system/infrastructure is mitigated
n/a | n/a |

3.2.6 PRB Key Points ✗

- The proposed capacity targets are not following the reference delay values for the first three years of the RP3, while during the remaining period they are the same as the proposed reference values. There is an improvement over the period and the reference values are met during the last two years. Local circumstances related to very high traffic increase over the past years and the transition plan for BH ACC need to be taken into consideration.
- The existing capacity plans indicate that during the RP3 period, Croatia might expect a potential capacity gap.
- Increased ATCO numbers (as presented in the RP3 Performance plan - by around 40%) and measures described in the NOP indicate that this increase in ATCO numbers was not taken into account in the current capacity plan, thus not providing adequate evidence that Croatia would reach the proposed capacity target by the end of the RP3.

3.3. Arrival ATFM delay per flight (not applicable)

Croatia

Croatia has not established any terminal charging zone for RP3.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±10.0%	0.500%	0.500%
	✔	⚠

	2020	2021	2022	2023	2024
NOP reference values	0.33	0.33	0.25	0.15	0.15
Alert threshold (Δ Ref. value in fraction of min)	±0.057	±0.057	±0.053	±0.050	±0.050
Performance Plan targets	0.43	0.42	0.33	0.15	0.15
Pivot values for RP3	0.43	0.42	0.33	0.15	0.15

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

Threshold review

The threshold for penalty or bonus is ±10% around pivot value. The pivot value is not based on reference values published in NOP for the first three years of RP3. For the final two years of RP3, the pivot value is equal to the published NOP reference values.

Modulation review

Modulation is applied on the potential penalty/bonus by comparing actual traffic against a customised traffic forecast. The customised forecast is fixed for the entire reference period.

Review of financial advantages/disadvantages

The maximum bonus and maximum penalty are fixed in advance at 0.5% of determined cost. Achieving the forecasted delays published in the NOP would result in no penalty / bonus for the first two years of RP3 followed by penalties for the final three years (amount of penalty influenced by traffic level).

3.4.2 Terminal capacity incentive scheme n/a

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✘

En route incentives:

- The pivot value is based on the proposed targets for RP3.
- Modulation is applied on the potential penalty / bonus by comparing actual traffic against a customised traffic forecast.
- Achieving the forecasted delays published in the NOP would result in no penalty / bonus for the first two years of RP3 followed by penalties for the final three years.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	17.7	17.1	18.6	20.9	23.8	98.1
En route	M€ (nominal)	17.7	17.1	18.6	20.9	23.8	98.1
Terminal	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	COOPANS baseline, new FDP, new HMI and simulator	COOPANS baseline, new FDP, new HMI and simulator The COOPANS alliance has been a successful collaboration of ANSPs for the definition of common operational requirements towards harmonised ATM system software builds. This investment continues the baseline joint harmonised upgrade of the ATM system within COOPANS, specifically the CroATMS_C system in CCL, positively contributing to all performance improvements. More details can be found in section 2.1 of the performance plan.	31.4	Yes	Yes	14.6	0.0
2	Zadar multi-use centre	Cost of establishing a multi-use facility in Zadar. The facility will house an additionally needed ACC working positions, an enhanced APP and TWR, and a simulation and training facility (which could be used as contingency centre). The extended ACC (contingency) would provide short term and long term benefit. It provides a suite of consoles and data processing capability in parallel to the existing Centre. More details can be found in section 2.1 of the performance plan.	31.0	No	No	5.1	0.0
Total:						19.7	0.0

Airspace user feedback regarding major investments

The airspace users do not have any concerns regarding investment #1 (COOPANS). However, for investment #2 (Zadar multi-use centre investment) they state that the cost allocation between ER and TMR is unclear. Croatia Control has included the following footnote in section 2.1.1 of the performance plan as explanation: "given the scope of the RP3 PP, only en route part of the projected determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) are presented within "F"- "J". Terminal part of determined costs resulting from the planned CAPEX are not disclosed here. The total % en route + terminal should be equal to 100%".

Review of investments

Major new investments represent 20% of the total determined costs of investments over RP3. The key projects undertaken in RP2 was "The ATM system upgrades" (developed through COOPANS alliance) which may be connected to investment #1. However, Croatia Control ensures that RP2 plan is expected to be fully delivered and does not expect to roll forward RP2 investments to RP3. The 2015-2018 actual CAPEX delivery is 92% of the planned for the same period and the amount underspent is 3.97M€. Croatia Control ensures this amount will be fully spent by the end of RP2.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
2	Zadar multi-use centre	Network, Local	CEF	The extended ACC (contingency) would provide short term and long term benefit. It provides a suite of consoles and data processing capability in parallel to the existing Centre.

Additional information

At a network level, the Zadar multi-use centre will "enable additional CWPs for resectorisation towards the end of RP3 to cope with predicted capacity, providing robust and quality service to users".

At a local level, "the determined costs of training pushed down through provision of increased cost-efficient training centre. New TWR and TMA facility required for Zadar, and enables ongoing service provision at this airport".

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	89.7	68.2	2.4	6.1	9.1	10.9	11.9	40.4
Existing investments			14.4	9.0	6.1	4.6	3.8	37.9

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 41% of the total determined costs of investments over RP3 and the 39% of the existing investments.</p> <p>There are no details in the performance plan about which investments are new and which are existing. Many investments were already listed in RP2 and may roll forward to RP3 (in the case of underspending): investment #1.1 matches with RP2 project "ATM System Upgrade" (0.04M€ overspent); investment #2.1 matches with RP2 project "DATA-COM" (0.54M€ underspent); investment #2.2 matches with RP2 project "VOICE-COM" (0.64M€ overspent); investment #2.3 matches with RP2 project "NAV" (0.68M€ underspent); investment #3.1 matches with RP2 project "Reconstruction of Old Buildings" (2.18M€ underspent); investment #4.1 matches with RP2 project "AWOS/MET Systems" (1.97M€ underspent).</p> <p>Major investments and other new and existing investments are detailed in Annex E of the performance plan and classified in four macro categories:</p> <ol style="list-style-type: none"> 1. ATM system SESAR alignment (10M€ over RP3 allocated as other new/existing investments) 2. CNS development (26.82M€ over RP3 allocated as other new/existing investments) 3. Infrastructure sustainment (26.29M€ over RP3 allocated as other new/existing investments) 4. Service enhancement (15.67M€ over RP3 allocated as other new/existing investments)
--	---

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand ✔

National capacity targets are higher between 2020 and 2022 and then become consistent until end of RP3. According to the NOP 2019-2024, Croatia proposed capacity improvement measures mainly in the airspace organisation and operational improvements. However, it is not possible to assess the level of contribution of each project due to the vague description. The NOP identifies possible capacity gap despite the provided capacity measures.

The Croatia Control ACC is expected to have a performance close to the reference values. The justification on the projects is provided only in general terms. - Investment #1 (COOPANS baseline, new FDP, new HMI and simulator): system upgrade type of a project. It supports implementation of capacity measures. There is a link to the SESAR and PCP within project targeting capacity. More information is needed to assess the level of contribution to the capacity KPA improvements. - Investment #2 (Zadar multi-use centre): complex project with elements that may improve capacity. Clarification on the objectives related to the additional ATCO workplaces is needed in order to assess the relevancy to the capacity improvement.
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ⓘ

Capacity improvements from these measures are likely to materialise only in RP4, even with timely deployment. Operational aspects of how and when capacity is necessary are described only generally.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ⓘ

Investments are spread along the whole RP3. Full implementation is expected in 2024. Major investments constitute complex projects, including number of interdependent functionalities and systems which may be difficult to implement on time. The performance plan does not provide detailed information on risk management of implementation of the enlisted projects. This information could be used to estimate the time needed to get the ATM systems implemented, but it has not been considered adequately.

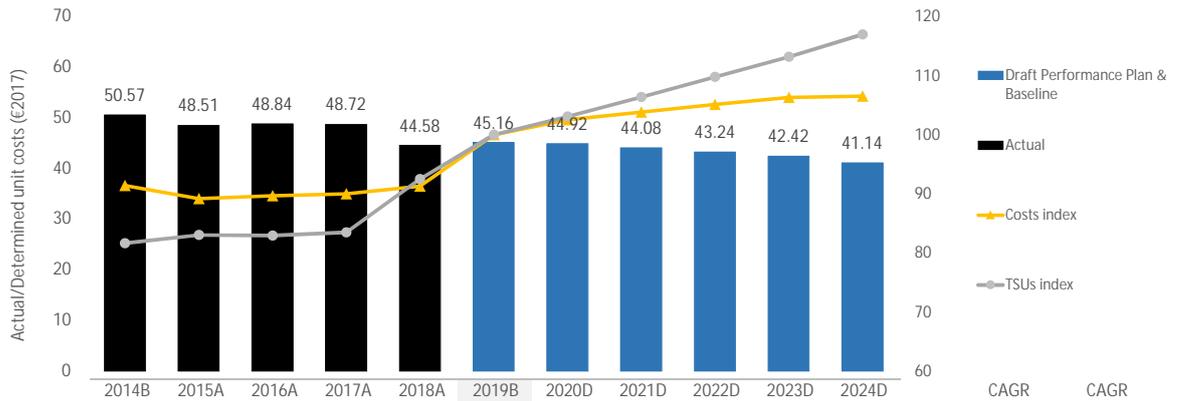
3.5.4 PRB Key Facts ✔

- Major investments for RP3 are justified and the ANSP does not expect to roll forward RP2 investment projects to RP3.
- More information is needed to assess the level of contribution to the capacity improvements.
- Enlisted projects are considered to be rather complex and encompassing many objectives making the assessment of the impact in time and scope on the capacity difficult without additional data.
- Additionally, both projects due to their complexity should be accompanied with argument(s) that they will be implemented on time, especially when their main investments and deployment are planned for the end of RP3.

CROATIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MHRK (nom)	662	645	645	654	671	-	772	792	812	832	842	-	+2.4%
Total costs	MHRK (2017)	664	648	652	654	663	727	745	754	764	773	774	+1.3%	+1.5%
TSU	'000	1,760	1,790	1,788	1,799	1,994	2,156	2,223	2,294	2,367	2,441	2,523	+3.2%	+3.7%
AUC/DUC	HRK (2017)	377.35	362.01	364.41	363.55	332.68	336.99	335.15	328.90	322.67	316.53	306.95		
Exchange rate	HRK:€				7.462									
AUC/DUC	€ (2017)	50.57	48.51	48.84	48.72	44.58	45.16	44.92	44.08	43.24	42.42	41.14		
Annual change	%		-4.1%	+0.7%	-0.2%	-8.5%	+1.3%	-0.5%	-1.9%	-1.9%	-1.9%	-3.0%	-1.9%	-2.0%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified? 45.16 €2017

The 2019 traffic baseline is +4.6% higher than the STATFOR February 2019 base forecast and corresponds to the STATFOR May 2019 high forecast (+8.1% compared to 2018). The year-to-date actual growth (cumulative growth up to September 2019) is +10.7%, which indicates that STATFOR February forecast could not take into account the latest local developments and reinforces the arguments of Croatia for selecting a higher baseline than the STATFOR February 2019 base forecast.

The 2019 costs baseline is planned to be +9.5% higher than the 2018 actual costs. The performance plan justifies this increase by the need to recruit more ATCOs and ATSEPs in order to increase capacity, train the newly recruited ATCOs and execute the planned CAPEX for RP2. It is important to note that the magnitude of the staff costs increase (+3.5M€2017) is significant when compared to the staff cost evolution between 2019 and 2024 (+2.7M€2017), especially when considering the ATCO recruitment plan (only additional four ATCOs between 2018 and 2019 compared to an additional 42 ATCOs between 2019 and 2024). In this respect, the performance plan would deserve more detailed explanations.

4.1.3 Summary of cost-efficiency assessment results

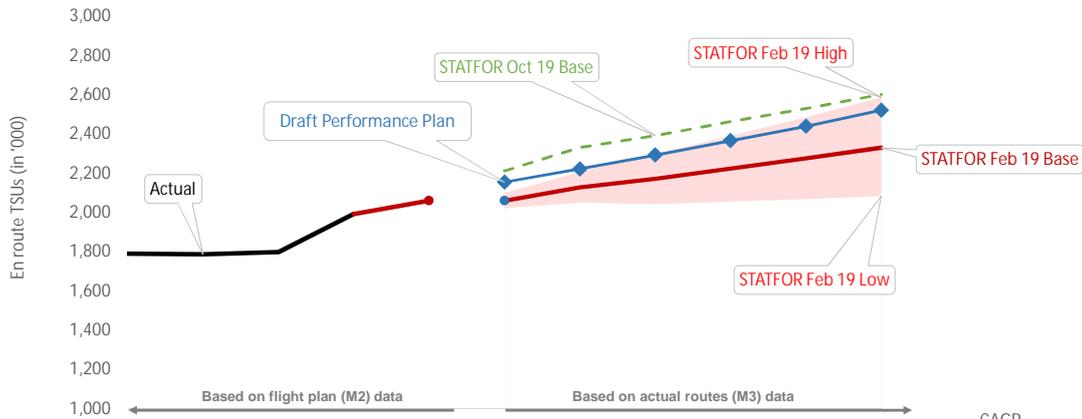
- a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? -1.9% ✔
Croatia meets the RP3 trend assessment criteria, with an RP3 trend of -1.9% but not as a reduction per year.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? -2.0% ✘
Croatia does not meet the long-term (RP2+RP3) assessment criteria, with a long term trend of -2.0%.
- c) DUC level (2019 baseline) lower than the average of comparator group (C) average (40.26 €2017)? +12.2% ✘
Croatia does not meet the DUC level assessment criteria, with a DUC 2019 baseline +12.2% higher than its comparator group. The DUC at the end of RP3 (2024) would be +3.1% higher than the comparator group.
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? n/a
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? n/a

4.1.4 PRB conclusions ✘

The PRB concludes that the cost-efficiency targets proposed by Croatia should not be approved.

- Croatia is meeting the RP3 DUC trend in terms of average reduction.
- Croatia is not meeting the Union wide DUC long-term trend.
- Croatia is not consistent with the average DUC baseline of the comparator group.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	1,790	1,788	1,799	1,994								
Annual change	%		-0.1%	+0.6%	+10.8%								
STATFOR Feb 19 Base	'000 TSUs					2,062	2,061	2,129	2,173	2,226	2,277	2,332	+2.5%
Annual change	%					+3.4%	+3.4%	+3.3%	+2.1%	+2.4%	+2.3%	+2.4%	
STATFOR Oct 19 Base	'000 TSUs					-	2,213	2,332	2,393	2,465	2,531	2,603	+3.3%
Annual change	%					-	+11.0%	+5.4%	+2.6%	+3.0%	+2.7%	+2.8%	
Performance Plan	'000 TSUs						2,156	2,223	2,294	2,367	2,441	2,523	+3.2%
Annual change	%						+8.1%	+3.1%	+3.2%	+3.2%	+3.1%	+3.3%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)		
2019B (PP baseline, M3)	2,156			2019B (PP baseline, M3)	2,156			
2019F (as in the Reporting tables, M2)	2,156			2019F (STATFOR Feb 19, M3)	L 2,021	B 2,061	H 2,100	+4.61%
2019B/ 2019F	0.00%	-0.06%	-0.07%	2019F (STATFOR Oct 19, M3)	L 2,199	B 2,213	H 2,225	-2.58%

The 2019 traffic baseline selected by Croatia is +4.6% higher than the STATFOR February 2019 base forecast and corresponds to the STATFOR May 2019 high forecast (+8.1% compared to 2018). This forecast is based on the M2 methodology, however, in the case of Croatia, the CRCO correction coefficient to convert the forecast into M3 methodology is marginal (-0.07%). The year-to-date actual growth (cumulative growth up to September 2019) is +10.7%, which indicates that STATFOR February 2019 base forecast could not take into account the latest local developments and reinforces the arguments of Croatia for selecting a higher baseline than the STATFOR February 2019 base forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Croatia is justifying the use of a customised forecast (higher than STATFOR February 2019 base forecast) by:

- observation of significantly higher increases in the first months of 2019;
- comments received from airspace users during consultation;
- STATFOR May 2019 short term forecast providing higher TSU forecasts for the years 2019 and 2020 compared to the February edition.

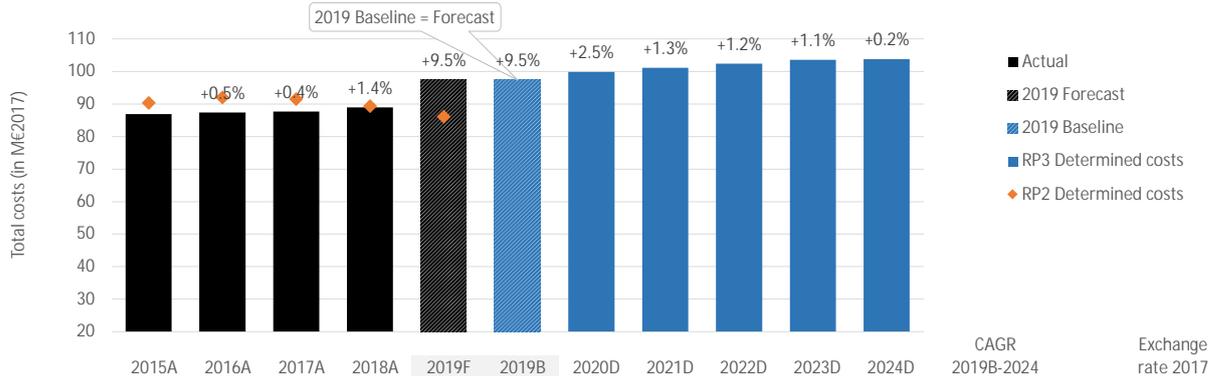
Review of the PP traffic forecast

On average, the traffic forecast used by Croatia corresponds to a +3.2% p.a. increase over RP3 and is close to the STATFOR February 2019 high forecast. When considering the STATFOR October 2019 base forecast, actual traffic might be even higher than the forecast made by Croatia.

4.2.4 PRB Key Points

- On average, the traffic forecast used by Croatia corresponds to a +3.2% p.a. increase over RP3 and it is close to the STATFOR February 2019 high forecast. When considering the STATFOR October 2019 base forecast, actual traffic might be even higher than the forecast made by Croatia. For this reason, even if the traffic is not in line with the STATFOR February 2019 base forecast, the deviations are justified and realistic.

4.3.1 Overview of en route costs in RP2 and RP3



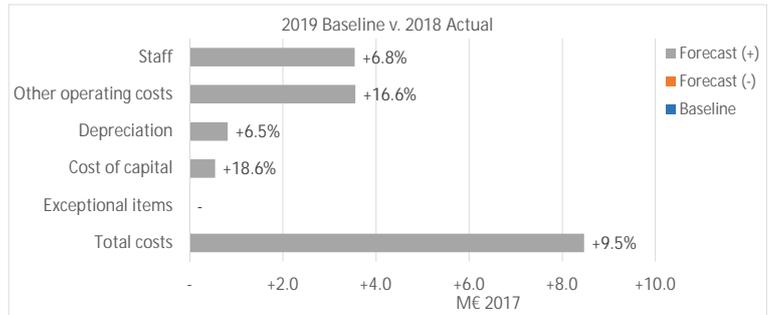
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MHRK (nom)	645	645	654	671	744	-	772	792	812	832	842	-	HRK:€
Annual change	%		+0.1%	+1.4%	+2.6%	+10.8%	-	-	+2.6%	+2.5%	+2.4%	+1.3%	-	7.46175
Inflation index	2017 = 100	99.3	98.7	100.0	101.6	103.1	103.1	104.7	106.5	108.4	110.5	112.6	+1.8%	
Total costs	MHRK (2017)	648	652	654	663	727	727	745	754	764	773	774	+1.3%	
Annual change	%		+0.5%	+0.4%	+1.4%	+9.5%	+9.5%	+2.5%	+1.3%	+1.2%	+1.1%	+0.2%	+1.3%	
Total costs	M€ (2017)	87	87	88	89	97	97	100	101	102	104	104	+1.3%	

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€ 2017	%
2019F v. 2018A	+8.5	+9.5%
2019F v. 2019 RP2 DC	+11.3	+13.2%
2019F v. average 2015-2018	+9.7	+11.0%

2019 baseline analysis	M€ 2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 costs are planned to be +9.5% higher than the 2018 actual costs, and +13.2% higher than the RP2 determined costs for the year 2019. This is a relatively large increase, especially when considering that in the first four years of RP2 Croatia's actual costs were always lower than (or matching in 2018) the RP2 determined costs.

According to the information provided in the performance plan, the 2019 forecast reflects the annual plans of all reporting entities, taking into account their actual performance in the first half of 2019 and the effects of the relatively high traffic growth experienced in the first months of 2019. The performance plan also justifies its 2019 baseline by the need to recruit more ATCOs and ATSEPs in order to increase capacity, train the newly recruited ATCOs and execute the planned CAPEX for RP2. The costs increases between 2018 and 2019 are mainly in anticipation of higher staff costs and higher other operating costs.

The magnitude of the staff costs increase (+3.5M€2017) is significant when compared to the staff cost evolution between 2019 and 2024 (+2.7M€2017), especially when considering the ATCO recruitment plan (only additional four ATCOs between 2018 and 2019 compared to an additional 42 ATCOs between 2019 and 2024). In this respect, the performance plan would deserve more detailed explanations.

2019 baseline analysis

The 2019 baseline is in line with the 2019 forecast.

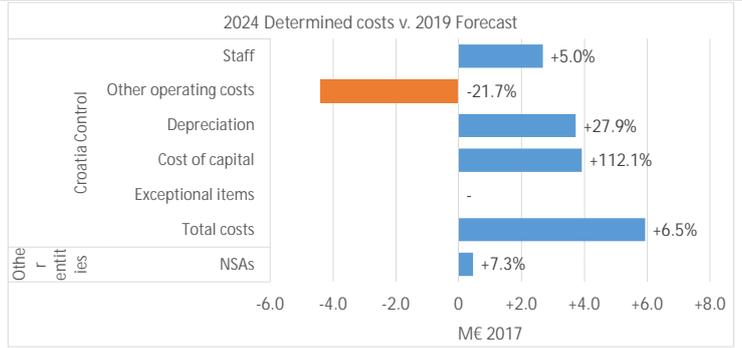
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✓ Investments (see details in 3.5)
- ⓘ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



From 2019 baseline to 2024, Croatia Control total costs are planned to increase by +6.5%. It is noted that other operating costs are planned to decrease by -4.4M€2017. However, this large reduction starts from a baseline where the other operating costs are already greater than the 2018 actual. All other cost categories are planned to increase over RP3, especially the capital-related costs. Croatia presents these increases as necessary measures to meet the capacity target (deployment of a large investment plan and recruitment of additional ATCOs and ATSEPs).

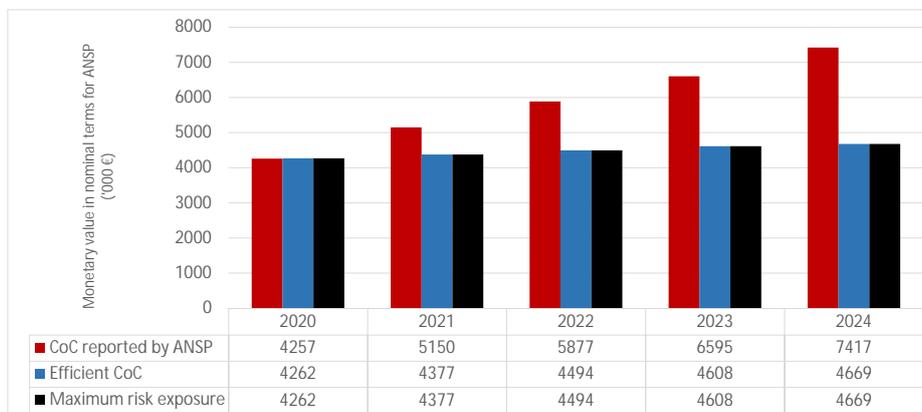
4.3.4 PRB Key Points

- The 2019 costs are planned to be +9.5% higher than the 2018 actual costs and +13.2% higher than the RP2 determined costs for 2019. This is a relatively large increase. The increase in staff costs needs more details.
- Croatia Control total costs are planned to increase by +6.5% from 2019 to 2024.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	96,861	99,473	102,132	104,726	106,118
Monetary value of Return on Equity	3,305	3,999	4,563	5,121	5,759
Ratio RoE/DC (%)	3.4%	4.0%	4.5%	4.9%	5.4%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	-5	773	1383	1988	2748

Total 2020-2024	6,886
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	12.8%	n/a								
Interest on debts	2.4%	n/a								
Capital structure (% debt)	60.0%	n/a								
WACC	6.6%	6.6%	6.6%	5.6%	6.6%	5.0%	6.6%	4.6%	6.6%	4.1%

Is the interest on debts in line with the market?	Yes
---	-----

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices. Croatia Control has three loans: one with the European Investment Bank since 2002, one with the European Bank for Reconstruction and Development since 2011 and one new commercial loan starting from 2021 at 2.45% to complete planned investments.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024 the reported cost of capital is 6.89M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 3.4%-5.4%).

4.3.A.4 Regulated Asset Base review

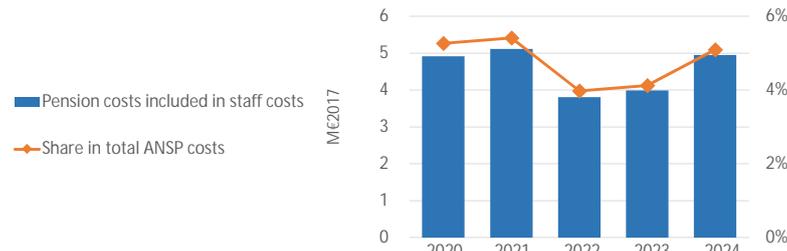
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	56,435	70,349	80,580	90,605	102,079
Net current assets	8,353	8,033	8,870	9,783	10,815
Adjustments total assets	0	0	0	0	0
Total asset base	64,789	78,383	89,450	100,388	112,894

- Fixed asset base will increase over RP3 on average by 16% per year, partially in line with the investments described in the section 3.5.
- RAB does not include adjustments to the total asset base.
- Net current assets do not present major issues.
- Total asset base will increase over RP3, this is mainly driven by an increase in the fixed asset base.

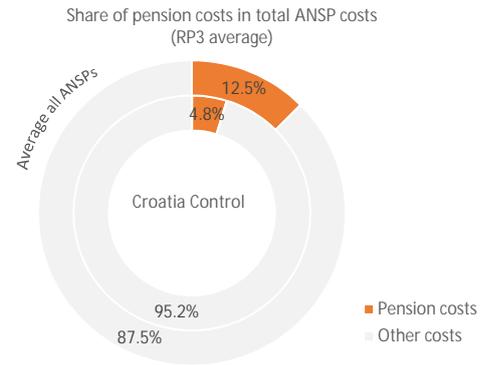
4.3.A.5 PRB Key Facts

- The reported cost of capital is 6.89M€ above the efficient cost of capital over the period 2020-2024. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 3.4%-5.4%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	4.9	5.1	3.8	4.0	4.9
Year on year variation	% change		+4.0%	-25.5%	+4.8%	+23.9%
Share in total ANSP costs	%	5.3%	5.4%	4.0%	4.1%	5.1%
Year on year variation	p.p.		0.1p.p.	-1.4p.p.	0.1p.p.	1.0p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight decrease**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **n/a**

There is no occupational defined benefit scheme at Croatia Control.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

The performance plan states that these contributions comprise the "pension costs stemming from the mandatory employer contributions into the accelerated retirement scheme for the en route activity relevant ATCOs". The maximum contribution rate is 11.3% for all years of RP3.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **See comment**

The performance plan states that this scheme is part of the existing collective agreement and relates to "one off severance rights (planned for the part of employees which are expected to end their working age in the company) and pension related ("MIO") defined contribution (applicable monthly to all employees)". Given the mechanism of this scheme, Croatia is not in a position to specify a % contribution rate nor a precise pensionable payroll.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

There is no occupational defined benefit scheme at Croatia Control.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

The performance plan states that "employer contribution rate to the scheme is exclusively defined by the overnment therefore out of Croatia Control (CCL)'s control. CCL holds reasonable control over the realisation of the RP3 staff plan and will aim at executing the staff plan according to development of relevant business environment (in terms of traffic, CAPEX plan, etc.)."

4.3.B.4 PRB Key Points ✓

- No major issues identified

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Croatia did not change the cost allocation methodology with respect to RP2.
- Croatia does not have terminal charging zone included in the performance plan.
- The methodology for allocation of costs between en route and terminal is based on costs incurred by the location of the flight ("20 km" rule). More specifically, it considers the dimension of the charging zone, the specific location bases as well as the specific ANS service.
- The criteria provided for allocation of costs between en route and terminal are: number of staff available, traffic structure and magnitude, net book value structure and magnitude of the fixed asset, resources employed for the purpose of ANS provision and "20 km rule" for the allocation of approach related resources.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?

n/a

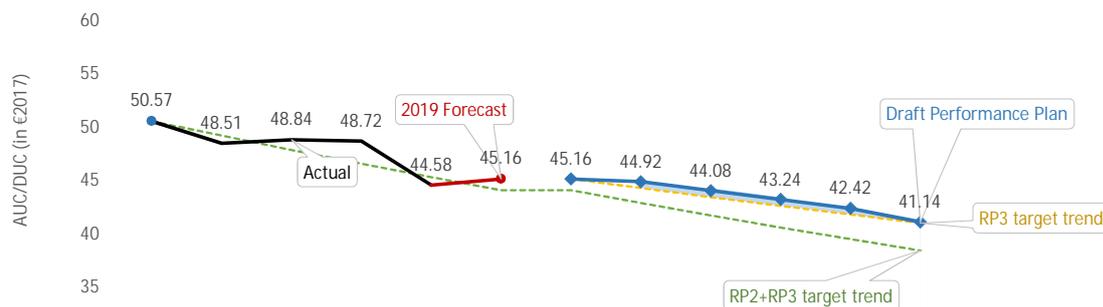
2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points ✔

- Croatia did not change the cost allocation methodology with respect to RP2.
- No major issues have been identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024	
AUC/DUC	€ (2017)	50.57	48.51	48.84	48.72	44.58	45.16	45.16	44.92	44.08	43.24	42.42	41.14	-1.9%	-2.0%
Annual Change	%		-4.1%	+0.7%	-0.2%	-8.5%	+1.3%	+1.3%	-0.5%	-1.9%	-1.9%	-1.9%	-3.0%		

4.4.2 DUC consistency

- ✓ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-1.9%	Union-wide trend	-1.9%	Difference	+0.0p.p.
PP trend	-2.0%	Union-wide trend	-2.7%	Difference	+0.7p.p.
PP 2019 baseline	45.16	Average comp. group	40.26	Difference	+12.2%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Croatia achieves the Union-wide RP3 DUC trend of -1.9%.

Croatia does not achieve the Union-wide RP2+RP3 long-term trend (-2.0% compared to -2.7%).

The 2019 DUC for Croatia is +12.2% higher than the average of the comparators group.

Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- Croatia is meeting the RP3 DUC trend in terms of average reduction.
- Croatia is not meeting the Union-wide DUC long-term trend.
- Croatia is not consistent with the average DUC baseline of the comparator group.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.5 Terminal (not applicable)

Croatia

Croatia has not established any terminal charging zone for RP3.

PRB Assessment

CYPRUS

Draft Performance Plan

Context and scope

Cyprus

Performance Plan: Draft performance plan (Article 12) Dated: 03.12.2019
 Documents no: 1781, 1782, 1172, 1156, 1170, 1155, 1166, 1154, 1163, 1168, 1157, 1160, 1162, 1167, 1169, 1158, 1161, 1173, 1151, 1783, 1152, 1164, 1784

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 0.8%
 % Costs V. SES 0.5%

Scope

FAB: BLUE MED FAB

ANSPs: DCAC Cyprus
 Department of Meteorology of the Ministry of Agriculture and Natural resources of the republic of Cyprus.

ATS/CNS*/AIS
 MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): National Supervisory Authority
 Search and rescue

ANS oversight
 SAR

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Cyprus	n/a	No	No	No	<p>ER 100% TRM 0%</p>
Terminal	n/a	0	No	No	No	
Changes in the CZs from RP2		Yes				
No terminal charging zone has been included in the RP3 performance plan.						

Comparator group: Group D Other States in the comparator group: Estonia
 Greece
 Latvia
 Lithuania
 Malta

Currency: € Exchange rate: 1.00000

1. Safety ✔

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
CYATS	Safety policy and objectives	C	C	C	C	C
	Safety risk management	D	D	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Conclusions

The PRB concludes that the safety targets proposed by Cyprus should be approved.
 -The EoSM safety targets are in line with the Union-wide performance targets.

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that the measures are insufficiently described to demonstrate how the ANSP will improve maturity levels to reach RP3 targets levels in 2020.

2. Environment ✔

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	4.10%	4.03%	3.95%	3.95%	3.95%

PRB Conclusions

The PRB concludes that the environment targets proposed by Cyprus should be approved.
 - DCAC's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✘

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	1.00	0.60	0.40	0.20	0.16
National target for terminal and airport ANS ATFM arrival delay per flight (min)	n/a	n/a	n/a	n/a	n/a

PRB Conclusions

The PRB concludes that the capacity targets proposed by Cyprus should not be approved.
 - National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in 2020, 2021, 2022, and 2023.
 - The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

The PRB will monitor the impact of geopolitical circumstances around Cyprus on its capacity performance.

4. Cost-efficiency ✘

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	27.78	28.18	29.19	29.80	29.05	-1.2%	+1.5%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	n/a	-

PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Cyprus should not be approved.
 - Cyprus is only consistent with the DUC level of the average of the comparator group.
 - Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
 - The performance plan establishes a new entity operating as an ANSP, however, restructuring costs are not presented.

PRB Recommendations

SAFETY

- Cyprus should define explicit measures to achieve the RP3 safety targets levels in 2020.
- Cyprus should ensure consistency between safety levels achieved for RP2 in 2019 and planned starting levels for RP3.

ENVIRONMENT

- Cyprus should consider the measures it plans to achieve the RP3 environment targets and whether those are appropriate. It is unlikely that ATS route network improvements will deliver the required environmental performance.
- Cyprus should ensure the deployment of FRA is achieved as it is crucial that it achieves compliance with the Pilot Common Projects (i.e. offering FRA above FL310).
- Cyprus should work with its other BLUE MED FAB partners to ensure cross-FAB FRA is implemented as recommended in the ERNIP.
- The PRB acknowledges that Cyprus is negatively impacted by extraordinary circumstances having an impact on its airspace.

CAPACITY

- Cyprus should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets in each calendar year of RP3.
 - Cyprus should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.
- Cyprus should revise the incentive scheme so that it has a material impact on the revenues and motivates the ANSP to improve its performance.

COST-EFFICIENCY

- Cyprus should provide the details of additional costs in case of a deviation from the trend targets in order to achieve capacity targets.
- Cyprus should further assess the possibility for restructuring costs due to the future corporatize entity.
- Cyprus should allocate to en route only the correct proportion of the investments.
- Cyprus should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Cyprus should reduce the cost of capital proposed aligning it to the market risk exposure.

CYPRUS

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan does not describe any specific measures but indicates that the ANSP intends to employ two full-time staff (including a safety manager) with the aim of enhancing the safety management system prior to the start of RP3. If this has not been achieved, Cyprus should revise the target and provide the specific measures describing how the ANSP will improve the maturity of safety management system should be provided.

1.1.3 Interdependencies and Trade-offs

The draft performance plan indicates that the interdependencies of safety and other KPAs during the implementation of the change to the ATM Functional system are mitigated in accordance with the usual risk management practices which are documented in the ANSP's safety management system. It is considered that the approach is appropriate to ensure that safety will not be compromised during the implementation of the changes.

1.1.4 Change Management

The draft performance plan indicates that the ANSP is in the process of revising their change management procedures in perspective of compliance with Commission Implementing Regulation (EU) 2017/373. This is expected to ensure the negative impact on network performance is minimised while the changes are implemented.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Cyprus should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that the measures are insufficiently described to demonstrate how the ANSP will improve maturity levels to reach RP3 targets levels in 2020. The PRB will closely monitor that maturity levels at the start of RP3 is achieved through measures implemented in the last year of RP2 or first year of RP3 in its "RP3 watchlist".

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
CYATS	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	D	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any specific measures but indicates that the ANSP intends to employ two full time staff (including a safety manager) with the aim of enhancing the safety management system. Considering that the ANSP aims to achieve the targets already in 2020, the measures are not sufficiently detailed unless the new staff has been able to improved the maturity of the Safety Management System prior to start of RP3. Alternatively, Cyprus should revise the targets for RP3 and provide the specific measures describing how the ANSP will improve the maturity of safety management system.

1.3.1 Interdependencies and Trade-offs

The draft performance plan indicates that the interdependencies between safety and other KPAs during the implementation of the change to the ATM Functional system are mitigated in accordance with the usual risk management practices which are documented in the ANSP's safety management system. The draft performance plan states that "Safety will always have the highest priority", thus the trade-off against other KPAs are not allowed. Additionally, the NSA monitors through regular audits and inspections that the safety levels are not degraded during the implementation of the major changes.

1.3.2 Change Management Practices

Cyprus plans to implement one major investment during RP3. Although, the draft performance plan does not refer to any specific procedure, it is indicated that the ANSP is in the process of revising their change management procedures in perspective of compliance with Commission Implementing Regulation (EU) 2017/373. It is considered that compliance with Commission Implementing Regulation (EU) 2017/373 ensures the negative impact on network performance is minimised while the changes are implemented.

CYPRUS

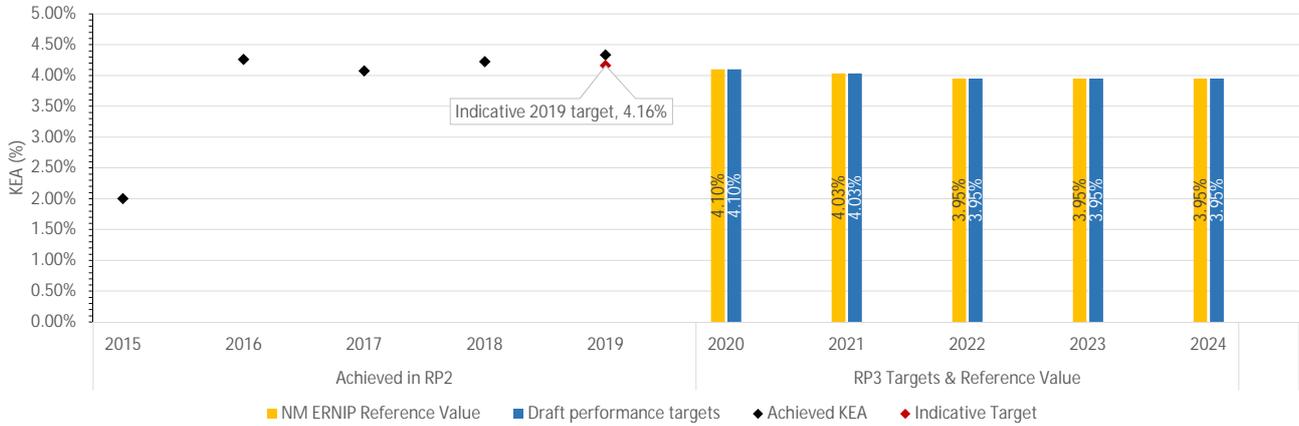
Environment KPA

2.1 Summary of environment key data and assessment results

Cyprus

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	4.10%	4.03%	3.95%	3.95%	3.95%
Draft performance targets	4.10%	4.03%	3.95%	3.95%	3.95%
Comparison of draft performance targets with reference values	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Cyprus should be approved.
 - DCAC's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? Currently no FRA is provided in Cypriot airspace.	✘	Reference in PP None	Reference in LSSIP Page 36
Major ERNIP Recommended Measures: Measure included within performance plan?	3	Reference in PP None	Reference in ERNIP Page 11
Implement cross-border FRA within Blue Med	✘	None	Page 68
Nicosia Direct Route Airspace - Phase 1C	✘	None	Page 70
Free Route Airspace Cyprus - FRANIC Phase 1	✘	None	Page 70
FUA Implementation according to latest LLSIP	Implementation		
1	✔		
2	✔		
3	✔		

The chart in section 2.1.1 shows that Cyprus achieved a KEA of 4.33% in 2019 and needed to meet an indicative target of 4.16% in 2019 to achieve the planned target of 4.10% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achieved value and the 2020 reference value.

According to the LSSIP, "the State supports the ANSP in [the effort to implement FRA] as this is a regulatory requirement. The State will strive to implement FRA by the set deadline and will make available any necessary budgeting". No such commitment was provided in the performance plan in line with the ERNIP recommendations, which is concerning as the LSSIP is not binding unlike the performance plan.

Nicosia Direct Route Airspace - Phase 1C will allow seven night-time DCT flight planning options above FL285 by the summer of 2020. FRANIC Phase 1 aims to implement 24-hour FRA between FL285 - FL660 in Nicosia FIR by the summer of 2022. These projects were not committed to and no cross-border FRA plans were discussed in the performance plan either.

Instead, Cyprus, in cooperation with the NM, aims to constantly revise its route network to offer the most environmentally friendly and cost-efficient routings. No further information was provided as to which parts of its route network needs revision.

No significant measures or details of a plan to achieve the targets were provided.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Cyprus plan for an environmental incentive scheme? Cyprus does not plan to apply an optional incentive scheme for the environment KPA.	✘
--	---

CYPRUS

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Cyprus proposes targets which are above the national reference values in the first four years of RP3, but converge gradually towards the reference value, finally reaching it in 2024. Target values are higher than the NOP delay forecast in 2020, but fall within the NOP delay forecast range in later years.

Capacity plans and capacity enhancement measures indicate that Cyprus may be able to close the capacity gap over RP3.

The capacity gap is highly sensitive to the crisis situation around Cyprus.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✓
Deviation target v. reference value (minutes per flight)	0.64	0.26	0.14	0.04	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✗	⚠	⚠	⚠	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay n/a

3.1.3 Incentives

The pivot value is not based on the reference values published in the NOP for the first four years of RP3, instead it is based on national targets. For the final year, the pivot value is based on the reference values published in the NOP. It is very difficult to predict the likely financial implications since the delay forecast in the NOP has such a wide variation (0.17 - 1.18 minutes per flight over RP3). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Cyprus wrongly allocates all the investments fully to en route.
 The investments planned are supporting the capacity enhancement measures as agreed between Cyprus and the NM.
 The other new and existing investments seem to be partly linked to the capacity measures. However, more details are needed in order to support the assessment of the contribution expected contribution to the capacity targets.

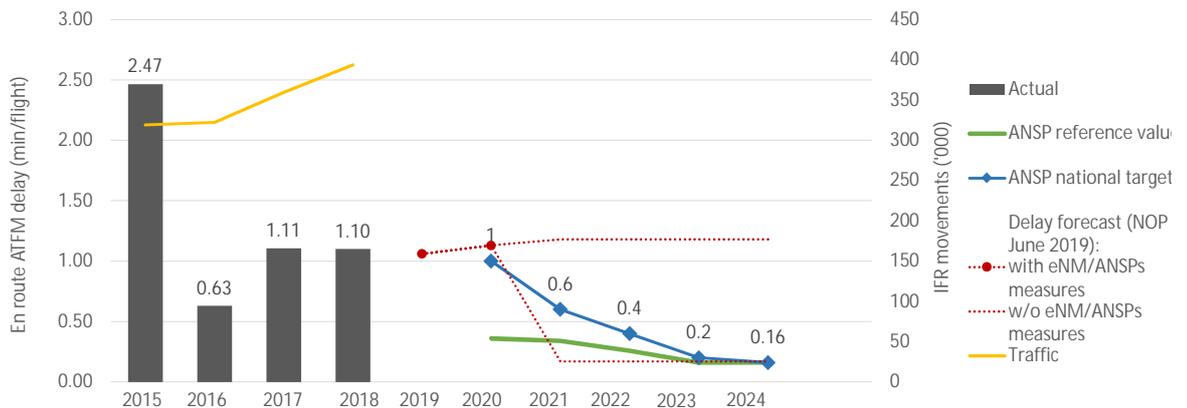
3.1.5 PRB conclusions ✗

The PRB concludes that the capacity targets proposed by Cyprus should not be approved.
 - National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in 2020, 2021, 2022, and 2023.
 - The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

The PRB will monitor the impact of geopolitical circumstances around Cyprus on its capacity performance.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✘



Y-on-Y change in traffic (IFR movements)	+4.9%	+1.0%	+11.6%	+9.5%					
Actual ATFM delay per flight	2.47	0.63	1.11	1.10					
ANSP reference values					0.36	0.34	0.26	0.16	0.16
ANSP national targets					1.00	0.60	0.40	0.20	0.16
Forecast with eNM/ANSPs measures*					1.06	1.13			
Forecast w/o eNM/ANSPs measures*					1.06	1.13	0.17-1.18		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✘	✘	✘	✔
Deviation target v. reference value (minutes per flight)	0.64	0.26	0.14	0.04	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✘	⚠	⚠	⚠	✘

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✔

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- Enhanced staffing;
- Corporatisation of the ATSP;
- Airspace restructuring;
- Upgrading of ATM infrastructure.

The performance plan also gives reference to the measures included in the NOP, highlighting the following items:

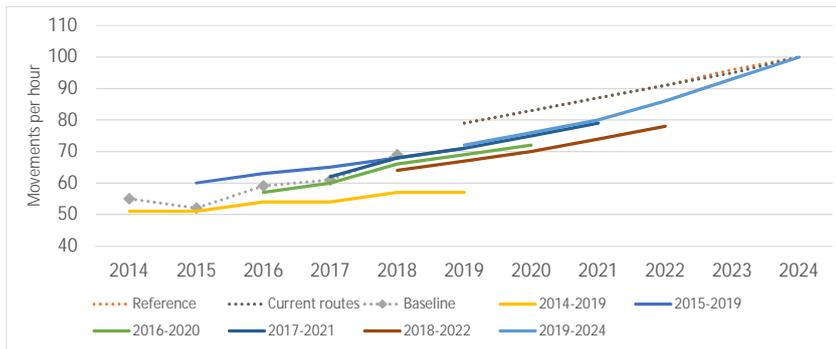
- Improved ATFCM, including STAM;
- Continuous improvement of route network (supported by the NM);
- Stepped re-sectorisation of Nicosia ACC;
- Enhancement of ATCO staffing levels;
- Operating additional ATC sectors;
- Datalink implementation;
- Implementation of a new ATM system and transition to a new ACC.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Nicosia ACC (LCCC)	Additional ATCOs in OPS to start working in the OPS room	0	0	15	0	15	0	12	+39
	ATCOs in OPS to stop working in the OPS room	0	9	1	1	1	0	0	
	ATCOs in OPS to be operational at year-end	81	72	86	86	100	99	111	
Total - DCAC (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	15	0	15	0	12	+39
	ATCOs in OPS to stop working in the OPS room	0	9	1	1	1	0	0	
	ATCOs in OPS to be operational at year-end	81	72	86	86	100	99	111	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Nicosia ACC (LCCC)



- Historical data shows that baseline values have increased by an average 6.1% over RP2, also including a drop in 2015, and an increase of over 13% in 2016 and 2018. Planned values were lower than the baseline, except for 2015 and 2017.

- Latest capacity plans show an average annual growth of 6.8% in capacity. In the first two years the growth is just above 5%, whereas in the last three years the annual growth is above 7%, reaching its peak in 2023 at 8.1%.

- When compared to the reference profile values, the planned capacity profile shows a capacity gap of -9.2% at the beginning of RP3, which is gradually closed by the end of the reference period: in 2024 the planned capacity profile value is equal to the reference profile value. The current routes scenario is only marginally different.

- According to the capacity profile analysis, Cyprus may experience a capacity gap, especially in early years of RP3, but is also expected to close the gap by 2024.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						79	83	87	91	96	100
Current routes						79	83	87	91	95	100
Baseline	55	52	59	61	69						
2014-2019	51	51	54	54	57	57					
2015-2019		60	63	65	68	71					
2016-2020			57	60	66	69	72				
2017-2021				62	68	71	75	79			
2018-2022					64	67	70	74	78		
2019-2024						72	76	80	86	93	100

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps ✓

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure
The performance plan contains a larger number of additional ATCOs than the NOP. ✓
- b) Measures proposed by the NM are implemented in the Performance Plan
NM proposed measures are implemented in the performance plan. ✓
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM
n/a n/a
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values
There is no information in the performance plan about measures proposed by the NSA. ⚠
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)
Cyprus included a larger number of additional ATCOs in the performance plan than those included in the latest NOP. Number of ATCOs correlates well with the capacity targets. ✓
- f) Flexible use of operational staff is planned and ensured
Enhanced staffing and enhanced rostering related measures are planned to ensure flexible use of operational staff. ✓
- g) Limitations of ATM system/infrastructure is mitigated
The performance plan included investments focused on upgrading the ATM system, in order to increase capacity. ✓

3.2.6 PRB Key Points ✗

- Cyprus proposes targets which are above the national reference values in the first four years of RP3, but converge gradually towards the reference value, finally reaching it in 2024. Target values are higher than the NOP delay forecast in 2020, but fall within the NOP delay forecast range in later years.
- Capacity plans and capacity enhancement measures indicate that Cyprus may be able to close the capacity gap over RP3.
- The capacity gap is highly sensitive to the geopolitical situation around Cyprus.

3.3. Arrival ATFM delay per flight (not applicable)

Cyprus

Cyprus has not established any terminal charging zone for RP3.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±3.0%	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.36	0.34	0.26	0.16	0.16
Alert threshold (Δ Ref. value in fraction of min)	±0.058	±0.057	±0.053	±0.050	±0.050
Performance Plan targets	1.00	0.60	0.40	0.20	0.16
Pivot values for RP3	1.00	0.60	0.40	0.20	0.16

Threshold review

The pivot value is not based on the reference values published in the NOP for the first four years of RP3, instead it is based on national targets. For the final year, the pivot value is based on the reference values published in the NOP.

Modulation review

No modulation should be applied.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty fixed at 0.5% of revenue. Delay forecasts in the NOP show a wide range of possible delays (0.17 - 1.18 minutes of delay per flight over the entire period) thus making it extremely difficult to provide an outlook on possible financial advantages/disadvantages.

3.4.2 Terminal capacity incentive scheme

n/a

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✗

- The pivot value is not based on the reference values published in the NOP for the first four years of RP3, instead it is based on national targets. For the final year, the pivot value is based on the reference values published in the NOP.
- It is very difficult to predict the likely financial implications since the delay forecast in the NOP has such a wide variation (0.17 - 1.18 minutes per flight over RP3).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	2.5	4.0	4.4	7.0	6.7	24.5
En route	M€ (nominal)	2.5	4.0	4.4	7.0	6.7	24.5
Terminal	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	NEW ATM SYSTEM	A new ATM system, comprising both hardware and software components, to enable the operation of at least 10 ATC sectors at Nicosia ACC. More details can be found in section 2.1 of the performance plan and in the Annex T of the performance plan.	14.3	Yes	Yes	4.5	0.0
Total:						4.5	0.0

Airspace user feedback regarding major investments

The airspace users appreciated the provision of details regarding the RP2 investments having carryover effects in RP3, and the details of the investment in the new ATM System, noting the need of a proper cost benefit analysis and a risk assessment.

Cyprus provided a cost benefit analysis and risk assessment for the investment in Annex T of the performance plan. Moreover, Cyprus provided information regarding the investments that have not been completed in RP2 and noted that the users will not be double charged for the investments not realised.

Review of investments

Cyprus fully allocates the investments to en route. The allocation choice is explained by Cyprus in Annex T of the performance plan, which states that the allocation was based on the disseminated by the PRB "Supporting material for the development of the RP3 performance plan", May 2019, Section 5, para. 5 on page 24. However, the section highlights that in the case of no terminal charging zone the State should report the costs only related to en route and write as percentage 100% (i.e. since all the costs reported are indeed en route costs). Thus, the PRB is not indicating that in case of no terminal charging zone all costs should be allocated to en route, but that only the en route cost should be reported.

New major investments represent 18% of the total determined costs of investments over RP3. This investment for RP3 is justified and was not part of the RP2 program. However, concerning RP2 to date (2015-2018) actual CAPEX delivery reaches 35% and the amount underspent is 8.65M€. It is not clear in the performance plan if this amount will be given back to the airspace users, as communicated by Cyprus to the airspace users in the consultation.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
n/a				

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	22.9	22.9	0.4	2.6	3.2	3.7	3.6	13.5
Existing investments			2.1	1.4	1.2	1.1	0.9	6.6

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 55% of the total determined costs of investments over RP3, while existing investments represent 27%. As stated in the performance plan, section 2.1.3 "New and existing investments are associated with all CNS sub-domains and range from ATM system upgrades, to surveillance infrastructure upgrades, NAV and landing aids (e.g. ILS). The vision with the planned investments is to have sufficient capabilities in all areas so as to support the effort to operate more ATC sectors and to reduce delays. Furthermore, the current levels of safety need to be maintained by replacing end-of-life systems in a timely manner." Cyprus provides a web-based tool where the progress and actual costs of investments are updated, at https://airtable.com/shrvvlsz5Go8V9owb . Accessing the tool, the other new investments are represented by: <ul style="list-style-type: none"> - NAVAIDS (VOR/DME) - Replacement at Larnaca and Paphos airports; - Surveillance (Radar) infrastructure upgrades (for end-of-life systems); - Landing aids (ILS) replacement at Larnaca and Paphos airports; - Data (IP) network.
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

The major investment is in the line with the technical capacity enhancement measures introduced by the NOP 2019-2024. The project addresses some of the reasons for capacity gaps listed in the NOP, and may support many of other airspace and operational measures introduced by the capacity plan. The NOP indicates that the required capacity profile is expected to be reached only in 2024. Although the ACC Nicosia is expected to generate delays at higher levels than the network capacity requirements, the situation is expected to gradually improve. The project is going to support the opening of even more sectors (at least 10) than presented in the NOP (max 7). The benefits from the major investment could be expected in the second half of RP3 and during RP4.

Investment #1 is the new ATM system addressing previous capacity issues and supporting some of the operational capacity enhancement measures (i.e. re-sectorisation, higher sectors' capacity, more positions for ATCOs in ACC, improved ATFCM, FRA implementation).

Other new and existing investments partly support capacity improvements and measures introduced in the NOP. The level and proportion of contribution is difficult to assess due to the low level of details provided in the description on the investments.

- ATM system upgrades - specific NOP measure.
- NAV and SUR infrastructure - enabler for higher sector capacity - specific NOP measure for reduction of separation minima.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

According to the NOP, the capacity plan linked to the investments presented in the performance plan is heavily sensitive to the crisis situation in the region around Cyprus. The NM has suggested to Cyprus to plan on high traffic growth capacity profile scenario. The traffic is expected to grow steadily at a nearly constant rate. Apart from the operational and airspace measures, Cyprus will start with the ATM system upgrade to support other measures, and will continue with the new ATM system implementation project (investment #1) in the middle of RP3. According to the assessment provided by the NOP, it seems that the approach and timing will yield capacity benefits by closing capacity gaps until reaching required values in 2024.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

Investment #1 will enter into operation in 2023. Expenditures associated with the investment #1 will start in the year of the project deployment and will continue along the RP3. Other new and existing investments are not supported by many details in the performance plan. However, some of those investments are linked to some capacity enhancement measures introduced in the NOP. The associated expenditures are spread along the whole RP3. Despite the low level of details in descriptions of the investment projects, it seems that the projects are well sequenced and planned.

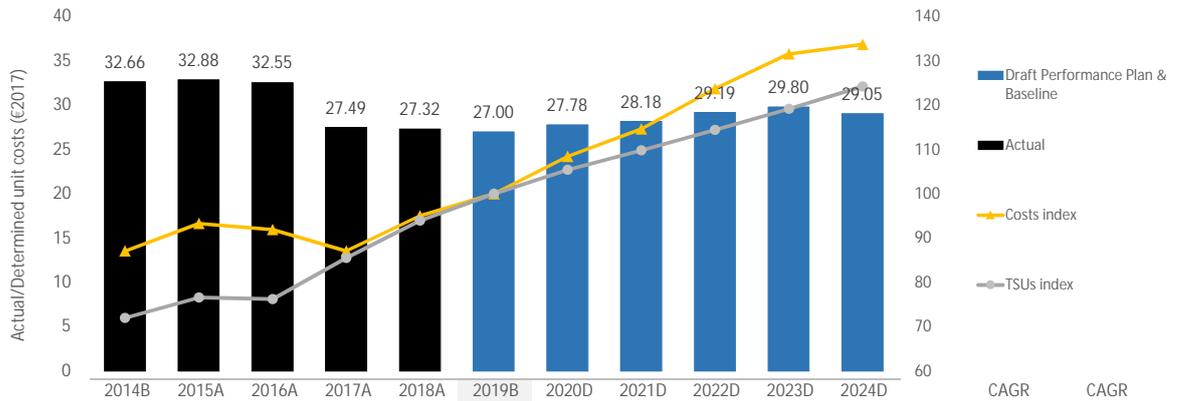
3.5.4 PRB Key Points

- Cyprus wrongly allocates all the investments fully to en route.
- The investments planned are supporting the capacity enhancement measures as agreed between Cyprus and the NM.
- The other new and existing investments seem to be partly linked to the capacity measures. However, more details are needed in order to support the assessment of the contribution expected contribution to the capacity targets.

CYPRUS

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	48	51	50	48	52	-	60	65	71	76	78	-	+5.0%
Total costs	M€ (2017)	48	51	50	48	52	55	59	63	67	72	73	+6.0%	+4.4%
TSU	'000	1,454	1,548	1,540	1,728	1,897	2,020	2,129	2,219	2,312	2,408	2,510	+4.4%	+5.6%
AUC/DUC	€ (2017)	32.66	32.88	32.55	27.49	27.32	27.00	27.78	28.18	29.19	29.80	29.05		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	32.66	32.88	32.55	27.49	27.32	27.00	27.78	28.18	29.19	29.80	29.05		
Annual change	%		+0.7%	-1.0%	-15.5%	-0.6%	-1.2%	+2.9%	+1.4%	+3.6%	+2.1%	-2.5%	+1.5%	-1.2%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified? 27.00 €2017 ⓘ

The 2019 baseline DUC value amounts to 27.00€2017. This is estimated using a standard linear regression methodology based on 2015-2018 actuals, adjusted to reflect the latest available cost estimates.

The proposed baseline value for en route costs is in line with the 2019 forecast, but +5.2% (+2.7M€2017) higher than the 2018 actual. Higher 2019 baseline costs, as compared to 2018 actual, result from an increase in all the cost categories.

The TSUs selected for the computation of the en route 2019 baseline value are +0.8% higher than the TSUs foreseen for 2019 by STATFOR February 2019 base scenario. This deviation is explained by the fact that Cyprus uses the May 2019 intermediate 2-year STATFOR forecast for the 2019 baseline TSUs value. It is also noted that the 2019 baseline TSUs value is expressed in M2, rather than M3.

4.1.3 Summary of cost-efficiency assessment results

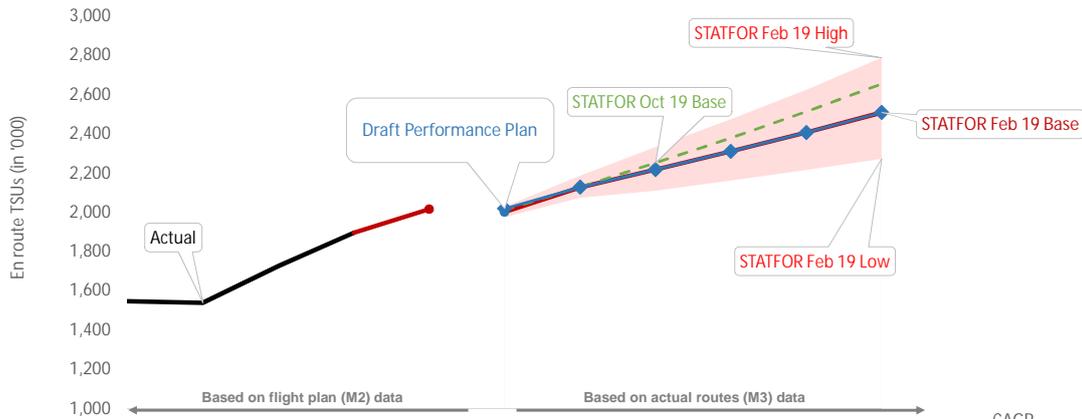
- a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? 1.5% ❌
Cyprus proposes a +1.5% CAGR increasing DUC trend over RP3, resulting from the combination of an expected +4.4% CAGR TSUs trend and a +6.0% CAGR increasing trend for costs. The proposed trend is not achieving the Union-wide RP3 DUC trend.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? -1.2% ❌
Over the RP2 and RP3 period, the DUC for Cyprus follows a -1.2% CAGR decreasing trend between 2014 and 2024. This is +1.5 p.p. higher than the required target and therefore not achieving the Union-wide long-term trend.
- c) DUC level (2019 baseline) lower than the average of comparator group (D) average (30.90 €2017)? -12.6% ✅
The 2019 DUC level for Cyprus (27.00€2017) is -12.6% below the average DUC of the comparator group (30.90€2017). The DUC for Cyprus is expected to remain below the average DUC of the comparator group for the entire 2020-2024 period. Furthermore, Cyprus presents one of the lowest 2019 baseline DUC among all the European states and it is expected to remain among the five lowest also by the end of RP3.
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? n/a
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? n/a

4.1.4 PRB Conclusions ❌

The PRB concludes that the cost-efficiency targets proposed by Cyprus should not be approved.

- Cyprus is only consistent with the DUC level of the average of the comparator group.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
- The performance plan establishes a new entity operating as an ANSP, however, restructuring costs are not presented.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F (M2)	2019B (M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	1,548	1,540	1,728	1,897								
Annual change	%		-0.5%	+12.2%	+9.8%								
STATFOR Feb 19 Base	'000 TSUs					2,018	2,003	2,129	2,219	2,312	2,408	2,510	+4.6%
Annual change	%					+6.3%	+5.5%	+6.3%	+4.2%	+4.2%	+4.2%	+4.2%	
STATFOR Oct 19 Base	'000 TSUs					-	2,014	2,129	2,254	2,380	2,514	2,656	+5.7%
Annual change	%					-	+6.1%	+5.7%	+5.8%	+5.6%	+5.6%	+5.7%	
Performance Plan	'000 TSUs						2,020	2,129	2,219	2,312	2,408	2,510	+4.4%
Annual change	%						+6.5%	+5.4%	+4.2%	+4.2%	+4.2%	+4.2%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	2,020		
2019F (as in the Reporting tables, M2)	2,020		
2019B/ 2019F	0.00%	-0.74%	-0.85%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
	L	B	H	
2019B (PP baseline, M3)		2,020		
2019F (STATFOR Feb 19, M3)	L 1,975	B 2,003	H 2,028	+0.85%
2019F (STATFOR Oct 19, M3)	L 2,004	B 2,014	H 2,022	+0.30%

The traffic forecast selected by Cyprus for the computation of the 2019 en route baseline (2,020,000 TSUs) is +0.8% higher than STATFOR February 2019 base forecast (2,003,000 TSUs). This difference derives from the fact that Cyprus used the May 2019 intermediate 2-year STATFOR forecast for the 2019 baseline TSUs value, rather than the February forecast.

The 2019 baseline TSUs still reflects the M2 methodology and the M2/M3 correction coefficient was not applied. The application of the 3-months M2/M3 CRCO correction factor (-0.74%) would have resulted in a 2019 baseline TSUs value of 2,005,000, which is slightly above the February 2019 base forecast. However, the use of a lower traffic forecast for the 2019 baseline value would result only in a marginal improvement of the RP3 DUC trend (from the current +1.5% CAGR to +1.3% CAGR).

The STATFOR October 2019 base forecast has revised upward the traffic forecast for 2019 as compared to the February forecast. As a result, the 2019 baseline TSUs are only +0.3% higher than the October base forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Not required, as the proposed traffic forecast is in line with STATFOR February 2019 base forecast.

Review of the PP traffic forecast

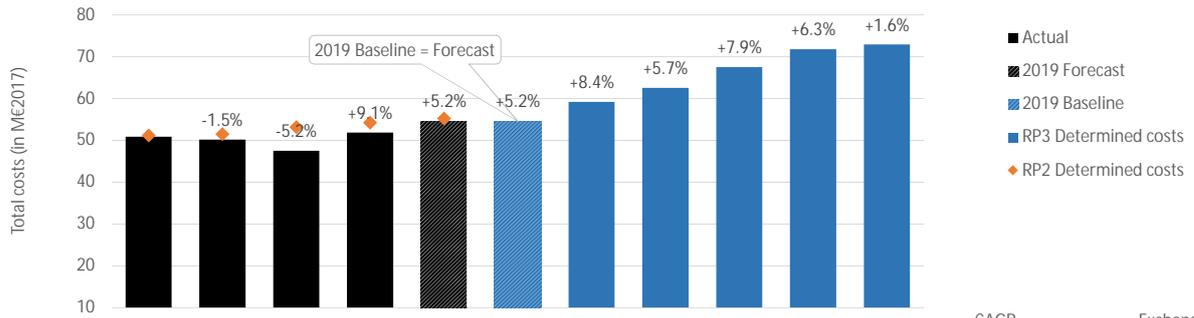
As far as it concerns the 2020-2024 period, the TSUs selected by Cyprus are in line with STATFOR February 2019 base forecast.

It is noted that the STATFOR October 2019 base forecast has revised upward the traffic expectations for Cyprus, starting from 2021. Based on this latest forecast, actual TSUs are expected to be +5.8% higher than planned in 2024.

4.2.4 PRB Key Points

- The 2019 baseline TSUs reflects the M2 methodology and the M2/M3 correction coefficient was not applied. The application of the 3-months M2/M3 CRCO correction factor (-0.74%) would have resulted in a 2019 baseline TSUs value of 2,005,000, which is slightly above the February 2019 base forecast. However, the use of a lower traffic forecast for the 2019 baseline value would result only in a marginal improvement of the RP3 DUC trend (from the current +1.5% CAGR to +1.3% CAGR). Therefore, the traffic proposed by Cyprus does not represent major issues.

4.3.1 Overview of en route costs in RP2 and RP3



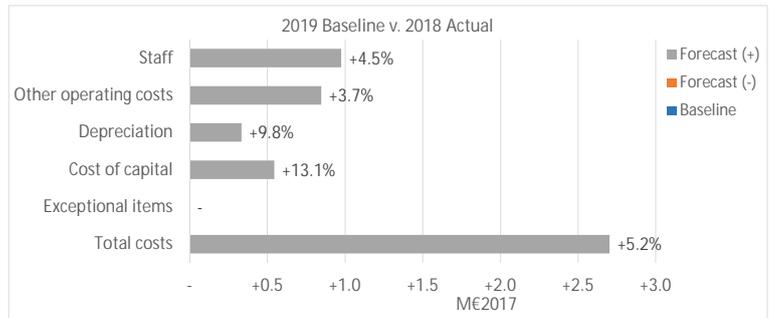
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	51	50	48	52	55	-	60	65	71	76	78	-	€:€
Annual change	%	-	-2.2%	-4.8%	+9.6%	+5.5%	-	-	+6.9%	+9.5%	+7.6%	+3.1%	+1.9%	1.00000
Inflation index	2017 = 100	100.5	99.3	100.0	100.8	101.3	101.3	103.0	104.7	106.8	109.0	111.1	-	-
Total costs	M€ (2017)	51	50	48	52	55	55	59	63	67	72	73	+6.0%	-
Annual change	%	-	-1.5%	-5.2%	+9.1%	+5.2%	+5.2%	+8.4%	+5.7%	+7.9%	+6.3%	+1.6%	+6.0%	-
Total costs	M€ (2017)	51	50	48	52	55	55	59	63	67	72	73	+6.0%	-

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+2.7	+5.2%
2019F v. 2019 RP2 DC	-0.6	-1.2%
2019F v. average 2015-2018	+4.4	+8.9%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast en route costs are +5.2% higher than the 2018 actual costs (+2.7M€2017) and +8.9% (+4.4M€2017) higher than the 2015-2018 average actual costs.

The main contributor to this deviation is the NSA, for which Search and Rescue (SAR) related costs increased significantly in 2019 as compared to 2018 (+1.7M€2017).

The 2019 forecast costs are below the 2019 RP2 determined costs (-1.2%, or -0.6M€2017).

2019 baseline analysis

The proposed baseline costs value for en route is in line with the 2019 forecast costs (i.e. 54.5M€2017). This baseline was calculated using a standard linear regression methodology based on 2015-2018 actuals and adjusted to reflect latest available cost estimates, traffic variations and their relation to costs.

Higher 2019 baseline costs, as compared to 2018 actual, result from an increase in all the cost categories. Staff costs increased by +4.5% (+1.0M€2017) as a result of higher employer's contribution to social and health insurance, recruitment of management staff and annual salary increases. Other operating costs (+3.7%, or +0.8M€2017) increased due to additional costs for training, maintenance, CNS activities and other projects (i.e. airspace restructuring).

While the ANSP is the main contributor to the increase in OPEX related costs, the increase in CAPEX (+9.8% for depreciation and +13.1% for cost of capital) is mainly the result of a significantly higher asset base for the NSA, mostly related to a new SAR project.

Justifications concerning the expected increase in costs for 2019 baseline are provided in Annex F of the performance plan.

There is no change of scope in the Cyprus en route charging zone between RP2 and RP3.

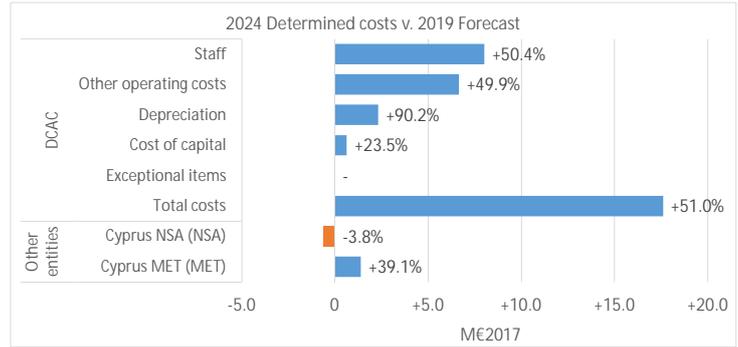
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✗ Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✗ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



As far as the RP3 total determined costs are concerned, these are expected to increase by about +6.0% CAGR between 2019 baseline and 2024 (+18.4M€2017). The main contributor to this increase is DCAC Cyprus, the costs of which are expected to increase by +51.0% (+17.6M€2017) between 2019 forecast and 2024.

Higher costs are mainly explained by higher staff costs (+50.4%, or +8.0M€2017), resulting from the combined effect of additional recruitment (+42 ATCOs and +20 support staff planned between 2020 and 2024) and increase in gross salaries. Also, the other operating costs are expected to increase significantly over the RP3 period (+49.9% or +6.6M€2017) as a result of the reallocation of State cost previously included in the NSA cost base, the preparation for the operation of a new ACC and other technical investments. Additionally, the increase in ANSP's other operating costs is also due to higher rental, maintenance, travel and training expenses. Finally, also depreciation costs (+90.2%) and cost of capital (+23.5%) are expected to increase over the period as a result of the significant increase in the ANSP's total asset base (50.3M€2017 in 2024 as compared to 21.6M€2017 in 2019). In this respect, it is noted that investments associated with terminal services are fully included in the en route cost base. For detailed analysis on the evolution of the asset base and CAPEX related costs, see sections 3.5 and 4.3 of this document.

As far as other entities are concerned (i.e. MET providers and NSA/SAR), their impact on the total cost is relatively marginal when compared to the cost increase proposed by the ANSP.

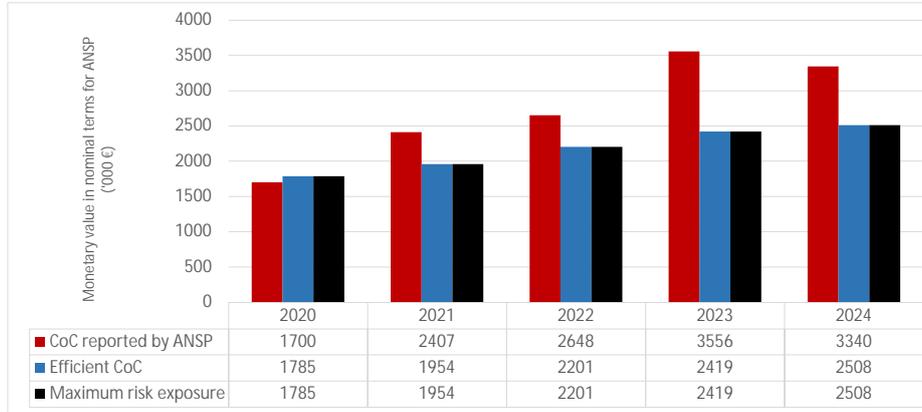
4.3.4 PRB Key Points

- The 2019 forecast en route costs are +5.2% higher than the 2018 actual costs (+2.7M€2017) and +8.9% (+4.4M€2017) higher than the 2015-2018 average actual costs. However, costs are in line with the 2019 RP2 determined costs.
- RP3 total determined costs are expected to increase with a trend of about +6.0% between 2019 baseline and 2024 (+18.4M€2017). Depreciation and cost of capital are inflated due to the decision of fully allocate investments to en route.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	40,559	44,409	50,030	54,972	57,006
Monetary value of Return on Equity	1,700	2,407	2,648	3,556	3,340
Ratio RoE/DC (%)	4.2%	5.4%	5.3%	6.5%	5.9%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	-84	453	447	1137	831

Total 2020-2024	2,784
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	6.6%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	6.6%	7.0%	6.6%	5.4%	6.6%	5.5%	6.6%	4.5%	6.6%	5.0%

Is the interest on debts in line with the market?	n/a
---	-----

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024 the reported cost of capital is 2.78M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 4.2%-6.5%).

4.3.A.4 Regulated Asset Base review

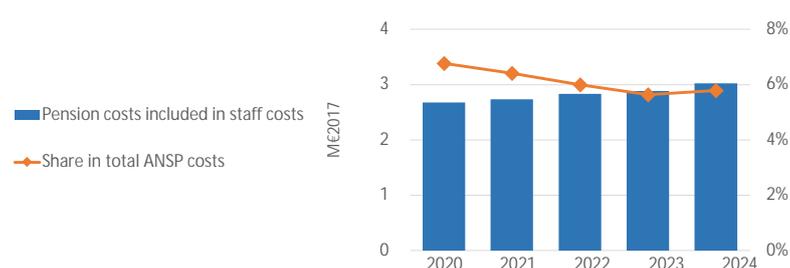
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	7,715	17,281	18,466	31,084	26,697
Net current assets	17,931	19,028	21,473	22,545	23,675
Adjustments total assets	0	0	0	0	0
Total asset base	25,646	36,309	39,939	53,629	50,373

- Fixed asset base increases over the period, in line with the investments as detailed in section 3.5 of this document. However, the fixed asset base is inflated by the fact that all the investments are allocated to en route.
- Net current assets are not proportionate to the estimated cash flow.
- RAB does not include adjustments to the total asset base.
- Total asset base increases over RP3, in line with the increase in the fixed asset base and the increase in the net current assets.

4.3.A.5 PRB Key Points ✘

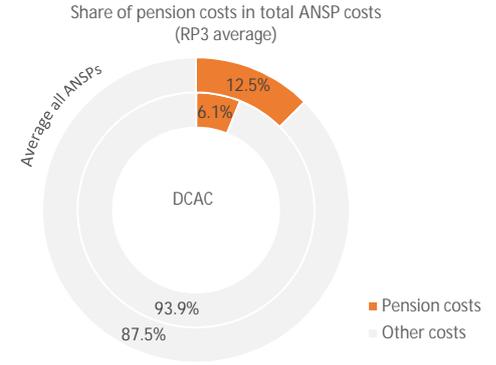
- The reported cost of capital is 2.78M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 4.2%-6.5%).
- The net current assets are not proportionate to the estimated cash flow.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	2.7	2.7	2.8	2.9	3.0
Year on year variation	% change		+2.3%	+3.5%	+2.0%	+4.6%
Share in total ANSP costs	%	6.8%	6.4%	6.0%	5.6%	5.8%
Year on year variation	p.p.		-0.4p.p.	-0.4p.p.	-0.4p.p.	0.2p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight decrease**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

- Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**
- For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**
- For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **n/a**
- For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

According to the information provided in the draft performance plan for Cyprus, "the ANSP in itself cannot take such actions since it is a State entity and the pensions policy applies to all Civil Servants."

4.3.B.4 PRB Key Points ✓

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Cyprus did not highlighted changes in the cost allocation methodology with respect to RP2, however, Cyprus fully allocated investment costs to en route.
 - Costs are allocated to different air navigation services based on: the activities or tasks performed, the personnel employed, the assets/projects employed to the various Air Navigation Services.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

Yes

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

Following the decision to not apply terminal changes, all investments associated with terminal services are allocated 100% to en route costs.

2.2. Are these changes in cost allocation duly described and justified?

No

If, not what are the identified issues?

Investments which are deemed for terminal use cannot be allocated to en route.

2.3. Is there an impact on the determined costs and/or baseline?

Yes

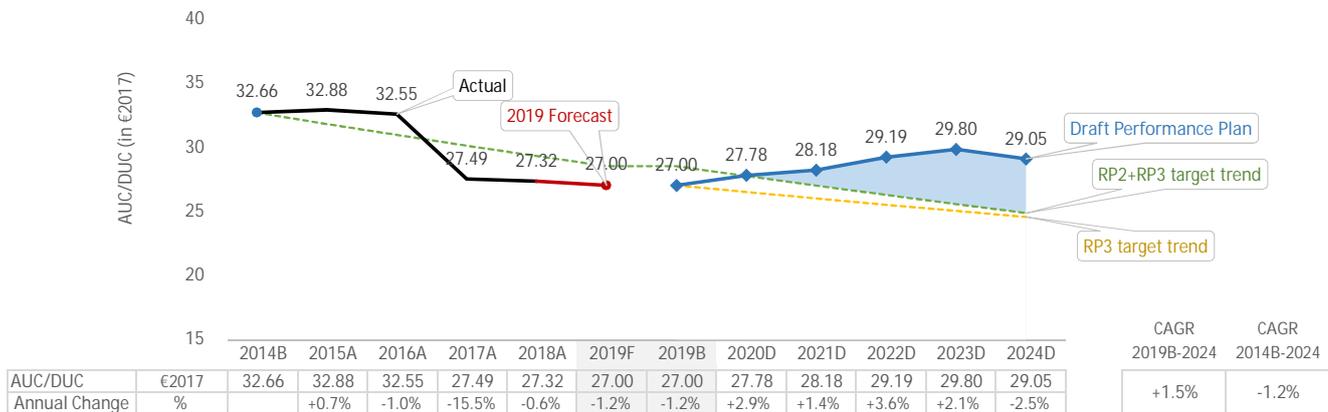
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

Determined costs for en route are inflated due to the wrong allocation.

4.3.C.3 PRB Key Points ✘

- Cyprus did not highlight changes in the cost allocation methodology with respect to RP2, however, Cyprus fully allocated investment costs to en route.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	+1.5%	Union-wide trend	-1.9%	Difference	+3.4p.p.
PP trend	-1.2%	Union-wide trend	-2.7%	Difference	+1.5p.p.
PP 2019 baseline	27.00	Average comp. group	30.90	Difference	-12.6%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Cyprus proposes a +1.5% CAGR increasing DUC trend over RP3. The proposed trend is inconsistent with the Union-wide RP3 DUC trend. It is noted that the 2019 DUC baseline has not been computed using the M3 traffic coefficient. If this would have been the case, the use of a lower traffic forecast for the 2019 baseline value would result only in a marginal improvement of the RP3 DUC trend (from the current +1.5% CAGR to +1.3% CAGR).

According to the information provided in the draft performance plan, Cyprus claims that the deviation from the Union-wide DUC trend is “due to the need to invest more in HR and technical infrastructure in order to operate more ATC sectors and therefore reduce the problem of delays”. However, no additional documentation is provided to justify this deviation from the Union-wide RP3 target. For additional detail on the capacity situation in Cyprus see section 3.2. of this document.

With respect to the long-term DUC trend, Cyprus presents a -1.2% CAGR decreasing DUC trend between 2014 and 2024. This is +1.5 p.p. higher than the required trend (i.e. -2.7% CAGR).

As far it concerns the consistency of the 2019 DUC level with the average DUC of the comparator group, Cyprus 2019 DUC (27.00€2017) is -12.6% below the average DUC of the comparator group (30.90€2017). The DUC for Cyprus is expected to remain below the average DUC of the comparator group for the entire 2020-2024 period. Furthermore, Cyprus presents one of the lowest 2019 baseline DUC among all the European States and it is expected to remain among the five lowest also by the end of RP3.

Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

Although the current draft performance plan does not include restructuring costs, these might arise over RP3 as a result of the establishment of a new corporatised entity operating as an ANSP. Cyprus intends to propose a revision of the current plan once these costs can be estimated reliably.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✗

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group, and is one of the lowest Union-wide.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
- The performance plan establishes a new entity operating as an ANSP, however restructuring costs are not presented.

4.5 Terminal (not applicable)

Cyprus

Cyprus has not established any terminal charging zone for RP3.

PRB Assessment

CZECH REPUBLIC

Draft Performance Plan

Context and scope

Czech Republic

Performance Plan: Draft performance plan (Article 12) Dated: 20.11.2019
 Documents no: 1659, 1660, 1178, 1183, 1180, 1185, 1175, 1184, 1176, 1177, 1179, 1181, 1658

Relative weight compared to the SES area (2018):	
% Flight-hours v. SES	1.7%
% Costs V. SES	1.7%

Scope

FAB: _____ FAB CE

ANSPs: _____ ANS CR
 CHMI

Other entities (as per Article 1(2) last para. of Regulation 2019/317): _____ Civil Aviation Authority of the Czech Republic
 EUROCONTROL

ASM, ATFM, ATC, FIS, Alerting Service, AIS, SAR, CNS, APD
 MET

National Supervisory Authority
 NM, CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Czech Republic	n/a	No	No	No	
Terminal	Czech Republic - TCZ	4	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: _____ Group C Other States in the comparator group: Bulgaria
 Croatia
 Hungary
 Poland
 Portugal
 Romania
 Slovakia
 Slovenia

Currency: _____ CZK Exchange rate: _____ 26.31150

1. Safety ✓

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
ANS CR	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by the Czech Republic should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

The PRB notes that investments are planned to achieve other KPA targets, but not required for reaching the EoSM targets.

The PRB understands that the State/ANSP through applied practices, ensures that safety is not impaired by the changes required.

Czech Republic's change management practices are established in compliance with Commission Implementing Regulation (EU) 2017/373 and should, if applied, be sufficient to monitor any impact on safety and minimise the network impact of planned changes.

2. Environment ✓

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	2.26%	2.21%	2.16%	2.16%	2.16%

PRB Assessment

The PRB concludes that the environment targets proposed by the Czech Republic should be approved.

- The ANS Czech Republic's horizontal flight efficiency targets are consistent with its ANSP reference values published in the June 2019 ERNIP.

3. Capacity ✓

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.20	0.20	0.14	0.12	0.12
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.37	0.37	0.37	0.37	0.37

PRB Assessment

The PRB concludes that the capacity targets proposed by the Czech Republic should be approved.

- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.
- The PRB will closely monitor the implementation of capacity enhancement measures during RP3 in its "RP3 watchlist".

4. Cost-efficiency ✓

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	45.38	44.20	44.75	42.88	41.43	-1.2%	-2.0%
Target for determined unit cost (DUC) (€2017) - Terminal	262.66	269.07	260.60	261.49	249.48	n/a	-0.4%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by the Czech Republic should be approved.

- The Czech Republic is meeting the RP3 DUC trend in terms of average reduction.
- The Czech Republic is not meeting the long-term Union-wide trend.
- The Czech Republic is not consistent with the average DUC baseline of the comparator group.
- The deviation from the long-term trend can be fully attributed to capacity targets achievement.
- The PRB will closely monitor the training and intake of ATCOs and the related staff costs in its "RP3 watchlist".

PRB Recommendations

SAFETY:

- The Czech Republic should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.

ENVIRONMENT

- The Czech Republic should partner with neighbouring Member States to merge its planned FRA with other blocs to offer airspace users more flight planning options. This will help the Czech Republic's environmental performance, particularly with network inefficiency issues.
- The Czech Republic should also consider the impact of its planned ATS optimisation project on environmental performance, particularly by reviewing reservable and segregable volumes of airspace.

CAPACITY

- The Czech Republic should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.
- The Czech Republic should ensure that the effects of the ambitious training plans are mitigated as far as possible, and that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.

CZECH REPUBLIC

Safety KPA

1.1.1 Target for EoSM for ANSPs

The draft performance plan defines the EoSM targets for the entire period of 2020-2024.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan argues that ANS CR has a very mature Safety Management System as the ANS CR is already at the level of RP3 targets for four out of five management objectives. Some explicit measures to improve the Safety Risk Management area should be provided.

1.1.3 Interdependencies and Trade-offs

Interdependencies between airspace changes / ATM functional system changes are described in the performance plan, none of which will require a trade-off against safety. The draft performance plan underlines that safety has priority and that the changes, while not intended to improve safety, will have a positive safety impact through e.g. reduced traffic complexity and improve ATCO staffing.

Mitigating any potential safety impact is done through established safety assessment processes. Relevant metrics used for monitoring safety performance are described.

1.1.4 Change Management

Change management practices to be applied are defined and stated to be based on requirements included in Commission Implementing Regulation (EU) 2017/373, which are supported by NSA directives in place. At the level of details provided in the draft performance plan, these practices should, if applied, be sufficient to monitor impact of the changes on safety in particular.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by the Czech Republic should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

The PRB will closely monitor the implementation of measures over the RP3 to ensure that relevant measures are defined in particular for Safety Risk Management in its "RP3 watchlist".

The PRB notes that investments are planned to achieve other KPA targets, but not required for reaching the EoSM targets.

The PRB understands that the State/ANSP through applied practices, ensures that safety is not impaired by the changes required.

Czech Republic's change management practices are established in compliance with Commission Implementing Regulation (EU) 2017/373 and should, if applied, be sufficient to monitor any impact on safety and minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
ANS CR	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The draft performance plan defines the EoSM targets for the entire period of 2020-2024. The EoSM targets levels for 2024 have been set in accordance with the Union-wide safety targets.

The draft performance plans argues that ANS CR has a very mature Safety Management System that over RP2 achieved or exceed the safety targets. The same approach is planned for RP3. The ANS CR is already at the level of the RP3 targets for four out of five management objectives. Some explicit measures to improve the Safety Risk Management should be provided.

1.3.1 Interdependencies and Trade-offs

Interdependencies between airspace changes / ATM functional system changes are described in the draft performance plan, none of which will require a trade-off against safety. The draft performance plan underlines that safety has priority and that the changes, while not intended to improve safety, will have a positive safety impact through e.g. reduced traffic complexity and improve ATCO staffing.

Mitigating any potential safety impact is done through established safety assessment processes. Relevant metrics used for monitoring safety performance are described.

1.3.2 Change Management Practices

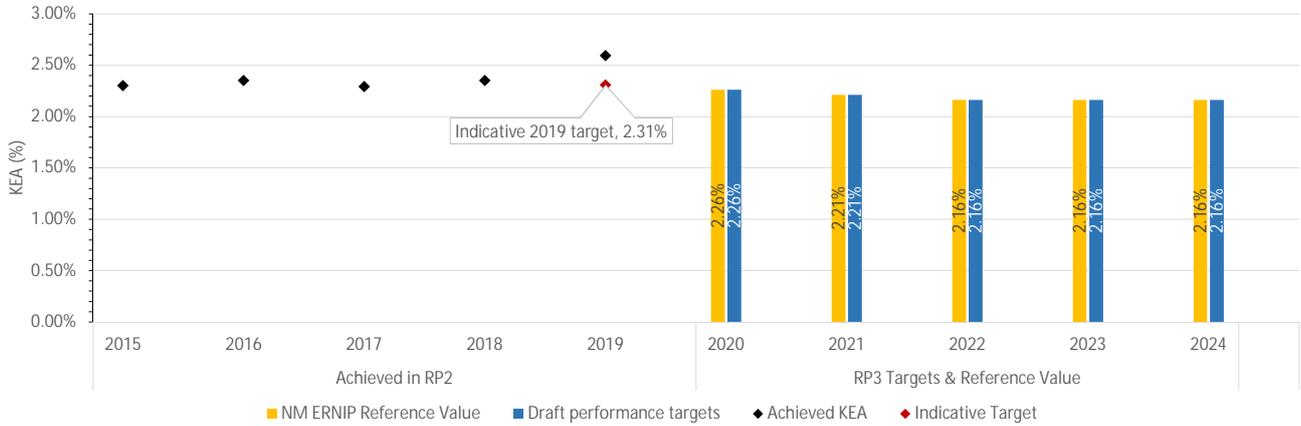
Change management practices to be applied are defined and based on the requirements included in Commission Implementing Regulation (EU) 2017/373, which are supported by the NSA directives in place. The practices as described in the draft performance plan should, if applied, be sufficient to control the impact of the changes on safety.

CZECH REPUBLIC

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	2.26%	2.21%	2.16%	2.16%	2.16%
Draft performance targets	2.26%	2.21%	2.16%	2.16%	2.16%
Comparison of draft performance targets with reference values	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by the Czech Republic should be approved.
 - The ANS Czech Republic's horizontal flight efficiency targets are consistent with its ANSP reference values published in the June 2019 ERNIP..

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
ANS CR still operates an ATS route network in lower airspace (GND to FL245) and upper airspace (FL 245+).		3.2.1(b)	Page 40
Major ERNIP Recommended Measures:	1		
Measure included within performance plan?		Reference in PP	Reference in ERNIP
Free Route Airspace Praha/FRACZECH: Step 4	✓	3.2.1(b)	Page 159
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that the Czech Republic achieved a KEA of 2.59% in 2018 and needs to meet an indicative target of 2.31% in 2019 to achieve the planned target of 2.26% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achieved value and the 2020 reference value.

The NM expects the Czech Republic to implement 24-hour FRA in Class 'G' (or 'E') airspace within Prague FIR by February 2021. The Czech Republic commits to offering this by Q1 of 2021 and it will be a significant measure to achieve the planned targets. However, according to the 2019 LSSIP, there will be the implementation of an intermediate FRA concept in 2022, after the installation of a new ATM system and the Czech Republic should ensure their binding commitment in the performance plan is not pushed back.

It is noted that the decision to join other cross-border FRA airspace blocks, such as SEEN or SESCO FRA, was not provided in the performance plan. Instead, the Czech Republic will postpone this decision, which in turn could impact the environmental efficiency – particularly the interface inefficiency. The Czech Republic also claimed that airspace user route choices and adjacent FIRs influence its KEA performance. On this point it must be noted that the PRB studied the Czech Republic's local and network inefficiency and found that that latter has remained stable and therefore it is not affected by airspace user routings overall.

The Czech Republic claim to offer "Active coordination with MIL in the ASM area" which is important since there are significant volumes of TRAs and TSAs in the central and western parts of the country.

Unfortunately, the performance plan did not describe the expected benefit, in terms of environmental efficiency, that the major ATS optimisation project may yield since capacity was the driving objective. The PRB believes it should have been a consideration in the CBA of this project. The ATS optimisation project did not consider restructuring of TSAs and TRAs in a manner that could minimise impact on airspace users.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Czech Republic plan for an environmental incentive scheme?	✗
The Czech Republic does not plan to apply an optional incentive scheme for the environment KPA.	

CZECH REPUBLIC

Capacity KPA

3.1.1 En route ATFM delay

The targets defined in the performance plan are consistent with the national reference values, however the NOP delay forecasts are significantly higher. Capacity profiles also indicate, that unless additional measures are introduced, the capacity targets will not be met.

The measures outlined in the performance plan are in line with the NOP, but seem insufficient to reach the targets, based on the planned capacity profiles. The ANSP should update the capacity plan to show all improvements from the measures proposed, or introduce additional measures to make the targets realistic.

The planned increase in ATCO numbers and the effects of the measures described in the NOP do not seem to be taken into account in the current capacity plan, thus not providing adequate evidence that the Czech Republic would reach the proposed capacity target by the end of RP3.

- performance plan capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	+0%
- NOP delay forecast is lower or equal to the performance plan capacity target	✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values?

Capacity target in the year 2024 is less than or equal to the 2024 reference value?

3.1.2 Arrival ATFM Delay

The target set for Prague, (the only of the four airports in the performance plan expected to produce terminal delays), and main driver with 88% of terminal traffic, is 0.40 minutes per arrival for each year of RP3. This is considerably worse than the past performance. During RP2, the performance of the Czech airports in comparison with similar airports was better than the median, but the targets for RP3 are significantly higher and are worse than the median of similar airports.

3.1.3 Incentives

En route incentives: the pivot value is not based on reference values published in the NOP but is based on % of CRSTMP-only delays (attributed by the ANSP) in previous years (2016-2018): 66.5% of reference value. Delay forecast in the NOP shows that the ANSP is expected to miss performance plan targets for all years in RP3 (all causes), and is likely to incur penalties. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: the pivot values are modulated on CRSTMP based on target and adjusting each year to actual CRSTMP share in year N. The 10% dead band might be too small to be able to allow for small variations in performance with no associated bonuses/penalties. The penalty (only 0.5%) together with the low risk of not meeting the targets (given the fact that past delays are well below the target) does not seem to incentivise improving or maintaining the current performance. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

The RP3 performance plan has introduced four major investment projects in total cost 57.9M€ in RP3, two of which (55.8M€) could be related to the capacity improvement measures introduced in the NOP 2019-2024. The other two are linked to replacement/overhaul of the surveillance infrastructure.

The capacity related projects may contribute to capacity provision, if implemented in a timely manner. Both projects are complex including many elements. The level of contribution and effectiveness of individual elements is difficult to assess due the low level of detail provided in the projects' descriptions. Most significant improvements are expected towards the end of RP3, only as both projects are expected to be deployed between 2020-2025 respectively 2021-2024. As regards the ATCO capacity issues experienced in previous years, it seems that both projects address only ATCOs workload.

The increase in the total determined costs of the investments is mostly due to an increase in other new investments.

The ANSP will return to airspace users the unspent determined costs related to certain RP2 investments that were delayed. The cost base will be reduced by around 3.3M€ evenly distributed throughout RP3 according to Annex E of the performance plan.

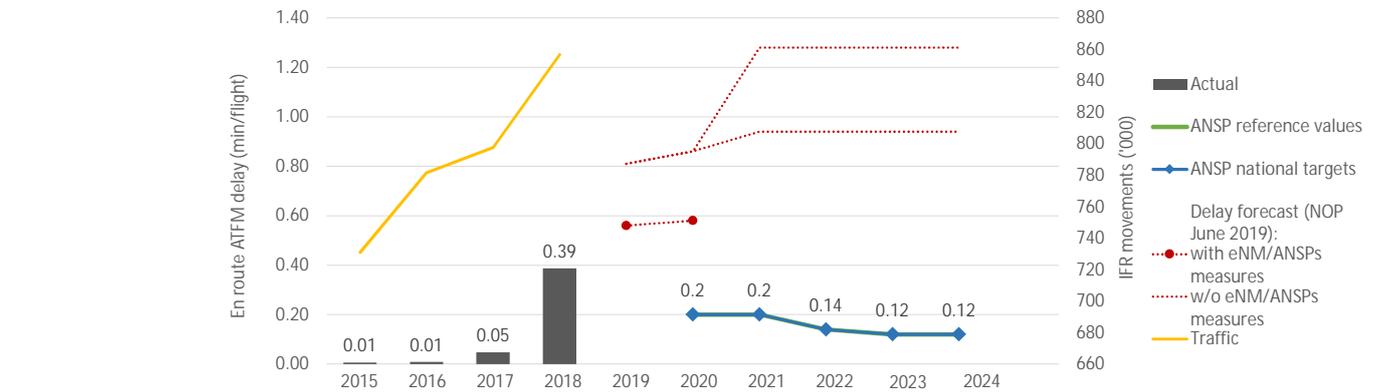
Investments in ATS optimization projects are clearly defined, however effects on capacity are unclear. Most significant improvements on capacity are expected only towards end of RP3.

Information on other new and existing investments (Annex E of the performance plan) is of low level and not sufficiently detailed to establish a link with capacity.

3.1.5 PRB conclusions

The PRB concludes that the capacity targets proposed by the Czech Republic should be approved.
 - The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.
 - The PRB will closely monitor the implementation of capacity enhancement measures during RP3 in its "RP3 watchlist".

3.2.1 Overview of en route ATFM delay per flight



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+7.1%	+6.9%	+2.1%	+7.4%						
Actual ATFM delay per flight	0.01	0.01	0.05	0.39						
ANSP reference values						0.20	0.20	0.14	0.12	0.12
ANSP national targets						0.20	0.20	0.14	0.12	0.12
Forecast with eNM/ANSPs measures*					0.56	0.58				
Forecast w/o eNM/ANSPs measures*					0.81	0.86		0.94-1.28		

* NOP June 2019

- Performance plan capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
- NOP delay forecast is lower or equal to the performance plan capacity target	✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP

Description of capacity enhancement measures

The main measure put in place to achieve the target for en route ATFM delay per flight is the 'ATS optimisation' restructuring project.

In summary, the project has the following goals:

- An increase in FIR Prague's capacity and flexibility to meet the NM and users requirements by complete re-sectorisation and adding more possibilities for modular sector configurations;
- An increase of the training efficiency and available number of ATCOs, resulting in lower number of overtime hours, more efficient rostering and man-power planning;
- Maintaining or an increase of the safety level of ATM services;
- Coordination of deploying all ATM development projects, including single ATM system support (TopSky).

Together with introduction of a new ATM system that is planned to be in operation from Q1 2022, the 'ATS optimisation' restructuring project is a part of a wider list of other ATM development activities needed to deal with the future challenges. The planned measures include:

- ASM tool (equiv. to LARA): 2019;
- Improved ATS route network: 2019;
- Improved flow and capacity management techniques, including STAM: 2019-2020;
- Adaptation of sector opening times depending on available staff: 2019-2024;
- Centralisation of regional APPs with 'ATS optimisation' restructuring project: 2019-2024;
- Additional controllers: 2019-2020 and 2023-2024;
- Reconstruction of the OPS room and implementation of the new ATM system (TopSky): 2021-2022;
- Full FRA implementation: 2021;
- New sectorisation: 2023/2024.

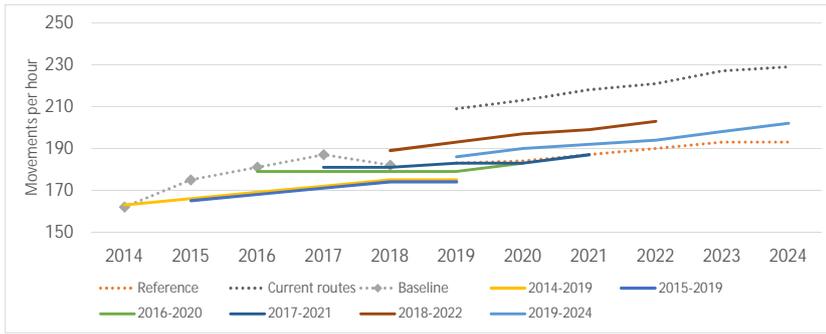
Measures described in the performance plan are in line with the measures included in the latest NOP, but not sufficient to meet the reference values. The next edition of the NOP 2020-2024 should be aligned with the intentions of the performance plan.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Prague ACC (LKAA)	Additional ATCOs in OPS to start working in the OPS room	0	18	21	12	14	21	15	+69
	ATCOs in OPS to stop working in the OPS room	0	4	2	3	4	2	3	
	ATCOs in OPS to be operational at year-end	93	107	126	135	145	164	176	
Total - ANS CR (en-route)	Additional ATCOs in OPS to start working in the OPS room	0	18	21	12	14	21	15	+69
	ATCOs in OPS to stop working in the OPS room	0	4	2	3	4	2	3	
	ATCOs in OPS to be operational at year-end	93	107	126	135	145	164	176	

3.2.3 Existing and previous ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC)

Prague ACC (LKAA)



- Historical evolution of capacity profiles in RP2 shows, that capacity plans were systematically lower than the baseline values in almost all years of RP2 still enabling the achievement of good delay performance in the first three years of RP2. The latest capacity plans developed by the ANSP after 2018 are planning above the reference profile values, and they are significantly lower than current routes profile values.

- Latest capacity plans developed by the ANSP outline a profile which is above the reference profile in all years of RP3, but are on average 11.9% points lower than the current profile values. This means that unless significant changes occur in the traffic flow structures (i.e. flights start using shortest routes), the ANSP will not meet the planned capacity targets with the planned profile.

- Delay forecasts in the latest NOP are significantly higher than the reference delay values, which indicates that serious measures need to be put in place to close the capacity gap.

- The ANSP should either update the planned capacity profile to show all improvements from the measures proposed, or introduce additional measures in the performance plan (and also update planned profiles based on these) to make the targets realistic.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						183	184	187	190	193	193
Current routes						209	213	218	221	227	229
Baseline	162	175	181	187	182						
2014-2019	163	166	169	172	175	175					
2015-2019		165	168	171	174	174					
2016-2020			179	179	179	179	183				
2017-2021				181	181	183	183	187			
2018-2022					189	193	197	199	203		
2019-2024						186	190	192	194	198	202

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures

n/a

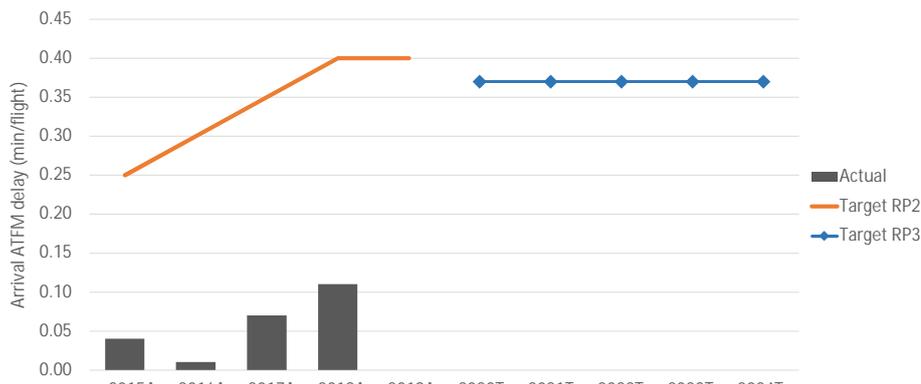
3.2.5 Review of the measures to increase capacity and address capacity gaps

!

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure
Performance plan contains the additional capacity enhancement measures and provides additional number of ATCOs during RP3 by around 65%. ✔
- b) Measures proposed by the NM are implemented in the Performance Plan
n/a ✔
- c) Performance plan provides the rationale for implementing only a subset of measures proposed by the NM
n/a n/a
- d) Performance plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values
The performance plan does not contain additional measures proposed by the NSA, or these measures are not indicated as being proposed by the NSA. ✘
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)
The performance plan provides additional number of ATCOs during RP3 by around 65%. ✔
- f) Flexible use of operational staff is planned and ensured
The performance plan contains measures, such as more efficient rostering solutions. ✔
- g) Limitations of ATM system/infrastructure is mitigated
The performance plan contains the information about the implementation of the new system for Q1/2022. ✔

- The proposed capacity targets for Czech Republic are following the reference delay values, providing positive contribution to reach the Union-wide capacity KPA target.
- The existing capacity plans indicate that if the traffic continues to fly on the current routes during RP3, a capacity gap may be expected.
- Increased ATCO numbers (as presented in the RP3 performance plan - by more than 65%) and measures described in the NOP indicate that this increase in ATCO numbers was not taken into account in the current capacity plan, thus not providing adequate evidence that the Czech Republic would reach the proposed capacity target.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.04	0.01	0.07	0.11	-	0.37	0.37	0.37	0.37	0.37
Prague (LKPR)	0.04	0.02	0.08	0.13	-	0.40	0.40	0.40	0.40	0.40
Karlovy Vary (LKKV)	0.00	0.00	0.00	0.00	-	0.10	0.10	0.10	0.10	0.10
Ostrava (LKMT)	0.00	0.00	0.00	0.00	-	0.10	0.10	0.10	0.10	0.10
Brno-Tuřany (LKTb)	0.00	0.00	0.00	0.00	-	0.10	0.10	0.10	0.10	0.10

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

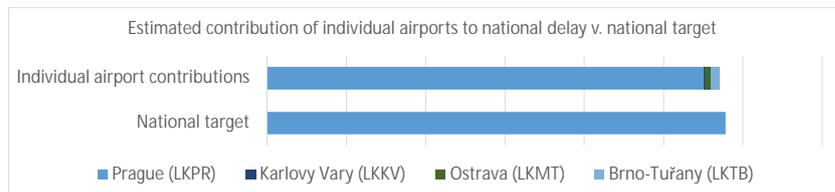
The target set for Prague is 0.40 minutes per arrival for each year of RP3. Past performance is considerably better, with the highest delay observed in 2018 (0.13 minutes per arrival) far from the targets (both old RP2 targets and new RP3 targets). Therefore, these targets do not seem to incentivise to increase or maintain the performance observed in RP2.

Prague is the only airport expected to produce terminal delays. The other three airports are not expected to have delays, but a 0.10 minutes per arrival is set as target for these airports to cover for potential weather delays.

The Czech Republic experienced high traffic growth rates at the regulated airports during RP2. A local forecast is chosen for the performance plan, done by the ANS CR's operational experts, is expecting a CAGR of 3.1% in 2019-2024.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Prague (LKPR)	0.40
Karlovy Vary (LKKV)	0.10
Ostrava (LKMT)	0.10
Brno-Tuřany (LKTb)	0.10
National Target	0.37



The main contributor to delays associated to the national target is the Prague Airport, due to the combination of a higher target and traffic (Prague represents 88% of the traffic at these airports).

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Prague (LKPR)	GROUP II	0.22	0.07	-0.16	0.40	+0.33
Karlovy Vary (LKKV)	GROUP IV	0.01	0.00	-0.01	0.10	+0.09
Ostrava (LKMT)	GROUP IV	0.01	0.00	-0.01	0.10	+0.09
Brno-Tuřany (LKTb)	GROUP IV	0.01	0.00	-0.01	0.10	+0.09

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

During RP2, the performance of the Czech airports, in comparison with similar airports, was better than the median. However, the targets set for RP3 are significantly higher, worse than the past performance for similar airports.

3.3.5 PRB Key Points

- The Prague Airport is the main driver of terminal delays at the national level with 88% of total terminal traffic.
- The national target for arrival delay during RP3, set at 0.4 minutes delay per flight, represents worse performance than in the past.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	0.500%	0.500%
0	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.20	0.20	0.14	0.12	0.12
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.20	0.20	0.14	0.12	0.12
Pivot values for RP3	0.13	0.13	0.09	0.08	0.08

Threshold review

Threshold is symmetrical around the pivot value, which is not based on reference values published in the NOP but is based on % of CRSTMP-only delays (attributed by the ANSP) in previous years (2016-2018): 66.5% of reference value.

Modulation review

Several modulations in force:

- Initial modulation of pivot value informed by update of reference value published in November release of the NOP from previous year.
- Additional modulation of pivot value according to share of CRSTMP delay causes (as attributed by the ANSP) in previous year.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty fixed at 0.5% of revenue. Delay forecast in the NOP shows that the ANSP is expected to miss performance plan targets for all years in RP3 (all causes), and is likely to incur penalties. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors by the ANSP in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±10.0%	0.500%	0.500%
0	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.017	±0.017	±0.017	±0.017	±0.017
Performance Plan targets	0.37	0.37	0.37	0.37	0.37
Pivot values for RP3	0.03	0.03	0.03	0.03	0.03

Threshold review

The terminal incentive scheme includes a dead band of 10% of the CRSTMP pivot value (dead band: 0.031-0.038 minutes per arrival). The pivot value is in fact 0.035 (not 0.03 minutes per arrival as stated in the plan). The 10% dead band might be too small to be able to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

The Czech Republic has chosen to modulate the pivot values in a twofold way: according to CRSTMP causes and also for each year N according to a formula that will readjust the share of CRSTMP (with respect to the all causes targets) to be the same as the actual share in the observed performance in year N. The initial share applied (to be verified and reviewed for each year N based on actual share) is 9.4%, which was the correct proportion in 2016-2018 period. Therefore, the modulation of the pivot values seems correct and valid, but the basis for the modulation (national target all causes) is higher than past performance for the Czech Republic, and also worse than past performance of similar airports.

Review of financial advantages/disadvantages

The terminal incentive scheme is symmetric. The penalty (only 0.5%) together with the low risk of not meeting the targets (given the fact that past delays are well below the target) does not seem to incentivise to improve or maintain the current performance.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

ⓘ

En route incentives:

- Threshold is symmetrical around the pivot value, which is not based on the reference values published in the NOP, but on % of CRSTMP only delays (attributed by ANSP).
- Maximum bonus and maximum penalty fixed at 0.5% of revenue and delay forecast in the NOP shows that the ANSP is expected to miss performance plan targets and is likely to incur penalties.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

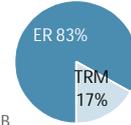
Terminal incentives:

- The pivot values are modulated on CRSTMP based on target all causes and adjusting each year to actual CRSTMP share in year N.
- The terminal incentive scheme includes a dead band of 10% of the CRSTMP pivot value, which might be too small to be able to allow for some variations in performance with no associated bonuses/penalties.
- The penalty (only 0.5%) together with the low risk of not meeting the targets does not seem to incentivise improving or maintaining the current performance.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	38.8	37.6	41.8	39.4	40.3	197.9
En route	M€ (nominal)	32.7	31.0	35.3	32.2	33.3	164.5
Terminal	M€ (nominal)	6.1	6.6	6.4	7.2	7.1	33.5

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	MSSR	- MSSR in location "PISEK" replacement and additional new TAR in year 2023. Mode S secondary radar (MSSR) at PISEK hill with range of 160 NM is a second key element of the Czech surveillance infrastructure. Radar was installed in year 2004 in POEMS version (Pre-Operational European Mode S). The main processor and a part of software was upgraded to version CIRIUS in year 2014. Radar and RADOME replacement is scheduled for year 2023 when antenna, gearbox, TX/RX and all accessories will be 19 years old. MSSR antenna will be collocated with a new primary radar (80NM range). TAR/MSSR should be the master radar for TMA Prague. - MSSR in location "BUKOP" replacement in year 2024. Mode S secondary radar (MSSR) at BUKOP hill with range of 200 NM is a key element of the Czech surveillance infrastructure. The antenna and gearbox of the old radar was installed in year 1996 while the upgraded electronics components (TX/RX and processing) are from year 2011. Radar and RADOME replacement is scheduled for year 2024.	6.4	Yes	No	0.5	0.0
2	DPS – Data processing and presentation	DPS – Data processing and presentation investment is managed as a domain within ANS CR. Each domain contains individual sub-domains, and each sub-domain contains individual investment actions that form a functional system. More details are provided in Section 2.1 and Annex E of the performance plan.	38.5	Yes	Yes	44.7	7.3
3	DPS – New system – Development	DPS NS - Release 2020-2024 - The main system works in ATM environment, which needs to reflect all the changes introduced with the new generation of the system. This sub-domain covers the changes in the cooperating systems. More details are provided in Section 2.1 and Annex E of the performance plan.	15.5	Yes	Yes	3.3	0.6
4	Construction works at IATCC ATS room	Construction works at IATCC ATS room - The investment is linked to the main system implementation (and the transition from the current system). It is necessary to adapt the existing ATS control room for the new system. The adaptation contains new data and energy cables, renewal of the air condition and adjusting the room to a new layout of the ATC consoles. More details are provided in Section 2.1 and Annex R of the performance plan.	7.9	No	No	1.3	0.3
Total:						49.7	8.2

Airspace user feedback regarding major investments

The airspace users are concerned regarding the "DPS - Data Processing and Presentation" (overspent by more than double the amount in RP2) and "DPS-new system" (underspent in RP2). They seek for a justification of the need for additional funds in RP3, given the expenditure trend and the unclear benefits of the implementation.

Review of investments

Major new investments represent 29% of the total determined costs over RP3. DPS - Data Processing and Presentation was a key project undertaken in RP2. ANS CR provides details in Annex E of the performance plan regarding further investments in this project. Concerning "DPS - New system", the first tender was cancelled, leading to delays in the investment. In line with this, 2015-2018 actual CAPEX delivery reaches 110% of planned for the same period and the amount overspent is 10.92M€. In addition, ANS CR has therefore decided to give users back the difference between the originally planned determined costs for the delayed investments and 80% of the overtime costs (assuming that 20% of overtimes would still occur, based on historical experience). This resulted in reducing the cost base by around 3.3M€ evenly distributed throughout RP3 (the details of the calculation are presented in Annex E).

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
4	Construction works at IATCC ATS room	Network, Local	All	"The investment is linked to the main system implementation (ATS Optimisation). It is necessary to adapt the existing ATS control room for the new system. The adaptation contains new data and energy cables, renewal of the air condition and adjusting the room to a new layout of the ATC consoles."

Additional information

The IATCC ATS room is part of the implementation of the main system (ATS Optimisation). As reported in the performance plan, this main system is necessary due to the airspace structure and the current ATM system in place having reached the level of their capabilities and being unable to further increase capacity. More details are provided in Annex E of the performance plan.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	95.5	95.5	16.4	18.2	25.8	18.0	15.6	94.0
Existing investments			20.1	13.5	5.5	4.5	3.8	47.5

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 47% of the total determined costs of investments over RP3, while existing investments represent 24%. ANS CR provides extensive details in Annex E of the performance plan.</p> <p>Several domains listed in the Annex are also listed as investments in RP2: SUR - Surveillance; SIMU - ATM simulators; Buildings - Except for the Construction works at IATCC ATS room, AIM - Air information management.</p> <p>Domains listed in the Annex E but not existing during RP2 or as new major investments during RP3: VCS - Voice communication; ISC - Information and communication systems; MIS- Business Information systems; Other ATM systems.</p>
--	--

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand ✔
- Investments #1 and #4 are perceived as capacity neutral: MSSR enables to plan the overhaul of systems, whereas IATCC ATS room reconstruction is just an enabler for new system implementation without affecting the number of working positions or other capacity related aspects.
 - Investment #2: Data Processing and presentation may contribute to capacity provision, if duly implemented, through functionalities like: Advanced FUA, A-CDM, Free route, etc.
 - Investment #3: New system - development may also contribute to increased capacity provision through new system functions. Capacity targets defined in the performance plan are consistent with the national reference values. Moreover, NOP Delay Forecasts are 0.6-1.1 minutes higher than these values, which implies a significant gap between forecasted and targeted capacity, thus may justify investment levels.
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan !
- Investments and measures to improve capacity are described in the performance plan, however the effects of these measures on capacity are only vaguely defined. There is a clear indication of when each of the measures should be realized, ranging from 2019 to 2024. Most of the significant measures are to be realized from 2021 onwards: most notably FRA will be deployed as of 2021, the new ATS system will be operational from 2022 and new sectorisation will be implemented from 2023/2024. Capacity improvements from these measures are likely to materialize only in RP4, even with timely deployment.
- Operational rationale behind the investments and measures are elaborated in the performance plan, although the different measures and system functions described in the investment plan are not always linked with the operational factors defined in the rationale. Still, the general logic is sound: capacity shortage is caused by traffic growth and increasing complexity, thus the focus of measures is on creating a less complex ATS route structure, bringing in more ATCOs, and improving the ATCO's working tools. This is accompanied with the measures already defined and well established in SESAR and the PCP. ANS CR is planning to increase the number of ATCOs in OPS by more than 70% over RP3, but it is not entirely clear how this will be feasible.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented !
- Investment #3 should have already been operational in RP2 (in 2019) but it was postponed until 2021. Based on this issue, it seems likely that ATS system related developments and implementation are subject to uncertainty. Furthermore, there are no reference to any ramp-up period which may be needed before the investments start to deliver their full benefits.
- There is also a well-established link between investment #4 and investment #3, where the ACC reconstruction is a prerequisite of the new ATS system deployment.

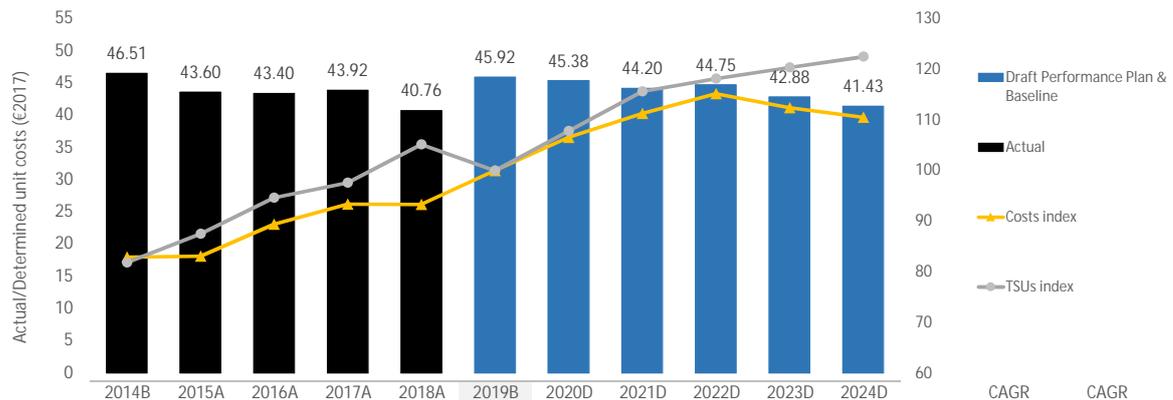
3.5.4 PRB conclusions !

- The increase in the total determined costs of the investments is mostly due to an increase in other new investments.
- The ANSP will return to airspace users the unspent determined costs related to certain RP2 investments that were delayed. The cost base will be reduced by around 3.3M€ evenly distributed throughout RP3 according to Annex E of the performance plan.
- Investments in ATS optimisation projects are clearly defined, however effects on capacity are unclear.
- Most significant improvements on capacity are expected only towards end of RP3.

CZECH REPUBLIC

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MCZK (nom)	2,834	2,846	3,075	3,264	3,306	-	3,883	4,119	4,316	4,280	4,261	-	+4.2%
Total costs	MCZK (2017)	2,897	2,904	3,125	3,264	3,262	3,495	3,724	3,890	4,025	3,928	3,862	+2.0%	+2.9%
TSU	'000	2,367	2,532	2,737	2,824	3,041	2,893	3,119	3,345	3,418	3,482	3,543	+4.1%	+4.1%
AUC/DUC	CZK (2017)	1,224	1,147	1,142	1,156	1,072	1,208	1,194	1,163	1,177	1,128	1,090		
Exchange rate	CZK:€				26.312									
AUC/DUC	€ (2017)	46.51	43.60	43.40	43.92	40.76	45.92	45.38	44.20	44.75	42.88	41.43	-2.0%	-1.2%
Annual change	%		-6.3%	-0.5%	+1.2%	-7.2%	+12.7%	-1.2%	-2.6%	+1.3%	-4.2%	-3.4%		

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified? 45.92 €2017 ⓘ

The 2019 traffic baseline informing the DUC baseline is -8.1% lower than the STATFOR February 2019 base forecast, but only -0.8% lower than the October base forecast. Justification for this deviation is provided in the performance plan (e.g. STATFOR February 2019 forecast did not take into account eNM measures) and it is consistent with the traffic evolution during the summer.

The 2019 costs baseline is consistent with the latest forecast and represents an increase of +7.2% over 2018 actuals (in real terms) and is +17.9% higher than the planned RP2 determined costs. The main reason for this cost increase is the ongoing implementation of the 'ATS Optimisation Project' (see section 4.3 and 3.2 for further details).

4.1.3 Summary of cost-efficiency assessment results

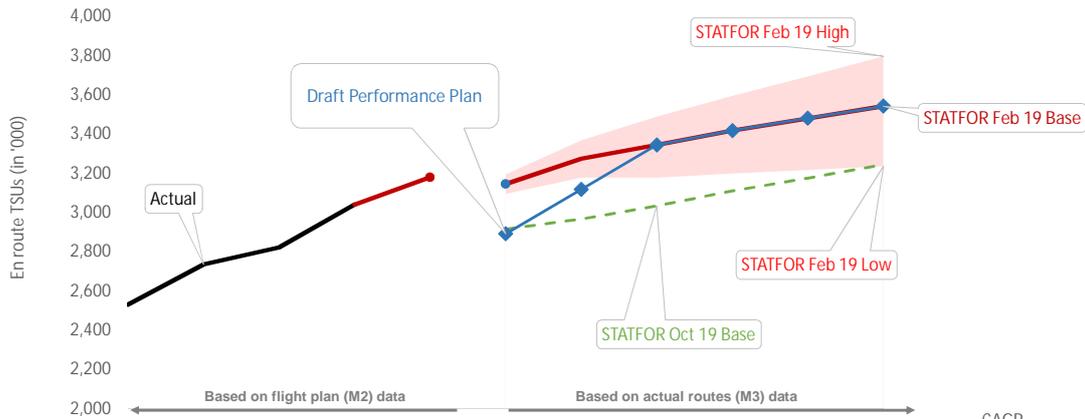
- a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? -2.0% ✓
The Czech Republic's meets the RP3 trend assessment criteria as an average, with an RP3 trend of -2.0%.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? -1.2% ✗
The Czech Republic does not meet the long-term (RP2+RP3) assessment criteria, with a long-term trend of -1.2%.
- c) DUC level (2019 baseline) lower than the average of comparator group (C) average (40.16 €2017)? +14.3% ✗
The Czech Republic does not meet the DUC level assessment criteria, with a DUC 2019 baseline +14.3% worse than its comparator group. It should be noted that the DUC at the end of RP3 (2024) would be +3.9% worse than the comparator group.
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? ✓
The en route capacity targets in the performance plan are in line with the reference values. The deviation from the long-term trend can be attributed to capacity targets achievement.
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? n/a

PRB conclusions ✓

The PRB concludes that the cost-efficiency targets proposed by the Czech Republic should be approved. - The Czech Republic is meeting the RP3 DUC trend in terms of average reduction.

- The Czech Republic is not meeting the long-term Union-wide trend.
- The Czech Republic is not consistent with the average DUC baseline of the comparator group.
- The deviation from the long-term trend can be fully attributed to capacity targets achievement.
- The PRB will closely monitor the training and intake of ATCOs and the related staff costs in its "RP3 watchlist".

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	2,532	2,737	2,824	3,041								
Annual change	%		+8.1%	+3.2%	+7.7%								
STATFOR Feb 19 Base	'000 TSUs					3,181	3,146	3,276	3,345	3,418	3,481	3,543	+2.4%
Annual change	%					+4.6%	+3.4%	+4.1%	+2.1%	+2.2%	+1.8%	+1.8%	
STATFOR Oct 19 Base	'000 TSUs					-	2,917	2,968	3,036	3,111	3,177	3,246	+2.2%
Annual change	%					-	-4.1%	+1.8%	+2.3%	+2.5%	+2.1%	+2.2%	
Performance Plan	'000 TSUs						2,893	3,119	3,345	3,418	3,482	3,543	+4.1%
Annual change	%						-4.9%	+7.8%	+7.3%	+2.2%	+1.9%	+1.8%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (PP baseline, M3)	2,893			2019B (PP baseline, M3)	2,893	
2019F (as in the Reporting tables, M2)	2,925			2019F (STATFOR Feb 19, M3)	L 3,095 B 3,146 H 3,195	-8.0%
2019B/ 2019F	-1.10%	-1.09%	-1.11%	2019F (STATFOR Oct 19, M3)	L 2,905 B 2,917 H 2,927	-0.8%

- The Czech Republic uses a 2019 traffic forecast -8.0% lower than the STATFOR February 2019 base forecast, but only -0.8% lower than the STATFOR October 2019 base forecast.
- The Czech Republic has applied the average CRCO M3/M2 coefficient of February and May for the calculation of the 2019 traffic baseline.
- The year to date (up to end of September) traffic evolution shows a decrease in traffic of -2.9% compared to the same period of 2018. According to the submitted performance plan, this is due to the effect of the eNM measures, capacity restrictions in Hungary and airlines' choice.
- During the May-September period, in which the effect of the eNM measures was more noticeable, the traffic decrease with respect to the same period of 2018 was -6.7%.
- The baseline submitted by the Czech Republic would imply a traffic decrease of -6.8% for the months of October to December of 2019 compared to the same period of 2018.
- Therefore, it seems that the choice of 2019 baseline is in line with the latest available information.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

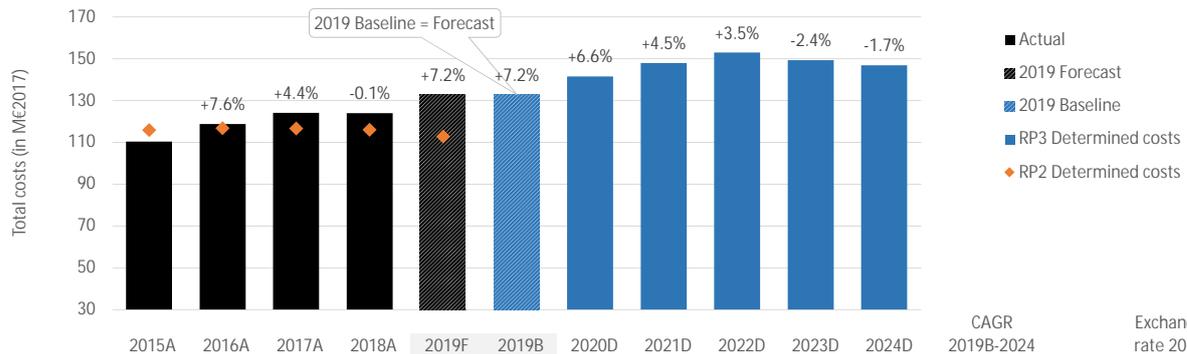
- Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast
- The Czech Republic uses the average CRCO M3/M2 coefficient of February and May for the submitted local forecast.
 - The local forecast is consistent with the STATFOR February 2019 base forecast for the 2021-2024 period. It only deviates for the year 2020.
 - The deviation in 2020 is justified by the effect of the eNM measures, which are not taken into account in STATFOR February 2019 base forecast. There are no eNM measures planned for 2021 onwards.
 - Annex D of the performance plan provides further explanation on the choice of traffic forecasts.

- Review of the PP traffic forecast
- The effect of the eNM measures on the traffic for the Czech Republic is already noticeable in 2019 (see section 4.2.2) and it is likely to continue in 2020.
 - The choice of local forecast is considered in line with the latest available information and it is the result of circumstances not taken into account by the STATFOR February 2019 forecast.

4.2.4 PRB Key Points

- The traffic forecast proposed by the Czech Republic is not in line with the STATFOR February 2019 base forecast, however deviations seem justified and realistic.

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MCZK (nom)	2,846	3,075	3,264	3,306	3,597	-	3,883	4,119	4,316	4,280	4,261	-	CZK:€
Annual change	%	-	+8.0%	+6.1%	+1.3%	+8.8%	-	-	+6.1%	+4.8%	-0.8%	-0.4%	-	26.31150
Inflation index	2017 = 100	97.1	97.7	100.0	102.0	104.2	104.2	106.3	108.5	110.6	112.8	115.1	+2.0%	-
Total costs	MCZK (2017)	2,904	3,125	3,264	3,262	3,495	3,495	3,724	3,890	4,025	3,928	3,862	+2.0%	-
Annual change	%	-	+7.6%	+4.4%	-0.1%	+7.2%	+7.2%	+6.6%	+4.5%	+3.5%	-2.4%	-1.7%	+2.0%	-
Total costs	M€ (2017)	110.4	118.8	124.0	124.0	132.8	132.8	141.5	147.8	153.0	149.3	146.8	+2.0%	-

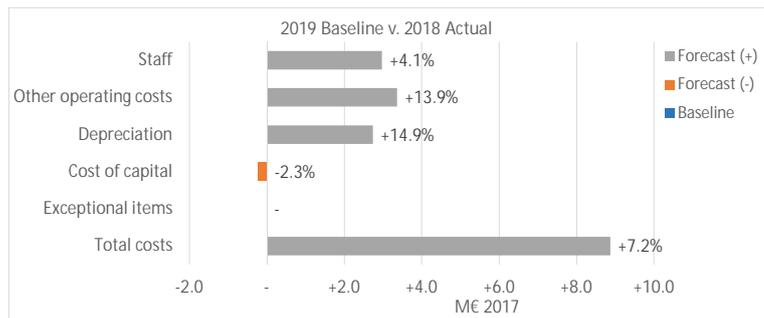
Is inflation in performance plan in line with IMF (April 2019 forecast)? Deviation from index < 1 p.p. in 2024

- The inflation percentage submitted by the Czech Republic in its performance plan slightly differs from the IMF April 2019 forecast for the year 2019 (2.324% by IMF v. 2.20% in the performance plan) and is consistent with IMF forecast for the 2020-2024 period. The index deviation by 2024 is only 0.14 p.p.
- Had the IMF forecast been used for the 2019 inflation, the overall determined costs for the 2019-2024 period would be -0.7M€2017 lower.

4.3.2 Baseline review

2019 forecast analysis	M€ 2017	%
2019F v. 2018A	+8.9	+7.2%
2019F v. 2019 RP2 DC	+20.1	+17.9%
2019F v. average 2015-2018	+13.5	+11.4%

2019 baseline analysis	M€ 2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast costs are +7.2% above the 2018 actuals (in real terms) and +17.9% higher than the planned RP2 determined costs. The main driver for this cost increase is the ongoing implementation of three of the key elements of the performance plan for the Czech Republic for RP3:

- the 'ATS Optimisation Project' (see Annex R of the performance plan for full description and CBA)
- some of the costs of the project already borne in 2019 include the APP Prague unit transfer to the Technical Block (TEB) Prague, the preparation of the Regional Airport (RGA) APP unit in TEB Prague (which will temporarily be responsible for providing ATS at regional airports for the APP sectors before the transition to Topsy in 2021) and the development of a new training methodology/syllabi covering to the new operational concept;
- the associated re-planning of the upgrade of the ATM system (Topsy-Neopteryx);
- the associated recruitment and training of ATCOs as well as compensation costs for relocation.

The Czech Republic experienced traffic increases higher than planned during RP2 (+4.1% on average during 2015-2018, +8.8% in 2018) and the ATS Optimisation project was one of the main measures taken to address the capacity gap at longer term.

2019 baseline analysis

- The 2019 baseline costs are equal to the 2019 forecast which are +7.2% above the 2018 actuals (in real terms).
- The inflation in the performance plan for 2019 is lower than the IMF forecast from April 2019 (2.2% instead of 2.324%). Had the IMF inflation been used, the 2019 costs baseline would be -0.11M€2017 (or -0.08%) lower.

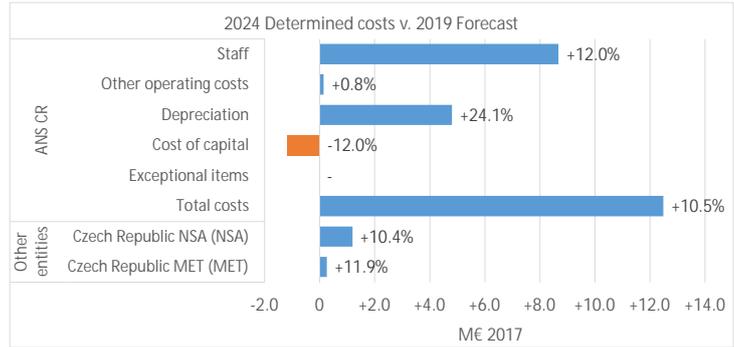
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ! Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



ANSP costs in 2024 are +10.5% (or 12.5M€2017) higher than in 2019 mainly due to increases in staff and depreciation costs. In both cases these are associated with the 'ATS Optimisation Project', associated investments (plus other planned investments) and the recruitment, training and relocation of ATCOs (see Annex R of the performance plan for full description and CBA).

The main activities of the 'ATS Optimisation Project' include:

- Development of the detailed new sectorisation and sector configurations;
- Development of new unit endorsements system;
- Adaptation of the training courses;
- Retraining of the approach controllers from the regional airports and new controllers for the terminal airspace;
- Relocation of the approach controllers from the regional airports to the centralised TERMINAL unit in Prague;
- Investments needed for adaptation of the CNS/ATM infrastructure and amendment of TopSky to enable the new operational concept;
- Investments needed for the transition phase.

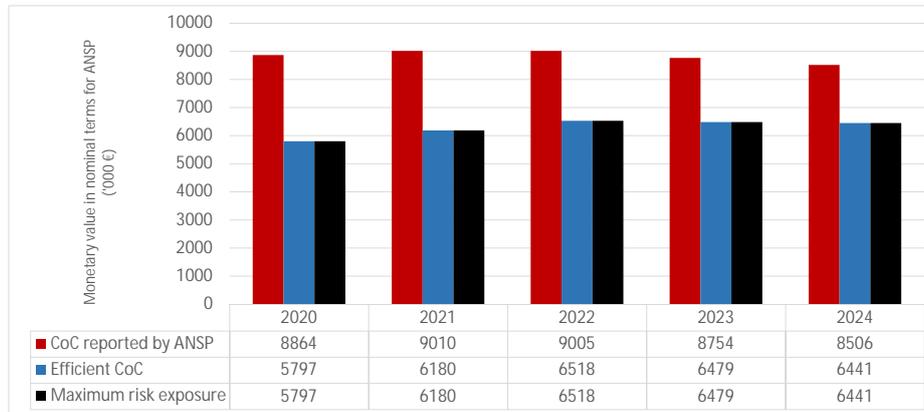
4.3.4 PRB Key Points

- The 2019 cost forecast is 7.2% above the 2018 actual cost. This is due to ATCOs training and recruitment, upgrade of the ATM system and implementing a significant ATM project.
- The 2019 baseline proposed by the Czech Republic is in line with the 2019 forecast.
- The inflation in the performance plan for 2019 is lower than the IMF forecast from April 2019 (2.2% instead of 2.3%). In case of using the IMF inflation, the 2019 costs baseline would be 0.11M€2017 (or 0.08%) higher.
- Staff and depreciation costs are the major drivers of cost increase over RP3.
- The PRB will closely monitor the evolution of ATCOs intake and the related costs during RP3.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	131,742	140,452	148,130	147,247	146,382
Monetary value of Return on Equity	8,864	9,010	9,005	8,754	8,506
Ratio RoE/DC (%)	6.7%	6.4%	6.1%	5.9%	5.8%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	3067	2830	2487	2275	2065

Total 2020-2024	12,725
-----------------	--------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	5.6%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	5.6%	3.6%	5.6%	3.8%	5.6%	4.0%	5.6%	4.1%	5.6%	4.2%

Is the interest on debts in line with the market?	n/a
---	-----

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 12.73M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 5.8%-6.7%).

4.3.A.4 Regulated Asset Base review

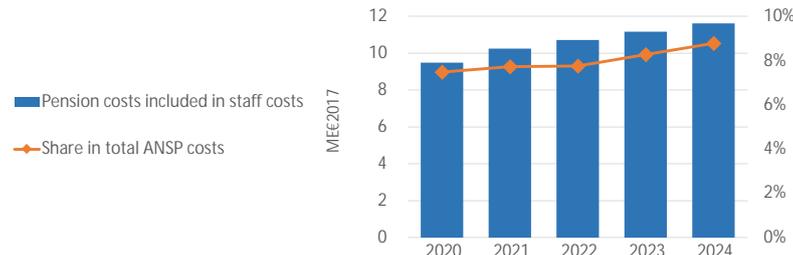
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	134,186	134,891	133,144	128,632	123,319
Net current assets	24,952	26,868	28,525	28,536	29,395
Adjustments total assets	0	0	0	0	0
Total asset base	159,138	161,759	161,669	157,168	152,714

- The fixed asset base will slightly decrease over the period. This is in line with the investments described in section 3.5 of this document.
- The RAB does not include adjustments to the total asset base.
- The net current assets do not present major issues.
- The total asset base slightly increases from 2020 to 2021 and then decreases from 2021 to 2024 to its lower levels, mostly due to a small decrease in the fixed asset base.

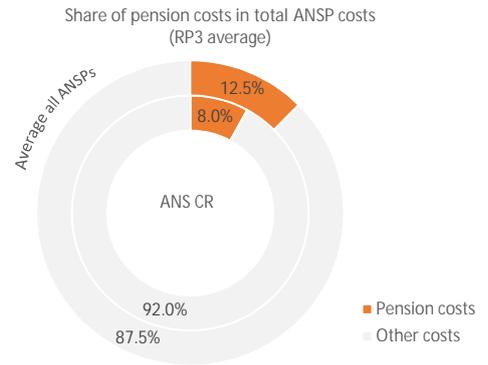
4.3.A.5 PRB Key Points ✘

- The reported cost of capital is 12.73M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 5.8%-6.7%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	M€2017	2020	2021	2022	2023	2024
Year on year variation	% change		+8.1%	+4.4%	+4.3%	+4.0%
Share in total ANSP costs	%	7.5%	7.7%	7.8%	8.3%	8.8%
Year on year variation	p.p.		0.2p.p.	0.0p.p.	0.5p.p.	0.5p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **n/a**

No defined benefit pension scheme.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer contribution rate to the scheme is 25% for the whole 2020-2024 period.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer contribution rate to the scheme is 3% for the whole 2020-2024 period.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

n/a

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Reported in the performance plan as "not applicable".

4.3.B.4 PRB Key Points

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TRM

- The Czech Republic did not change the cost allocation methodology with respect to RP2.
- The allocation of costs in the Czech Republic consists on dividing costs between costs centres. These costs centres correspond to organisation units. Within the costs centres, the costs are broken down according to costs types (by the standardised chart of account) and according to the activities (by special activity codes). Costs of these services are direct or indirect-joint costs by nature.
- The allocation of costs between en route and terminal services is based on the abovementioned activity codes that are assigned to each costs item both in budgeting and accounting systems. These codes enable to identify whether particular cost item is for en route and terminal (and to which extent). Allocation of indirect-joint costs (training, administration, etc.) between the two main cost bases is based on the key of composite flight hours.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

n/a

If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

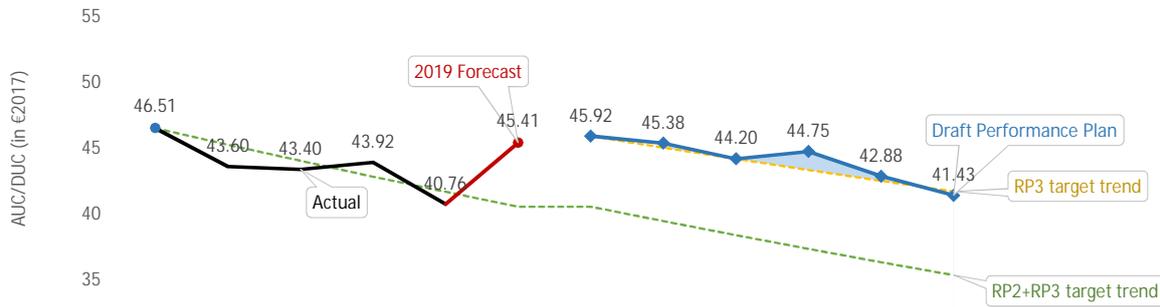
n/a

4.3.C.3 PRB Key Points



- The Czech Republic did not change the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4.1 Overview and trends of the DUC



		2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
AUC/DUC	€ (2017)	46.51	43.60	43.40	43.92	40.76	45.41	45.92	45.38	44.20	44.75	42.88	41.43	-2.0%	-1.2%
Annual Change	%		-6.3%	-0.5%	+1.2%	-7.2%	+11.4%	+12.7%	-1.2%	-2.6%	+1.3%	-4.2%	-3.4%		

4.4.2 DUC consistency

- ✓ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-2.0%	Union-wide trend	-1.9%	Difference	-0.1p.p.
PP trend	-1.2%	Union-wide trend	-2.7%	Difference	+1.5p.p.
PP 2019 baseline	45.92	Average comp. group	40.16	Difference	+14.3%

DUC deviation

Are the performance plan capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the performance plan restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

- The Czech Republic achieves the Union-wide RP3 trend with -2.0%.
- The long-term DUC trend of -1.2% is significantly worse than the Union-wide trend.
- The DUC level is +14.3% better than the average of the comparator group for the 2019 baseline and +3.9% higher in 2024.
- According to the Czech Republic, their 'ATS Optimisation Project' which is the key element of the performance plan, meets both the criteria of points (i) and (ii) of Annex IV, para 1.4.(d) of the Performance and Charging Regulation. Czech Republic decided that "the project is justified using bullet (i) Section 1.4 of Annex IV of the Commission Implementing Regulation (EU) 2019/317".

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€₂₀₁₇): v. RP2+RP3 trend over the period 2020-2024 +107.2

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+176.5	Additional ATCO costs (M€ ₂₀₁₇)*	+29.5
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€ ₂₀₁₇)	49.7	of which, related to capacity (see Section 3.5 for details)	48.0
--	------	---	------

Analysis

The costs deviation with respect to the long-term (RP2 and RP3) trend is of 107.2M€₂₀₁₇. If the additional ATCO staff costs are evaluated (see assumptions above) as a minimum of +29.5M€₂₀₁₇ (not including ATCO training, which usually is included in the non-staff operating costs) and considering that an additional 48.0M€₂₀₁₇ are planned in capacity-related investments, we can directly attribute 77.5M€₂₀₁₇ to capacity-related measures. Furthermore, there are an additional 94.0M€₂₀₁₇ planned in 'other new investments', for which not enough detail is provided but it could be reasonably assumed that a sizeable share of these are related to the en route capacity-related projects.

Considering these projects and the previously mentioned ATCO training costs, the total costs related to capacity-related measures would not be too far (if not completely cover) the costs deviation of 107.2M€₂₀₁₇ with respect to the to the long-term trend.

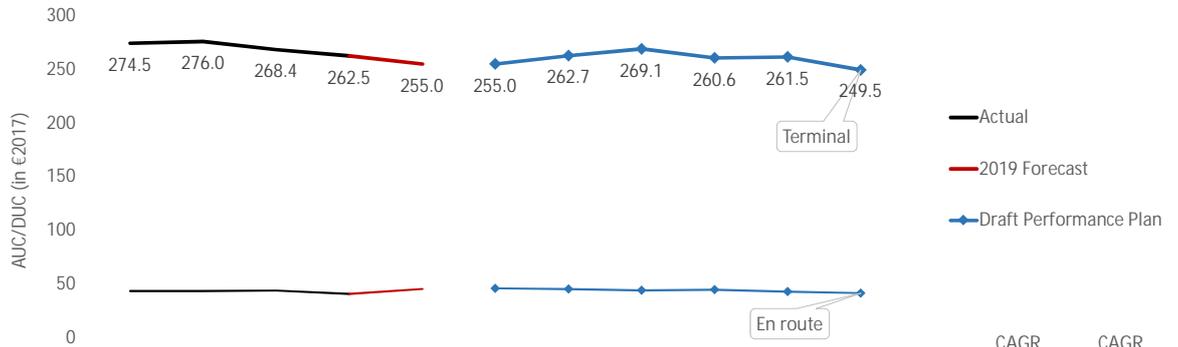
- ✓ Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? Yes

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✓

- The Czech Republic is meeting the RP3 DUC trend in terms of average reduction.
- The Czech Republic is not achieving the long-term Union-wide DUC trend.
- The Czech Republic is not consistent with the average DUC baseline of the comparator group.
- The deviation from the long-term trend can be attributed to capacity targets achievement.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal	€ (2017)	274.5	276.0	268.4	262.5	255.0	255.0	262.7	269.1	260.6	261.5	249.5	-0.4%	-1.8%
Annual Change	%		+0.6%	-2.8%	-2.2%	-2.9%	-2.9%	+3.0%	+2.4%	-3.1%	+0.3%	-4.6%		
AUC/DUC - En route	€ (2017)	43.6	43.4	43.9	40.8	45.4	45.9	45.4	44.2	44.8	42.9	41.4	-2.0%	
Annual Change	%		-0.5%	+1.2%	-7.2%	+11.4%	+12.7%	-1.2%	-2.6%	+1.3%	-4.2%	-3.4%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Prague (LKPR)	GROUP II	157.17	236.4	+50.4%	148.9	230.9	+55.1%
Karlovy Vary (LKKV)	GROUP IV	673.82	1691.9	+151.1%	647.6	2411.6	+273.4%
Ostrava (LKMT)	GROUP IV	673.82	724.9	+7.6%	647.6	656.2	+1.3%
Brno-Tuřany (LKTB)	GROUP IV	673.82	625.4	-7.2%	647.6	597.0	-7.8%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The unit costs for Prague (LKPR) and Karlovy Vary (LKKV) were significantly higher than the median of their comparator group during RP2 and the difference with respect to the median of the comparator group becomes even higher during RP3.
 - The unit cost for Ostrava (LKMT) is mostly in line with its comparator group for RP2 and RP3.
 - The unit cost for Brno (LKTB) was lower than its comparator group in RP2 and remains so for RP3.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	101.0			
2019F (STATFOR Feb 19)	L 96.6	B 98.8	H 100.6	+2.2%
2019F (STATFOR Oct 19)	L 96.4	B 97.0	H 97.6	+4.1%

Costs

2019 forecast & baseline review	M€ 2017	%
2019 Forecast v. 2018 Actual	+0.1	+0.6%
2019 Forecast v. Avg. 2015-2018 Actual	+2.3	+9.8%
2019 Baseline v. 2019 Forecast	0.0	+0%

TNSUs

- Contrary to en route, the Czech Republic has chosen a 2019 terminal traffic baseline +2.2% higher than the STATFOR February 2019 base forecast (similar to the high forecast) and +4.1% higher than the STATFOR October 2019 base forecast. This represents a traffic increase of +3.5% with respect to 2018.

Costs

- The 2019 costs baseline is the same as the costs forecast and only slightly higher (+0.6%) than the actual 2018 costs. It is however +9.8% higher than the average costs for the 2015-2018 period.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

The Czech Republic considers that the forecasts produced by their local experts are more accurate than the STATFOR February 2019 base forecast, which, in their opinion, does not take into account the latest developments and traffic evolution in the Czech Republic.

Review of the PP traffic forecast

The Czech Republic has chosen a local forecast composed of a 2019 traffic baseline +2.2% higher than the STATFOR February 2019 base forecast and, for the 2020-2024 period, a yearly growth that mimics the yearly growth of the STATFOR February 2019 base forecast.

Determined costs (terminal)

Is inflation in PP in line with IMF (April 2019 forecast)?

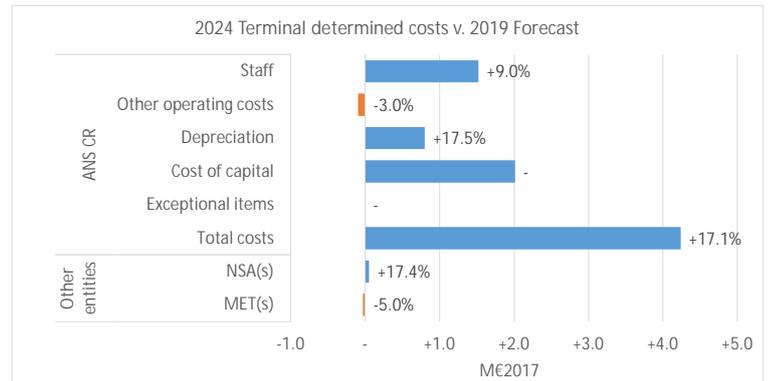
Deviation from index < 1p.p. in 2024

Cost elements - ANS CR (terminal)

- Investments (see details in 3.5)
- Cost of capital
 - Interest on loans
 - RoE
 - WACC
- Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (17%) is in line with the share of terminal total costs (18%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The terminal DUC trend is significantly higher than for en route.
- As for en route, the main drivers for the costs increase during RP3 are staff and cost of capital.
- It should be noted that, according to the performance plan, "The Czech Republic's intention is to not increase the current unit rate of 6,800 CZK. ANS CR will only apply the cost of capital in the terminal cost base if the actual costs are lower than the target unit rate."

4.5.4 PRB Key Points

- The Terminal RP3 DUC trend is -0.4%, which is worse than the en route RP3 DUC trend of -2.0%.
- The Terminal RP3 DUC trend is -0.4%, which is worse than the Terminal RP2 DUC trend of -1.8%.
- Prague, the main airport, had a DUC 50.4% higher than the average of its comparator group in RP2. The difference is expected to be +55.1% over RP3. The other airports included in the performance plan range from a DUC 7.2% lower to 151.1% higher over RP3. The differences are expected to range from 7.8% lower to 272.4% higher over RP3.
- The Czech Republic used a custom forecast for terminal traffic. The baseline of this forecast is higher (+2.2%) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to increases in cost of capital and staff costs.

PRB Assessment

DENMARK

Draft Performance Plan

Context and scope

Denmark

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 19.11.2019
 Documents no: 1582, 1583, 1188, 1189, 1584, 1585, 1186, 1191, 1586, 1587, 1187, 1194, 1190, 1192, 1195, 1197, 1588

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.2%
 % Costs V. SES 1.3%

Scope

FAB: DK-SE FAB

ANSPs: NAVIAIR
 Danmarks Meteorologiske Institute (DMI)

ATM/ANS
 MET services

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Trafik-, Bygge- og Boligstyrelsen (the Danish Transport, Construction and Housing Authority)

NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Denmark	n/a	No	No	No	
Terminal	Denmark - TCZ	1	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group B Other States in the comparator group: Finland, Ireland, Norway, Sweden

Currency: DKK Exchange rate: 7.43692

1. Safety 

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
NAVIAIR	Safety policy and objectives	B	C	C	C	C
	Safety risk management	B	B	C	D	D
	Safety assurance	B	B	C	C	C
	Safety promotion	B	B	C	C	C
	Safety culture	B	B	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Denmark should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that measures provided will not be sufficient to reach the RP3 targets, considering the proposed starting levels.

The PRB understands that no investments are required to ensure that performance targets are achieved, this would also include investments needed to improve EoSM levels.

2. Environment 

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.21%	1.21%	1.20%	1.20%	1.20%

PRB Assessment

The PRB concludes that the environment targets proposed by Denmark should be approved.

- Naviair's horizontal flight efficiency targets are consistent with its ANSP reference values published in the June 2019 ERNIP..

3. Capacity 

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.07	0.07	0.07	0.07	0.07
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.10	0.10	0.10	0.10	0.10

PRB Assessment

The PRB concludes that the capacity targets as proposed by Denmark should be approved.

- Existing capacity plans indicate that Denmark will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.

- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency 

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	62.81	61.52	60.24	58.98	57.76
Target for determined unit cost (DUC) (€2017) - Terminal	146.37	143.58	140.84	138.14	135.51

CAGR 2014-2024	CAGR 2019-2024
-1.3%	-1.7%
n/a	-1.5%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Denmark should not be approved.

- Denmark is not meeting any of the cost-efficiency criteria. Moreover, the deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

PRB Recommendations

SAFETY

- Denmark should define explicit measures for the management objectives to achieve the RP3 safety targets levels.
- Denmark should ensure consistency between safety levels achieved for RP2 in 2019 and planned starting levels for RP3.

ENVIRONMENT

- Denmark should consider the effectiveness of its FUA application since 69% of their allocated airspace was not used and therefore may have affected airspace users unnecessarily.
- Denmark should consider offering cross-border FRA with Hannover UIR, Warszawa, Vilnius and Kaliningrad UIR.
- Denmark should consider invoking point (b) of Article 32 of Commission Implementing Regulation (EU) 2019/317, which enables charging modulation to incentivise airspace routings that are shorter in distance.

CAPACITY

- Denmark should refer to the measures outlined in the NOP and list any additional capacity enhancement measures in the performance plan.
- Denmark should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- Denmark should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Denmark should reduce the cost of capital proposed aligning it to the market risk exposure.

DENMARK

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.
The EoSM targets levels, set in accordance with the Union-wide safety targets are planned to be met at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan only provides a general statement that the ANSP will implement Commission Implementing Regulation (EU) 2017/373 and ensure compliance to it. In addition, the draft performance plan notes that the ANSP will implement best practices from ICAO, CANSO, etc. No specific measures are defined despite the planned evolution of the EoSM level requiring improvements in all management objectives.

1.1.3 Interdependencies and Trade-offs

No specific interdependencies between KPAs from improvements or investments are presented. The performance plan underlines that safety has the priority over the other KPAs, and possible trade-off may be done in order to maintain safety levels.

1.1.4 Change Management

The change management practices for major implementations are not described. It is not described how the ANSP will ensure an implementation process with minimal negative impact on network performances.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Denmark should be approved.
- The EoSM safety targets are consistent with the Union-wide performance targets.

The PRB notes that the starting levels for RP3 should be made consistent with safety levels achieved for RP2 and that measures provided will not be sufficient to reach the RP3 targets, considering the proposed starting levels. The PRB will closely monitor the implementation of measures over the RP3 to ensure that sufficient measures are defined and that the maturity levels do not degrade between RP2 and RP3 in its "RP3 watchlist".
The PRB understands that no investments are required to ensure that performance targets are achieved, this would also include investments needed to improve EoSM levels.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Naviair	Safety policy and objectives	B	C	C	C	C	✓	
	Safety risk management	B	B	C	D	D	✓	
	Safety assurance	B	B	C	C	C	✓	
	Safety promotion	B	B	C	C	C	✓	
	Safety culture	B	B	C	C	C	✓	

The EoSM targets have been defined for each year of RP3. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan provides a general statement that the ANSP will implement Commission Implementing Regulation (EU) 2017/373 and ensure the compliance to it. In addition, the draft performance plan notes that that the ANSP will implement best practices from ICAO, CANSO, etc. However, no specific measures are defined despite the planned evolution of the EoSM level requiring improvements in all management objectives. The proposed measures, compliant with the Commission Implementing Regulation (EU) 2017/373, are not considered sufficient to reach to targets at the end of RP3. The measures proposed by the regulation satisfy mainly the RP2 EoSM maturity targets and not RP3 targets.

1.3.1 Interdependencies and Trade-offs

The draft performance plan describes changes related to ATM Functional systems with regards to safety (upgrade of COOPANS and a new ATM back-up system to improve resilience). There is no indication in the draft performance plan that the investments are required to achieve specific targets, however the investments are driven by ensuring regulatory compliance (PCP1) and replacement of aging systems.

The draft performance plan underlines that safety will always be the priority and that the other KPAs will take into account any safety implications. In this regards, the draft performance plan highlights that the biggest risk is the lack of resources, which may lead to capacity shortage in order to ensure safety level.

1.3.2 Change Management Practices

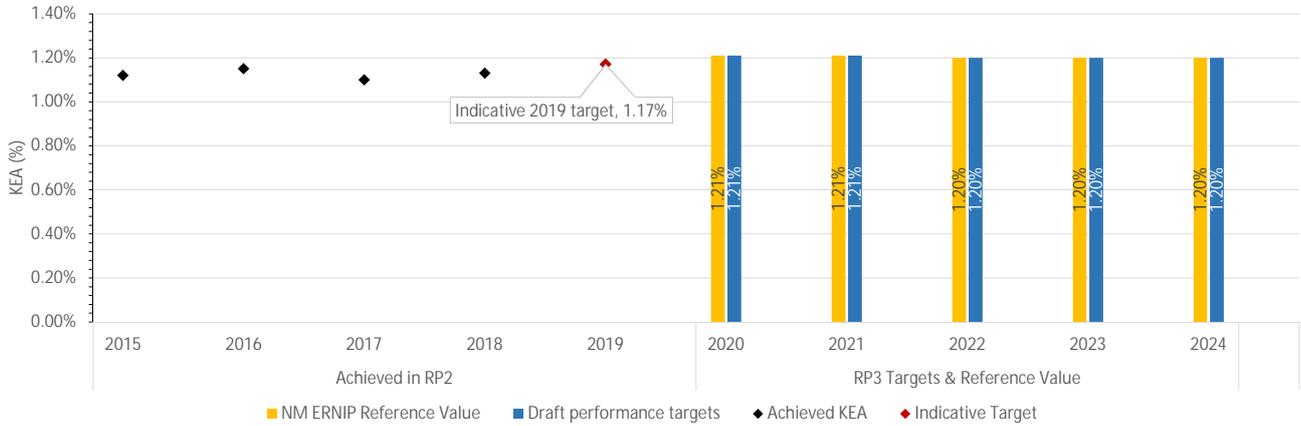
The draft performance plan does not include a description of the change management practices and transition plans aimed at minimising any negative impact on the network performance. The draft performance plan should provide information on how the ANSP will minimise negative impacts on network performance due to airspace changes (e.g. FRA implementation) and ATM system improvements (e.g. PCP1 families).

DENMARK

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.21%	1.21%	1.20%	1.20%	1.20%
Draft performance targets	1.21%	1.21%	1.20%	1.20%	1.20%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by Denmark should be approved.
 - Naviair's horizontal flight efficiency targets are consistent with its ANSP reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? Naviair implemented free route airspace within the Copenhagen FIR in November 2011 between GND and FL 660.	✓	Reference in PP 3.2.1(c)	Reference in LSSIP Page 39
Major ERNIP Recommended Measures: Measure included within performance plan? Cross-border FRA MUAC, Karlsruhe UAC & DK/SW FAB	1 ✓	Reference in PP Implemented	Reference in ERNIP Page 102
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Denmark achieved a KEA of 1.17% in 2019 and therefore already achieved the planned target of 1.21% in 2024.

In terms of the measures recommended by the NM, Naviair already offers a cross-border FRA interface with MUAC (Karlsruhe UAC North) between FL285 – 660. Denmark did not mention its plans to support BOREALIS FRA, although, it has already significantly contributed to this through completion of its own FRA and cross-border co-operation. However, DK-SE still lacks cross-border FRA along the interfaces at the south of its FIR border (i.e. Hannover UIR, Warszawa UIR, Vilnius UIR & Kaliningrad UIR), this could be a further source of improvement.

In addition, performance-based navigation procedures will be implemented at Copenhagen Airport/Kastrup during the RP3 period which could improve performance, especially near the TMA although this might not always be reflected in the KEA.

Notably, Denmark expressed concern about the effect of the changes to route charging on the KEA indicator. Since traffic is forecasted to reduce in response to charging based on the actual flown routes, this may reflect that airspace users may be incentivised to fly longer routes and avoid/minimise time spent in Danish airspace. No measures were foreseen to tackle this although the performance and charging regulations enables Member States to modulate their charges to encourage flying shorter distances.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Denmark plan for an environmental incentive scheme? Denmark does not intend to apply an optional incentive scheme for the environment KPA.	✗
--	---

DENMARK

Capacity KPA

3.1.1 En route ATFM delay

The targets defined in the performance plan are more advanced for the first three years of RP3, while the last two years they are matching the NOP reference values. The NOP delay forecast is lower than the proposed capacity target.

Analysis of the Denmark planned capacity profiles indicates good capacity performance during RP3 providing positive contribution to network performance.

Presented ATCO numbers and measures described in the NOP provide evidence that Denmark has sufficient capacity to cope with the expected traffic growth during RP3.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	-0.07	-0.08	-0.06	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM delay

Denmark has set a constant national target for RP3 that represents a further improvement with respect to RP2, which was already a challenging target. The national target demonstrates Denmark’s compromise to continue delivering very good performance at Copenhagen (the only airport included in the performance plan), as observed during RP2.

3.1.3 Incentives

En route incentives: the pivot value is significantly more ambitious than the reference value published in the NOP. Maximum bonus is set at 0.125%, maximum penalty is set at 0.5% of determined cost. Delay forecast in the NOP shows that while the ANSP is expected to achieve the targets - and greatly surpass the NOP reference values - (forecast delay 0.03-0.05 minutes per flight annually 2020-2024), it will not be sufficient to achieve a financial bonus, which is triggered at 0.021 minutes delay per flight. It is very unlikely that a penalty will be triggered (0.119 minutes delay per flight). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: the Danish terminal incentive scheme does not modulate the pivot values and includes lower maximum bonus (0.125%) than maximum penalty (0.50%) with a very wide dead band. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

The RP3 performance plan has introduced two major investment projects with total cost 2.4M€ in RP3, none of which could be related to the capacity improvement based on the description provided in the performance plan. The investments are focused on the improved interoperability of systems and contingency solutions. The link to capacity measures could be redefined if greater level of details is provided. The performance plan provides information on other new investments that could be linked to capacity measures and improvement. The level of details on other new and existing project is very low and it is not clear why the cost of those is nearly seven times higher than costs of major projects.

3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets as proposed by Denmark should be approved.

- Existing capacity plans indicate that Denmark will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2 En route ATFM delay per flight

Denmark

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+1.5%	+1.8%	+1.1%	+3.3%						
Actual ATFM delay per flight	0.00	0.00	0.00	0.01						
ANSP reference values						0.14	0.15	0.13	0.07	0.07
ANSP national targets						0.07	0.07	0.07	0.07	0.07
Forecast with eNM/ANSPs measures*					0.06	0.05				
Forecast w/o eNM/ANSPs measures*					0.06	0.05		0.03-0.04		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	-0.07	-0.08	-0.06	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The performance plan is not referring to the NOP measures. The main observation is that the target is achievable and that it leaves room for minor technical disruptions. In addition, the increase of ATCO numbers is presented to cope with anticipated traffic growth.

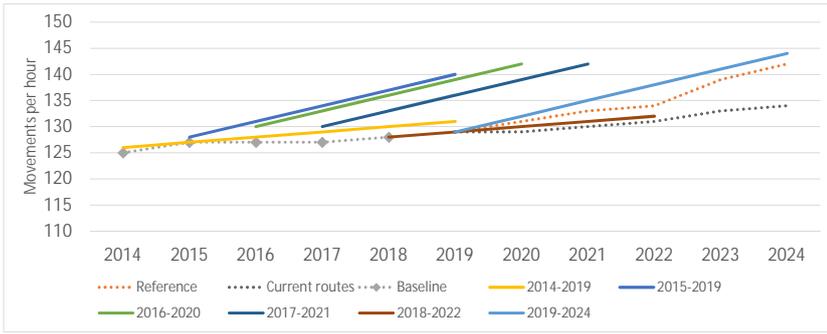
The latest NOP edition (June 2019) notes that with the measures described, Copenhagen ACC will have sufficient capacity to cope with the expected traffic growth during RP3.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Copenhagen ACC (EKDK)	Additional ATCOs in OPS to start working in the OPS room	0	1	1	1	6	6	0	+4
	ATCOs in OPS to stop working in the OPS room	0	5	4	1	2	2	1	
	ATCOs in OPS to be operational at year-end	92	88	85	85	89	93	92	
Total - NAVIAIR (en-route)	Additional ATCOs in OPS to start working in the OPS room	0	1	1	1	6	6	0	+4
	ATCOs in OPS to stop working in the OPS room	0	5	4	1	2	2	1	
	ATCOs in OPS to be operational at year-end	92	88	85	85	89	93	92	

3.2.3 Existing and previous ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Copenhagen ACC (EKDK)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						129	131	133	134	139	142
Current routes						129	129	130	131	133	134
Baseline	125	127	127	127	128						
2014-2019	126	127	128	129	130	131					
2015-2019		128	131	134	137	140					
2016-2020			130	133	136	139	142				
2017-2021				130	133	136	139	142			
2018-2022					128	129	130	131	132		
2019-2024						129	132	135	138	141	144

- Historical evolution of capacity profiles in RP2 shows that capacity plans were mainly in line or slightly above the baseline values which at the end enabled excellent performance with low delay values achieved during RP2.

- The latest capacity plan developed by the ANSP outlines a profile, which is above the current route profile: at the beginning of RP3 is higher by around 2%, while it is increasing towards the end of RP3 by around 7%. The ANSP capacity plan is predicting slightly higher profiles than what is foreseen in the reference scenario. Both facts draw the conclusion that Denmark has sufficient capacity for RP3 and there is no capacity gap expected.

- The delay forecast in the NOP is much lower than the NOP reference value, which indicates good capacity performance expected by both the NM and Denmark.

- The capacity plan has been constantly adapted to the traffic evolution and the network requirements. Copenhagen ACC did not generate delays above the local reference values in RP2.

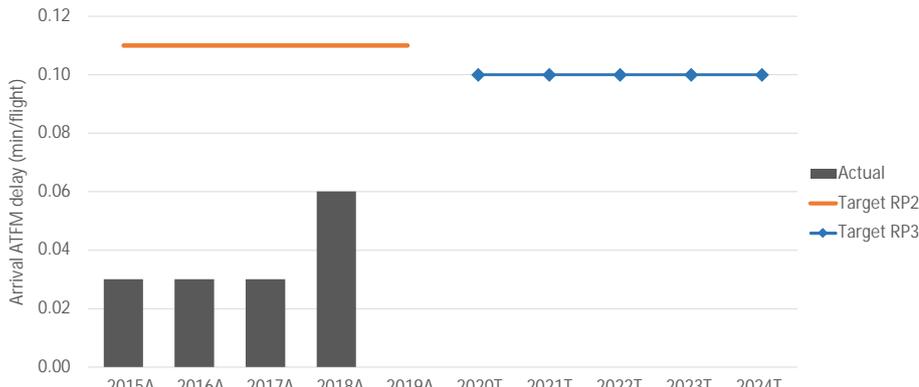
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- Proposed capacity targets are more advanced than the respective reference delay values, providing positive contribution to the network performance simply by implementing the existing capacity plans.
- Existing capacity plans indicate that Denmark is able to provide sufficient capacity to reach the proposed targets.
- Presented ATCO numbers and measures described in the NOP provide evidence that Denmark has sufficient capacity to cope with the expected traffic growth during the planning period.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.03	0.03	0.03	0.06	-	0.10	0.10	0.10	0.10	0.10
Copenhagen/ Kastrup (EKCH)	0.03	0.03	0.03	0.06	-	0.10	0.10	0.10	0.10	0.10

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

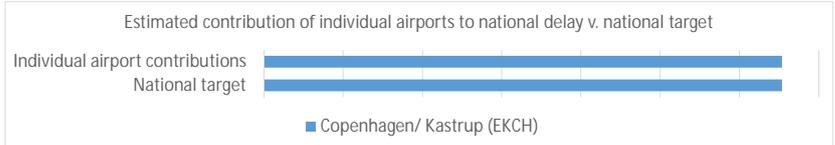
Denmark has set a constant national target for arrival ATFM delay for RP3. This target delay represents an improvement with respect to RP2, which was already a challenging target.

This new target (0.10 minutes per arrival, also the target for the Copenhagen Airport), sits only 0.04 minimum above the performance of 2018, that was an outstanding performance. The STATFOR February 2019 base forecast is chosen for the performance plan, expecting a CAGR in IFR movements of 1.5% in 2019-2024.

The national target demonstrates Denmark's commitment to continue delivering very good performance at Copenhagen, allowing a small margin to cover for the unpredictable bad weather.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min./flight)
Copenhagen/ Kastrup (EKCH)	0.10
National Target	0.10



As Copenhagen is the only airport included in the performance plan, the national targets coincide with the airport targets and the potential delay contribution is only associated to this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Copenhagen/ Kastrup (EKCH)	GROUP I	0.87	0.04	-0.84	0.10	-0.77

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Arrival ATFM delay at Copenhagen during RP2 was extremely good for an airport of that category, showing no capacity constraints. The proposed target for RP3 continues in the same line.

3.3.5 PRB Key Points

Denmark has set a constant national target for RP3 that represents a further improvement with respect to RP2, which was already a challenging target. The national target demonstrates Denmark's compromise to continue delivering very good performance at Copenhagen (the only airport included in the performance plan), as observed during RP2.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.049 min	0.125%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.14	0.15	0.13	0.07	0.07
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.07	0.07	0.07	0.07	0.07
Pivot values for RP3	0.07	0.07	0.07	0.07	0.07

Threshold review

Threshold is symmetrical around the pivot value which is significantly more ambitious than the reference value published in the NOP.

Modulation review

No modulation is applied.

Review of financial advantages/disadvantages

Full bonus of 0.125% of revenue countered with full penalty of 0.5% of revenue. Delay forecast in the NOP shows that while the ANSP is expected to achieve the targets (and greatly surpass the NOP reference values) (forecast delay 0.03-0.05 minutes per flight annually 2020-2024), it will not be sufficient to achieve a financial bonus, which is triggered at 0.021 minutes delay per flight. It is very unlikely that a penalty will be triggered (0.119 minutes delay per flight).

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±49.0%	0.125%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.10	0.10	0.10	0.10	0.10
Pivot values for RP3	0.10	0.10	0.10	0.10	0.10

Threshold review

n/a

Modulation review

n/a

Review of financial advantages/disadvantages

n/a

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✔

En route incentives:

- The pivot value is significantly more ambitious than the reference value published in the NOP. Maximum bonus is set at 0.125%, maximum penalty is set at 0.5% of determined cost.
- Delay forecast in the NOP shows that while the ANSP is expected to achieve the targets - and greatly surpass the NOP reference values - (forecast delay 0.03-0.05 minutes per flight annually 2020-2024), it will not be sufficient to achieve a financial bonus, which is triggered at 0.021 minutes delay per flight.
- It is very unlikely that a penalty will be triggered (0.119 minutes delay per flight).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

- The Danish terminal incentive scheme does not modulate the pivot values and includes lower max. bonus (0.125%) than maximum penalty (0.50%) with a very wide dead band.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	21.3	22.4	23.6	24.2	25.5	117.1
En route	M€ (nominal)	17.6	18.6	19.7	20.3	21.4	97.8
Terminal	M€ (nominal)	3.7	3.8	3.9	3.9	4.1	19.3

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	CoFlight	Flight Data Processing system incl. associated support functionalities. The investment is a necessary future enhancement for fulfilling the demands of the Regulation (EC) No 550/2004 for implementation of System-Wide Information Management (SWIM) of sharing Flight Object services. This new service will create interoperability in Europe where point-to-point coordination and information sharing will be updated with real-time coordination and information sharing. It requires however a new complex interface ED-133 that will replace the current point-to-point OLDI coordination. Moreover, other than being a complete new interface, it also requires that the COOPANS ATM system calculates the planned trajectory over a much greater distance. The aging COOPANS ATM system is neither capable of ED-133 nor to calculate a trajectory gate-to-gate, therefore the investment is planned.	12.0	Yes	No	1.9	0.1
2	Backup ATM	The backup ATM system is intended for use when the main ATM system (COOPANS) is Out of Service - either planned or unplanned. The primary reason for investing in a backup ATM system is flight safety: In case Naviairs main ATM system (COOPANS) experiences a catastrophic system failure, the aircraft already under Naviairs control can be handled in a safe manner. Another important consideration is overall reliability/capacity as the secondary reason is for Naviair to be able to provide continued safe and reliable air navigation services while the main ATM system is under upgrade/test. In order to achieve these objectives, the backup ATM system needs to support new functional requirements like e.g. Mode S, ADS-B etc.	5.5	No	No	0.3	0.0
Total:						2.3	0.1

Airspace user feedback regarding major investments

The airspace users noted that:

- Naviair is behind on its RP2 investment plan and that the requested RP3 plan must include clear links to RP2 actual developments.
- The investment plan did not contain a detailed description of the benefits to airspace users, no quantitative assessment of the benefits and no cost benefit analysis for any of the major investments.

Review of investments

New major investments represent 2% of the total determined costs of investments over RP3. These investments are not rolled forward from RP2 into RP3. In line with this, 2015-2018 actual CAPEX delivery reaches some 95% of planned for the same period and the underspend amounts to 2.05M€. The RP2 investment in ATM is the one delayed. It is not clear if Naviair will complete it or will give back the unspent CAPEX to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	Backup ATM	Network, Local	Capacity, safety	The backup ATM system is intended for use when the main ATM system (COOPANS) is Out of Service - either planned or unplanned.

Additional information

No additional information provided by the ANSP.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	67.9	62.3	2.1	3.9	5.6	6.5	8.7	26.8
Existing investments			19.2	18.5	17.8	16.9	15.4	87.9

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 23% of the total determined costs of investments over RP3, while existing investments represent 75%. Other new and existing investments support mainly two projects initiated in RP2: ATM and CNS. Naviair has provided additional details regarding other new investments in the Annex C of the performance plan (consultation) and in section 2.1.3 of the performance plan. "For ATM the main investments are related to the continued development of the COOPANS system to support new requirements like support for ADS-B, Mode S/DAP and CPDLC.</p> <p>For CNS the main investments are related to a renovation and improvement of Naviair's surveillance infrastructure to support ADS-B and Mode S/DAP functionality as well as the Borealis/NEFAB Free Route Airspace concept.</p> <p>In addition Naviair has renovated and improved Naviair's voice and data communication infrastructure in order to support 8.33 kHz channel separation as well as Voice over Internet Protocol (VoIP) communications the latter being an enabler for a potential future Dynamic sectorisation Across FIR Boundaries concept.</p> <p>Finally, Naviair is continuously maintaining Naviair's building and other infrastructure in order to secure an efficient and reliable operational working environment."</p>
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand n/a

Capacity improvement measures proposed by Denmark in the NOP 2019-2024 focus mainly on intangible solutions such as organisation of airspace and ATC procedures improvement. The technical and system oriented projects which are subject to the major investment provide for support and enablers of such measures. According to the NOP 2019-2024, the Copenhagen ACC will have sufficient capacity to cope with the expected traffic growth during the planning period.

Investment #1 (CoFlight) is aimed at enabling to provide Flight Data Processing remote service and system maintenance to the ANSP. This investment is a part of Flight Objects that improves system interoperability between ANSP's, airports and airspace users. As the main goal of the CoFlight is to achieve efficient data sharing and greater quality, this investment would have an effect on the safety KPA, capacity KPA and environment KPA. In addition, level of information in the performance plan is not adequate to draw conclusions if such investment is scaled to demand.

Investment #2 (backup of the ATM system) is intended to increase safety levels if the COOPANS system is out of service. This investment is also affecting the capacity KPA as it is ensuring service continuity during the period when the main system is out of service. In addition level of information in the performance plan is not enough to draw conclusions if such investment is scaled to demand.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan i

Projects are not directly relevant for capacity. Not enough information to assess the impact on capacity.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented i

Project is not directly the Capacity KPA relevant. Not enough information to assess the impact on capacity.

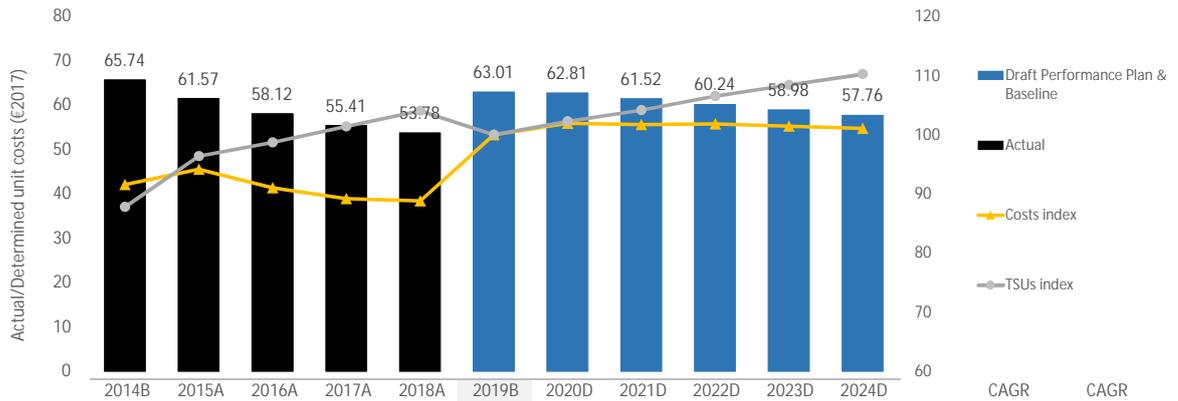
3.5.4 PRB Key Points ✓

- No major issues identified.

DENMARK

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MDKK (nom)	699	720	695	686	687	-	803	809	820	829	836	-	+1.8%
Total costs	MDKK (2017)	705	725	701	686	684	770	785	783	784	781	778	+0.2%	+1.0%
TSU	'000	1,442	1,583	1,621	1,666	1,709	1,642	1,680	1,711	1,750	1,781	1,811	+2.0%	+2.3%
AUC/DUC	DKK (2017)	488.9	457.9	432.2	412.1	400.0	468.6	467.1	457.5	448.0	438.6	429.5		
Exchange rate	DKK:€				7.437									
AUC/DUC	€ (2017)	65.74	61.57	58.12	55.41	53.78	63.01	62.81	61.52	60.24	58.98	57.76		
Annual change	%		-6.3%	-5.6%	-4.7%	-2.9%	+17.2%	-0.3%	-2.0%	-2.1%	-2.1%	-2.1%	-1.7%	-1.3%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	63.01 €2017	✗
<p>The 2019 TSU baseline is in line with STATFOR February 2019 base forecast.</p> <p>The 2019 baseline cost is 103.5M€2017 which is +11.5M€2017 (or +12.6%) higher than the 2018 actual costs and +4.2M€2017 (+4.6%) above the 2019 forecast cost. Denmark explains that this is mainly due to a number of "corrected adjustments":</p> <ul style="list-style-type: none"> - in the costs of capital (revised RoE, interest rate and capital structure, asset base and allocation en route/terminal) reported to increase costs (pending the CoC analysis); - the discontinuation of the netting-off of determined costs with (anticipated) EU funds (See Annexes F, F1, F2 and R of the performance plan), which indeed corrects a structural issue during RP2. 		

4.1.3 Summary of cost-efficiency assessment results

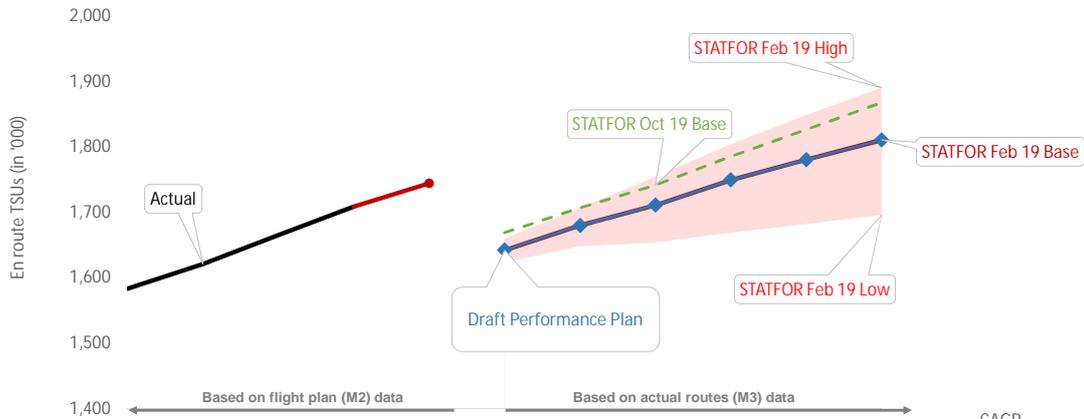
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-1.7%	✗
<p>The RP3 en route DUC trend is on average -1.7% p.a., which is worse than the Union-wide RP3 DUC target trend (-1.9%).</p>		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-1.3%	✗
<p>The long term en route DUC trend is on average -1.3% p.a., which is worse than the Union-wide DUC target trend (-2.7%) over 2014-2024. The related long term en route cost trend is +1.0% p.a. on average in real terms while the traffic long term trend is +2.3% p.a. on average over 2014-2024.</p>		
c) DUC level (2019 baseline) lower than the average of comparator group (B) average (44.62 €2017)?	+41.2%	✗
<p>The 2019 baseline DUC (63.01€2017) is +41.2% higher than the average of the comparators' group (44.62€2017). Denmark en route DUC remains higher than the average of its comparators over the whole of RP3 (2020-2024).</p>		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		✗
<p>The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend is +6.6M€2017, and +64.7M€2017 from the long-term trend. This is much higher than the sum of costs of new investments relating to capacity (+0.0M€2017), for which Navair does not provide details on the benefits of the investments in RP3, and costs of additional ATCOs (+0.3M€2017), which amounts in total to +0.3M€2017. Even if the +0.3M€2017 are only a rough estimation which might be incomplete, it is considered that the cost deviation with regard to the Union-wide trends (+6.6M€2017 and +64.7M€2017) is too large to be exclusively due to capacity related measures.</p>		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB conclusions

The PRB concludes that the cost-efficiency targets proposed by Denmark should not be approved.

- Denmark is not meeting any of the cost-efficiency criteria. Moreover, the deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	1,583	1,621	1,666	1,709								
Annual change	%		+2.4%	+2.7%	+2.6%								
STATFOR Feb 19 Base	'000 TSUs					1,745	1,642	1,680	1,711	1,750	1,781	1,811	+2.0%
Annual change	%					+2.1%	-3.9%	+2.3%	+1.8%	+2.3%	+1.8%	+1.7%	
STATFOR Oct 19 Base	'000 TSUs					-	1,669	1,707	1,742	1,786	1,827	1,868	+2.3%
Annual change	%					-	-2.3%	+2.3%	+2.0%	+2.5%	+2.3%	+2.3%	
Performance Plan	'000 TSUs						1,642	1,680	1,711	1,750	1,781	1,811	+2.0%
Annual change	%						-3.9%	+2.3%	+1.8%	+2.3%	+1.8%	+1.7%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (PP baseline, M3)	1,642			2019B (PP baseline, M3)	1,642	
2019F (as in the Reporting tables, M2)	1,745			2019F (STATFOR Feb 19, M3)	L 1,624	1,642
2019B/ 2019F	-5.87%	-5.87%	-5.70%	2019F (STATFOR Oct 19, M3)	L 1,662	B 1,669
					H 1,660	=B
					H 1,676	-1.62%

The 2019 TSU baseline is in line with STATFOR February 2019 base forecast. Denmark (en route) records the highest impact due to the change of methodology in calculating the distance factor in the TSUs (estimated at -5.70% to -5.87%), also the difference 2019 baseline/2019 forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

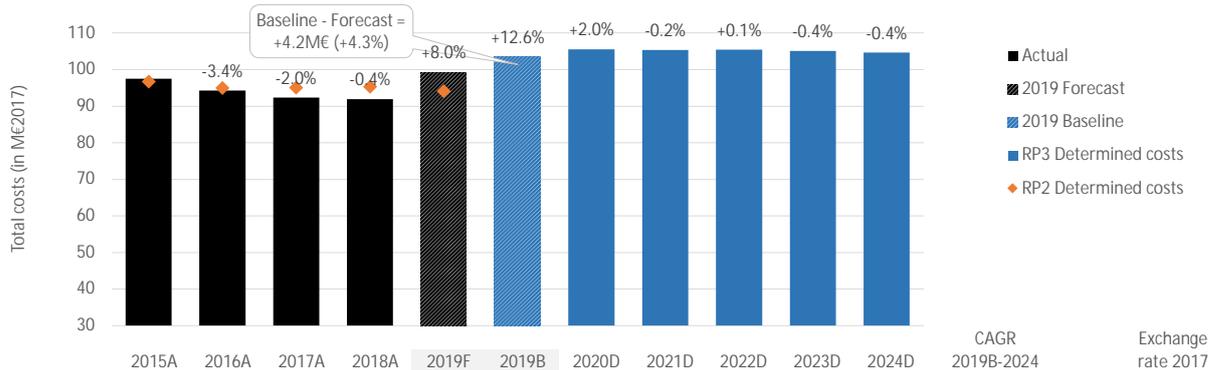
Review of the PP traffic forecast

The selected TSU forecasts are in line with STATFOR February 2019 base forecast for all years of RP3 (2020-2024), which forecasts a +2.0% annual growth on average over 2019-2024.

4.2.4 PRB Key Points

- No major issues identified.

4.3.1 Overview of en route costs in RP2 and RP3



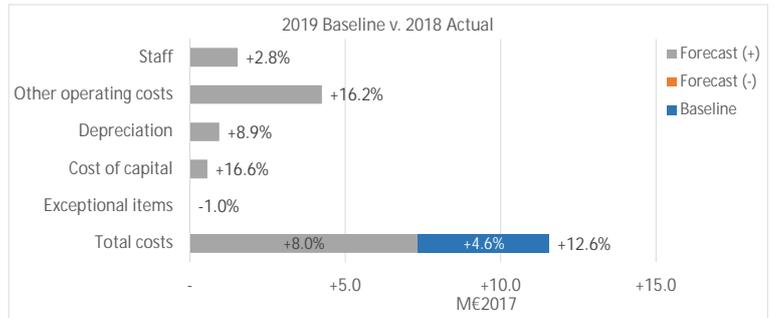
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MDKK (nom)	719.5	695.3	686.4	687.0	747.8	0.0	802.5	809.1	820.0	828.5	836.1	-	DKK:€
Annual change	%	-	-3.4%	-1.3%	+0.1%	+8.8%	-	-	+0.8%	+1.4%	+1.0%	+0.9%	-	7.43692
Inflation index	2017 = 100	98.9	98.9	100.0	100.7	101.8	101.8	103.1	104.7	106.6	108.7	110.9	+1.7%	-
Total costs	MDKK (2017)	725.0	700.7	686.4	683.5	738.1	769.6	784.8	783.0	783.9	781.2	777.9	+0.2%	-
Annual change	%	-	-3.4%	-2.0%	-0.4%	+8.0%	+12.6%	+2.0%	-0.2%	+0.1%	-0.4%	-0.4%	-	-
Total costs	M€ (2017)	97.5	94.2	92.3	91.9	99.2	103.5	105.5	105.3	105.4	105.0	104.6	+0.2%	-

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+7.3	+8.0%
2019F v. 2019 RP2 DC	+5.2	+5.5%
2019F v. average 2015-2018	+5.3	+5.6%

2019 baseline analysis	M€2017	%
2019B v. 2019F	4.2	+4.3%



2019 forecast analysis

The 2019 forecast costs amounts to 99.2M€2017 which is +7.3M€2017 (+8.0%) higher than the 2018 actual costs and +5.6% above the average of the 2015-2018 actual costs. This difference is due to higher:

- Staff costs (+1.5M€2017);
- Other operating costs (+4.3M€2017);
- Depreciation costs (+1.0M€2017);
- Cost of capital (+0.6M€2017).

The explanations for the difference between 2019 forecast and 2018 actual is provided in Annex F of the performance plan for Navair (the ANSP represents 84% of the total determined costs) and indicate that (all amounts in MDKK): "(...) For Navair en route, the main deviations in staff costs are increases due to collective agreement (+7.7), employees return from leave and other accessions (+6.2), severances (-5,2), checked out trainees (+2.7) and remuneration for extra shifts (+3.0). The exceptional items in RP2 Navair costs cover 'work performed for own account and capitalised', which have been included directly in staff costs in the 2019 cost forecast. Other operating items differences are mainly explained by training costs (7.8), transition costs (cyber risk and strategy implementation costs) (10.9), costs for education/training with regards to implementing Performance Based Navigation (PBN) (1.7). Other operating costs regarding buildings, radar-sites, etc. (2.4), IT & technical service contracts (1.9). Depreciations increase due to completion of new installations, herein VoIP, COOPANS, CANDI-IP etc., whereas cost of capital increases are contributed to less activation of capitalised interim interests in 2019 compared to 2018 and capital gains in 2018 with one-off effect."

Therefore, despite a recruitment of +15 trainees (ATCOs and ATC assistants in 2019), the transition costs and cyber-security costs (see Annex R and Annex F of the performance plan respectively) would represent the bulk of the other operating costs in 2019.

2019 baseline analysis

The 2019 baseline cost is 103.5M€2017, which is +11.5M€2017 (or +12.6%) higher than the 2018 actual costs and +4.2M€2017 (or +4.3%) above the 2019 forecast. Denmark explains that the difference is due to some corrective adjustments to Navair costs, namely:

- cost of capital (revised RoE, interest rate and capital structure, asset base and allocation en route/terminal) reported to increase costs by +17.9 MDKK (+2.4 M€2017) - [See Annex F1 (CoC), but also Annexes F and R of the performance plan and separate specific analysis];
- discontinuation of the netting-off of determined costs (See Annex F2 of the performance plan) with (anticipated) EU funds reported to increase costs by +13.6 MDKK (+1.8 M€2017), which indeed corrects a structural issue during RP2.

The transfer of costs from (negative) "exceptional items" to reduce "staff costs" (covering "work performed for own account and capitalised") has a neutral impact when comparing the 2019 baseline and the 2019 forecast total costs. Detailed explanations are provided in Annexes F, F1, F2 and R of the performance plan.

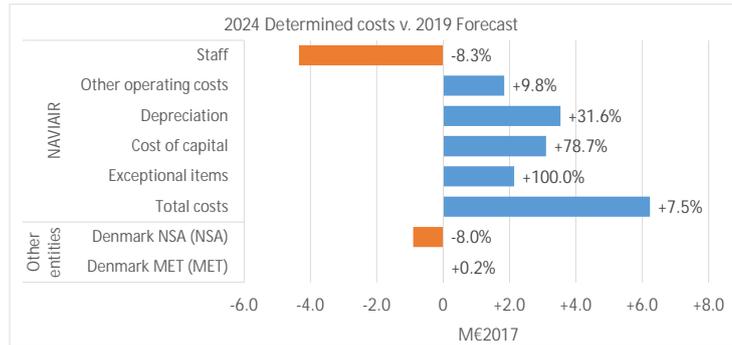
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✓ Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ⓘ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.125%
Maximum penalty (% of determined costs)	0.500%
Additional incentives?	No



In total, the 2024 ANSP determined costs are +6.2M€2017 (or +7.5%) higher than the 2019 forecast costs. The difference related to the main ANSP Naviair between 2019 forecast and 2024 is explained by the following:

- depreciation costs (+3.5M€2017) or +31.6%;
- cost of capital (+3.1M€2017) or +78.7%;
- other operating costs (+1.8M€2017 or +9.8%), while lower staff costs are expected in 2024 determined in real terms (-4.3M€2017 or -8.3% vs. 2019 forecast);
- transfer of costs from (negative) "exceptional items" (methodology for 2019 forecast) to "staff costs" (covering "work performed for own account and capitalised") is reducing the 2024 staff costs. Denmark reports that "The RP2 exceptional item comprises staff costs and other internal expenses incurred during the financial year and recognised in the cost of self-constructed intangible assets and property, plant and equipment. Given that these costs are not "exceptional" per definition the costs are as of RP3 reported with staff costs."
- the NSA level of costs in 2024 is also lower (-0.9M€2017 or -8.0%) than in 2019 forecast, while the level of cost remain similar for the MET provider (+0.2%).
- from the "3.5 Investments analysis", Naviair does not provide details on the benefits of the investments in RP3.
- from "4.3.B Pensions", Naviair's pension costs (included in staff costs) are planned to slightly increase over RP3 (+1.0% p.a. in real terms). Also over RP3, the average share of pension costs in respect of total costs (10.4%) remains lower than the Union-wide average (12.5%).

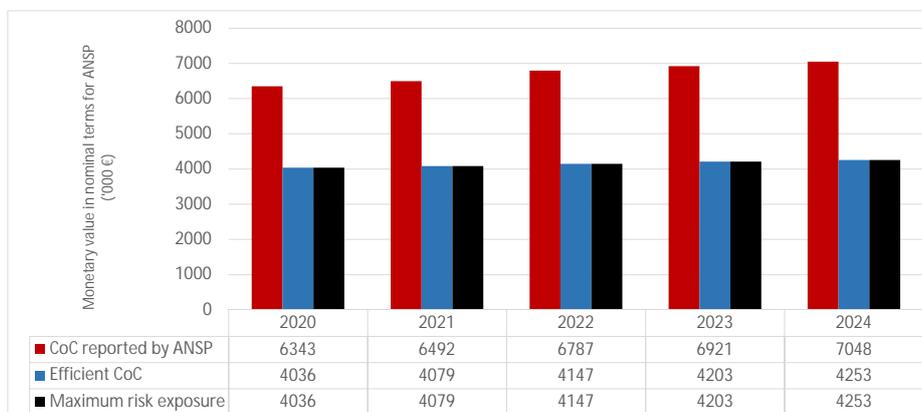
4.3.4 PRB Key Points

- The 2019 forecast costs are +7.3M€2017 (+8.0%) higher than the 2018 actual costs and +5.6% above the average of the 2015-2018 actual costs.
- The 2019 baseline cost is +4.2M€2017 (+4.6%) above the 2019 forecast. It is not clear if the cost of capital (reported to increase costs by +17.9 MDKK or +2.4 M€2017) and the discontinuation of the netting-off of determined costs (reported to increase costs by +13.6 MDKK or +1.8 M€2017) should be included in the baseline value.
- In total, the 2024 ANSP determined costs are +6.2M€2017 (or +7.5%) higher than the 2019 forecast costs, the main drivers are the depreciation costs and the cost of capital.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	91,728	92,711	94,248	95,522	96,660
Monetary value of Return on Equity	5,667	5,955	6,445	6,600	6,797
Ratio RoE/DC (%)	6.2%	6.4%	6.8%	6.9%	7.0%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	2306	2413	2640	2718	2795

Total 2020-2024	12,872
-----------------	--------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	5.0%	n/a								
Interest on debts	9.0%	n/a								
Capital structure (% debt)	6.2%	n/a	4.8%	n/a	2.9%	n/a	2.6%	n/a	2.0%	n/a
WACC	5.2%	3.3%	5.2%	3.3%	5.1%	3.1%	5.1%	3.1%	5.1%	3.1%

Is the interest on debts in line with the market? **No**

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is not justified, nor in line with competitive market practices. Naviair holds one loan with the Danish state at 9% interest rate since 2010, considerably higher than the competitive market practices. Naviair recommends to consider the interest rate as not directly comparable with market rates but rather with return on equity.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 12.87M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 6.2%-7%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	114,085	121,448	125,405	128,950	132,575
Net current assets	5,880	3,930	8,534	8,534	8,534
Adjustments total assets	878	-313	-1,245	-1,919	-2,375
Total asset base	120,843	125,065	132,694	135,564	138,734

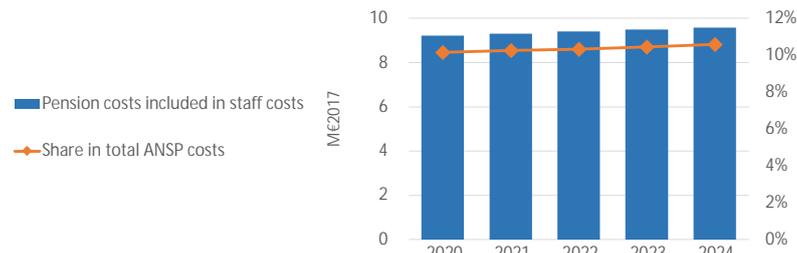
- The fixed asset base will increase over the period in line with the investments described in section 3.5 of this document.
- The net current assets do not present major issues.
- The RAB includes adjustments, positive in the first year of the period and negative for the remaining years. However, in Annex A of the performance plan, the justification is only provided for the adjustments of year 2020.
- The total asset base will slightly increase over RP3 mostly due to the increase in the fixed asset base and the increase in net current assets.

4.3.A.5 PRB Key Points

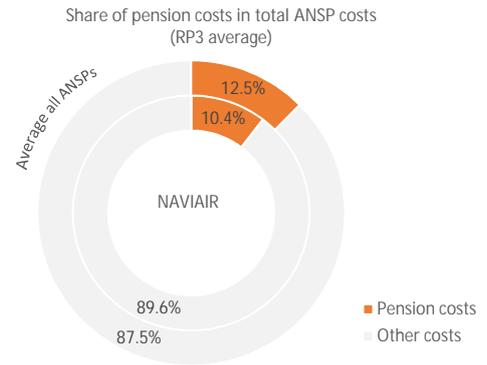


- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is not justified, nor in line with competitive market practices.
- The reported cost of capital is 12.87M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 6.2%-7%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	M€2017	9.2	9.3	9.4	9.5	9.6
Year on year variation	% change		+1.0%	+1.0%	+1.0%	+1.0%
Share in total ANSP costs	%	10.1%	10.3%	10.3%	10.5%	10.6%
Year on year variation	p.p.		0.1p.p.	0.1p.p.	0.1p.p.	0.1p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **Unclear**

No information is available.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

No. Denmark reports that for Naviair, "the percentages for pensions are different among the groups of employees. The determined pension costs are based on an average of 17% of the staff costs that are eligible for pension." (see en route Reporting Tables/Additional Information 1F)

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **Unclear**

No information is available. Denmark does not provide a breakdown of Naviair pension cost per scheme and reports that "it is difficult to accurately make detailed forecasts for "defined contribution" and "defined benefits" respectively in the RP3 period. Therefore, it is difficult to specify the specific figures in the

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **Unclear**

No information is available. Denmark does not provide a breakdown of Naviair pension cost per scheme and reports that "it is difficult to accurately make detailed forecasts for "defined contribution" and "defined benefits" respectively in the RP3 period. Therefore, it is difficult to specify the specific figures in the above table."

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Denmark reports that "Naviair has a strong focus on having the required number of air traffic controllers and other staff to meet the expected demand. This means striking a balance of not having an excessive number of employees, but at the same time also ensuring not facing a shortage situation for e.g. air traffic controllers, which can cause regulations and thereby delays for the airlines." Furthermore, it is noted that "Overall, 64% of Naviairs employees have a defined benefit scheme. The number is (and will be) falling, as new Naviair employees are employed only with a defined contribution scheme, including ATCOs. Only 36% have a defined contribution scheme." (more details in section 3.4.3 of the performance plan).

4.3.B.4 PRB Key Points

- Pension costs are below the Union-wide average.
- Naviar does not provide enough information for a comprehensive analysis.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN
 - Denmark did not change the cost allocation methodology with respect to RP2.
 - From 2010, costs for ATS related to approach services are being allocated 100% to en route charging zone. The costs of all eligible services, facilities and activities are allocated to the charging zones, in respect of where they are actually incurred.

1.2. Are the criteria for cost allocation clearly defined and justified? **Yes** If not, what are the issues identified?
 n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? **No** If yes, description and justification of the changes from RP2 to RP3 specified in the PP
 n/a

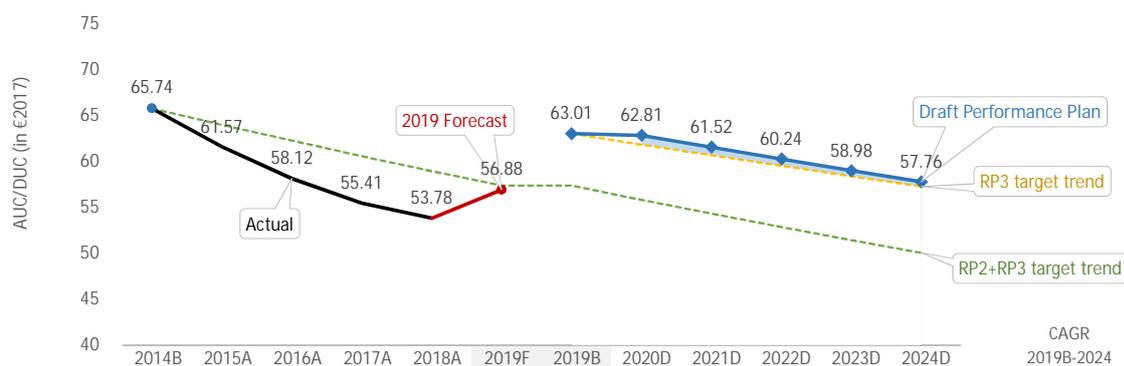
2.2. Are these changes in cost allocation duly described and justified? **n/a** If, not what are the identified issues?
 n/a

2.3. Is there an impact on the determined costs and/or baseline? **n/a** If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
 n/a

4.3.C.3 PRB Key Points 

- Denmark did not change the cost allocation methodology with respect to RP2.
 - No major issues were identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	
AUC/DUC	€ (2017)	65.74	61.57	58.12	55.41	53.78	56.88	63.01	62.81	61.52	60.24	58.98	57.76
Annual Change	%		-6.3%	-5.6%	-4.7%	-2.9%	+5.8%	+17.2%	-0.3%	-2.0%	-2.1%	-2.1%	

CAGR	CAGR
2019B-2024	2014B-2024
-1.7%	-1.3%

4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-1.7%	Union-wide trend	-1.9%	Difference	+0.2p.p.
PP trend	-1.3%	Union-wide trend	-2.7%	Difference	+1.4p.p.
PP 2019 baseline	63.01	Average comp. group	44.62	Difference	+41.2%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 en route DUC trend is -1.7%, which is worse than the RP3 DUC Union-wide trend (-1.9%).

The long-term en route DUC trend is -1.3%, which is worse than the long-term Union-wide DUC trend (-2.7%).

In addition, the 2019 baseline DUC (63.01€2017) is +41.2% higher than the average of the comparators' group (44.62€2017). Denmark en route DUC remains higher than the average of its comparators over the whole of RP3 (2020-2024).

Denmark reports that:

"a) DUC trend in RP3. Union-wide target is -1,9 pct. This criterion is met for the 2021-2024 and for DMI and NSA the criterion is met for the whole RP3, i.e. 2020-2024. However, Naviar has postponed certain costs to RP3, in particular costs related to [ATCO] training. (...) 2020 costs – and the real 2020 DUC – is based on the costs required to secure the continued performance from Naviar. As of 2021, Naviar costs are established to comply with the EU-wide target of a real DUC reduction of 1,9 pct. per year(...)". See Annex R of the performance plan.

b) Long term DUC trend. (...) This criterion is not directly met. This is due to the following factors: i) The baseline adjustments regarding cost of capital and netting out of funding also apply to the year 2014; ii) actual costs 2014 were unusually low compared with 2013 and 2015 (mainly due to exceptional staff costs refusion in 2014, impact of new collective agreement in 2015, development and implementation of new harmonization and simulation activities; iii) In the RP2 assessment it was accepted that the Danish RP2 DUC trend did not directly meet the EU-wide target partly due to the long term cost efficiency achievements made in the years pre-RP2. Meeting the RP3 long term DUC criterion would thus imply an RP3 DUC cost trend substantially below -1,9 pct. per year partly as a result of the pre RP2 cost containment measures put in place in Denmark.

c) cost level comparison. Denmark is in comparator group with Finland, Sweden, Norway and Ireland. Ireland and Norway have generally very low unit costs facilitated by their oceanic flows (mentioned in the Sheer Study and pointed to by Denmark). The DUC level in Denmark is higher than in Sweden and Finland. The difference in DUC compared to that of Sweden can primarily be explained by the switch of charging based on actual flown route."

4.4.3 Analysis of the DUC deviation for achieving the capacity targets ✘

Deviation (in M€2017):	v. RP3 trend over the period 2020-2024	+6.6	v. RP2+RP3 trend over the period 2020-2024	+64.7
ATCO planning (en-route) (see details in 3.2.2 (1b))				
	Cumulative change in ATCOs in OPS during RP3 (FTEs*)	+2.0	Additional ATCO costs (M€2017)*	+0.3
	* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	
Determined costs related to investments (en-route)				
	Total determined costs of new major investments (in M€2017)	2.3	of which, related to capacity (see Section 3.5 for details)	0.0

Analysis

The cumulative costs (sum of the determined costs over 2020-2024) are 6.6M€2017 higher than the level of costs strictly needed to achieve the RP3 cost-efficiency trend, and 64.7M€2017 higher than the costs needed to achieve the long-term trend.

Denmark explains that the training of ATCOs (impacting both OPEX items) had been postponed to RP3 and cannot be postponed anymore due to the forthcoming retirement of ATCOs (75 out of a total company-wide of 290 ATCOs are reported to have passed their retirement age - See Annex R of the performance plan). However, there is no breakdown provided for en route, terminal and other ATCOs, and we understand that a boost in ATCO recruitment and training happened in 2019 (+15 new trainee, including ATCOs and ATC assistants) and only six to eight new trainees are planned for every year of RP3 (in total 36 trainees). And the "Cumulative change in ATCOs in OPS" planned over RP3, therefore, only amounts to an additional two FTEs with estimated costs of 0.3M€2017. From the section 3.3.1 of the performance plan, it can be noted that despite the large intake of trainees, only 14 new en route ATCOs are planned to be incorporated over RP3, of which 12 in 2022-2023 (see section 3.2 of this document).

The total determined costs of investments (see section 3.5.1) represent 117.1M€ (in nominal terms) for en route and terminal over 2020-2024 with 75% of it (87.9M€) reported under "existing investments". However, from the "Investments analysis", Naviar does not provide details on the benefits of the investments in RP3.

Therefore, aside from ATCOs recruitment which only accounts for 0.3M€2017, no other measures are justifying the deviation from cost-efficiency trends.

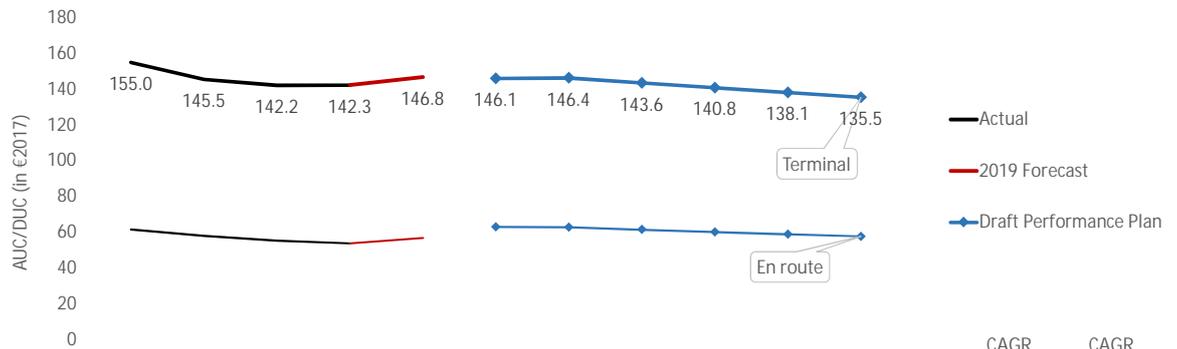
✘ Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets?

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✘

- Denmark does not meet any of the criteria enlisted for cost efficiency.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal	€ (2017)	155.0	145.5	142.2	142.3	146.8	146.1	146.4	143.6	140.8	138.1	135.5	-1.5%	-1.3%
Annual Change	%		-6.1%	-2.3%	+0.1%	+3.1%	+2.7%	+0.2%	-1.9%	-1.9%	-1.9%	-1.9%		
AUC/DUC - En route	€ (2017)	61.6	58.1	55.4	53.8	56.9	63.0	62.8	61.5	60.2	59.0	57.8	-1.7%	
Annual Change	%		-5.6%	-4.7%	-2.9%	+5.8%	+17.2%	-0.3%	-2.0%	-2.1%	-2.1%	-2.1%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Copenhagen/ Kastrup (EKCH)	GROUP I	139.52	146.7	+5.2%	130.5	140.9	+8.0%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

For Copenhagen/Kastrup (EKCH) (Group I): the average unit cost (146.7€2017 over RP2/2015-2018) and the planned DUC (140.9€2017 over RP3/2020-2024) are higher (+5.2% over RP2 and +8.0% over RP3 respectively) than the median airport in its group.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	173.9			
2019F (STATFOR Feb 19)	171.7	173.9	176.5	=B
2019F (STATFOR Oct 19)	170.3	171.0	171.2	+1.70%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+1.0	+4.1%
2019 Forecast v. Avg. 2015-2018 Actual	+1.2	+4.8%
2019 Baseline v. 2019 Forecast	-0.1	-0.5%

- The 2019B TNSU baseline is aligned with STATFOR February 2019 base forecast.
- The 2019F Terminal ANS costs are +1.0M€2017 (+4.1%) higher than 2018 actual and the 2019 terminal ANS costs baseline is -0.1M€2017 (-0.5%) lower than the 2019 forecast in real terms.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 base forecast

n/a

Review of the PP traffic forecast

The Terminal Navigation Service Unit (TNSU) forecast is in line with STATFOR February 2019 base case TNSU forecast over all years of RP3 (2020-2024).

Determined costs (terminal)

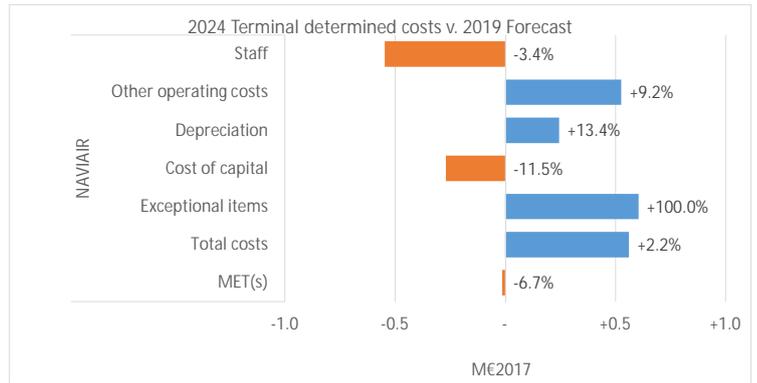
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - NAVIAIR (terminal)

- ✓ Investments (see details in 3.5)
- ✗ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ⓘ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.125%
Maximum penalty (% of determined costs)	0.500%
Additional incentives?	No



- The Terminal RP3 DUC trend is -1.5% p.a. on average, which is worse than the en route DUC trend (-1.7%) over the period.
- The share of terminal investment costs in total investment costs (17%) is lower than share of terminal determined costs in total determined costs (22%).
- Terminal WACC and its parameters are slightly different from the ones of en route.
- The terminal 2024 determined costs are +0.6ME2017 (or +2.2%) higher than the 2019 forecast. The cost difference between 2019 forecast and 2024 is mainly related to Naviair other operating costs (+0.5ME2017 or +9.2%) and depreciation costs (+0.2ME2017 or +13.4%), partially balanced by a decrease in staff costs (-0.5ME2017 or -3.4%) and in cost of capital (-0.3ME2017 or -11.5%). The latter are mainly related to the "corrective adjustments" applied. Indeed, as for en route, Denmark reports some "corrective adjustments" (see Annex R of the performance plan) resulting in structural changes affecting every year of RP3 (see also details in Annexes F and R of the performance plan from the difference between 2019 baseline and 2019 forecast as well as 2020 DC vs. 2019 baseline). This is impacting the differences when comparing 2024 and 2019 forecast.

4.5.4 PRB Key Points ⓘ

- The Terminal RP3 DUC trend is -1.5%, which is worse than the en route RP3 DUC trend of -1.7%.
- The Terminal RP3 DUC trend is -1.5%, which is better than the Terminal RP2 DUC trend of -1.3%.
- Copenhagen, the only airport included in the scope of the performance plan, had a DUC 5.2% higher than the average of its comparator group over RP2. The difference is expected to be +8.0% over RP3.
- Denmark used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to an increase in exceptional items and other operating costs.

PRB Assessment

ESTONIA

Draft Performance Plan

Context and scope

Estonia

Performance Plan: Draft performance plan (Article 12) Dated: 21.11.2019
 Documents no: 1770, 1771, 1775, 1776, 1777, 1778, 1203, 1204, 1198, 1769

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 0.3%
 % Costs V. SES 0.2%

Scope

FAB: _____ NEFAB _____

ANSPs: _____ EANS _____
 Environment Agency _____

Other entities (as per Article 1(2) last para. of Regulation 2019/317): _____
 Ministry of Interior _____
 Estonian Civil Aviation Administration _____
 Estonian Aviation Academy _____

ATS, AIS, CNS
 MET

SAR
 NSA
 Training organisation

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Estonia	n/a	No	No	No	
Terminal	Estonia - TCZ	2	No	No	No	
Changes in the CZs from RP2	no					

Comparator group: _____ Group D _____ Other States in the comparator group: _____
 Cyprus
 Greece
 Latvia
 Lithuania
 Malta

Currency: _____ € _____ Exchange rate: _____ 1.00000

1. Safety 

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
EANS	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Estonia should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

The PRB notes that no investments are needed to achieve the safety performance targets.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment 

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.33%	1.33%	1.32%	1.32%	1.32%

PRB Assessment

The PRB concludes that the environment targets proposed by Estonia should be approved.

- EANS's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity 

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.05	0.05	0.04	0.03	0.03
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.00	0.00	0.00	0.00	0.00

PRB Assessment

The PRB concludes that the capacity targets proposed by Estonia should be approved.

- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.
- The PRB will monitor the results from the FINEST initiative over RP3 in order to ensure that the potential benefits and lessons learned can be analysed.

4. Cost-efficiency 

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	33.03	33.85	32.82	32.01	32.00
Target for determined unit cost (DUC) (€2017) - Terminal	152.87	158.30	147.35	138.47	134.66

CAGR 2014-2024	CAGR 2019-2024
+3.0%	-0.5%
n/a	-3.1%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Estonia should not be approved.

- Estonia is not meeting any of the cost-efficiency criteria. Moreover, the deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

PRB Recommendations

SAFETY

- Estonia should define more explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.

ENVIRONMENT

- Estonia should begin to report data on the environmental KPA performance indicators since none was reported in RP2 to enable Estonia, airlines and the PRB to understand and improve the situation.
- Estonia should also begin reporting data surrounding its FUA since the performance plan notes that airspace restrictions may interfere with airspace user preferred trajectories.

CAPACITY

- Denmark should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- Estonia should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Estonia should consider a downwards correction of the 2019 cost forecast/baseline.
- Estonia should reconsider the cost of the overcapacity currently planned.

ESTONIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year for RP3.
The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be met at in 2022.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan does not describe any specific measures but indicates that the ANSP intends to implement all measures of the Commission Implementing Regulation (EU) 2017/373. Some measures in the area of safety risk management should be provided.

1.1.3 Interdependencies and Trade-offs

The ANSP does not expect the need for a change to the ATM functional system to in order to achieve the targets. No further information about the interdependencies between safety and other KPA was provided.

1.1.4 Change Management

The draft performance plan only indicates that the change management procedure is regulated at national level and it was recently updated and approved by the Estonian CAA. The procedure, if compliant with the Commission Implementing Regulation (EU) 2017/373 should be sufficient to ensure the minimal negative impact of the changes implemented on network performance.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Estonia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

The PRB will closely monitor the implementation of measures over the RP3 to ensure that relevant measures are defined in particular for Safety Risk Management in its "RP3 watchlist".

The PRB notes that no investments are needed to achieve the safety performance targets.
The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
EANS	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are plan to be met at the end of RP3.

The draft performance plan underlines that the ANSP has achieved or exceeded the safety targets levels in the past, i.e. during RP2. Considering the maturity levels at the start of RP3, the ANSP will need to improve in the safety risk management area. The draft performance plan states that the ANSP will follow the EUROCONTROL CANSO Standard of Excellence in Safety Management Systems (SoE in SMS) measurement to continuously improve their safety performance. The ANSP intends to implement all measures of the Commission Implementing Regulation (EU) 2017/373.

1.3.1 Interdependencies and Trade-offs

The ANSP does not expect the need for a change to the ATM Functional system to in order to achieve the targets. The approach how to handle the independencies between safety and other KPAs while implementing the RP3 draft performance plan will be evaluated by ECAA during the reference period. However, no further information about the interdependencies between safety and other KPA was provided.

1.3.2 Change Management Practices

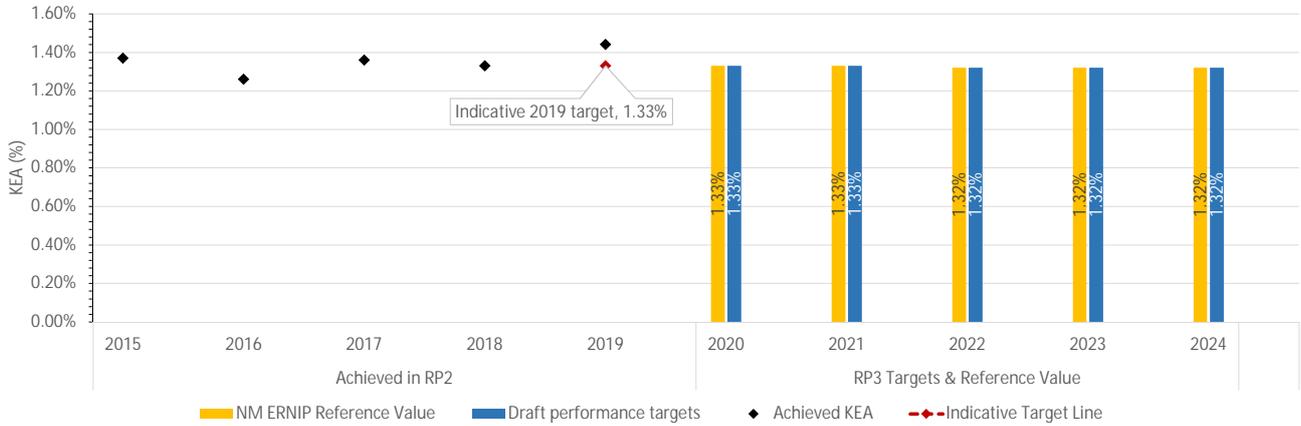
The draft performance plan only indicates that the change management procedure is regulated at national level (J3P5 Funktsionaalsete süsteemide muudatuste haldamine). The procedure was recently updated and approved by the Estonian CAA. The procedure, if compliant with the Commission Implementing Regulation (EU) 2017/373, should be sufficient to ensure the minimal negative impact of the changes implemented on network performance.

ESTONIA

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.33%	1.33%	1.32%	1.32%	1.32%
Draft performance targets	1.33%	1.33%	1.32%	1.32%	1.32%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by Estonia should be approved.
 - EANS's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? FRA is offered between FL95 and FL660. NEFAB Free Route Airspace was implemented on 12th November 2015.	✓	Reference in PP 3.2.1(c)	Reference in LSSIP Page 44
Major ERNIP Recommended Measures: Measure included within performance plan?	1	Reference in PP None	Reference in ERNIP Page 14
Cross-border FAB FRA projects (FABEC, DK-SE & UK/IE) Initiatives	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Estonia achieved a KEA of 1.44% in 2019 and needed to meet an indicative target of 1.33% in 2019 to achieve the planned target of 1.33% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achieved value and the 2020 reference value.

No major projects are required for Estonia according to the ERNIP. EANS already contributes towards NEFAB FRA; and during RP3, EANS will undertake simplifications to the ATS routings below the offering of FRA.

Estonia did not comment on the potential to expand cross-border FRA, however, it is working to implement Borealis FRA and coordinating in that project.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Estonia plan for an environmental incentive scheme? Estonia does not plan to apply an optional incentive scheme for the environment KPA.	✗
--	---

ESTONIA

Capacity KPA

3.1.1 En route ATFM delay

National targets follow national reference values, the NOP delay forecasts are lower than the reference values.

Capacity plans and capacity enhancement measures indicate a capacity surplus in RP3. Not all capacity enhancement measures from the NOP are listed in the performance plan.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

Estonia includes Tallin and Tartu, two airports that have not experienced any arrival ATFM delay during RP2 and are not expected to generate any delays during RP3, as the target reflects.

3.1.3 Incentives

En route incentives: no bonuses are possible. For the penalty only incentive scheme, the pivot value is based on the updated reference values published in the NOP. Delay forecasts in the NOP show that the ANSP is unlikely to incur penalties (0.02 minutes per flight for entirety of RP3). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: Estonia has chosen to modulate the pivot values to allow for a reasonable dead band around the zero delay target. There are no bonuses and the penalties are only 0.5%. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Estonia did not report any new major investments in RP3. The biggest part of the investment costs are the existing investments that constitute 56% of the total investment costs.

Some of the other new and existing investment may contribute to the capacity measures introduced in the capacity plan (NOP 2019-2024).

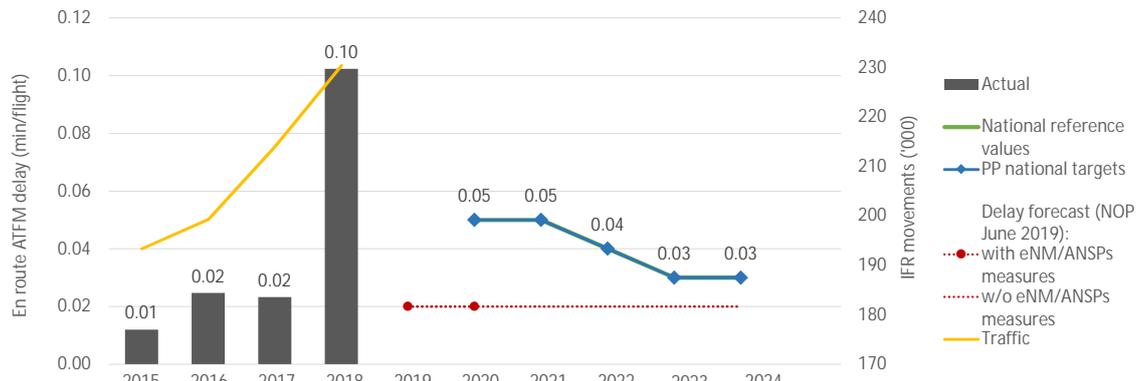
3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets proposed by Estonia should be approved.

- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.
- The PRB will monitor the results from the FINEST initiative over RP3 in order to ensure that the potential benefits and lessons learned can be analysed.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+1.5%	+3.1%	+7.4%	+7.6%						
Actual delay/flight	0.01	0.02	0.02	0.10						
National reference values						0.05	0.05	0.04	0.03	0.03
PP national targets						0.05	0.05	0.04	0.03	0.03
Forecast with eNM/ANSPs measures*					0.02	0.02				
Forecast w/o eNM/ANSPs measures*					0.02	0.02		0.02		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- A third ACC sector has been put into operation as of 2019;
- The FINEST project between ANS Finland and EANS should enable dynamic cross-border operations flexibility in peak periods or night times.

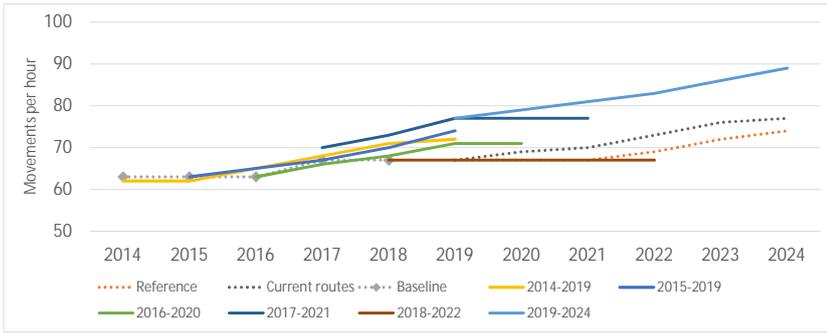
The NOP contains additional measures for Estonia, which were confirmed by the ANSP in the NOP. However, these were not listed explicitly in the performance plan.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Tallinn ACC (EETT)	Additional ATCOs in OPS to start working in the OPS room	0	5	4	2	2	2	2	+2
	ATCOs in OPS to stop working in the OPS room	0	2	2	2	2	2	2	
	ATCOs in OPS to be operational at year-end	31	34	36	36	36	36	36	
Total - EANS (en route)	Additional ATCOs in OPS to start working in the OPS room	0	5	4	2	2	2	2	+2
	ATCOs in OPS to stop working in the OPS room	0	2	2	2	2	2	2	
	ATCOs in OPS to be operational at year-end	31	34	36	36	36	36	36	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Tallinn ACC (EETT)



- Historical data shows on average a 1.6% growth in baseline values over RP2. Planned values for these years were consistent with the baseline.

- Latest capacity plan profiles show on average a 2.9% increase over RP3 years, which translates into a steady 2.5% in the first three years and 3.5% in the last two years of the reference period.

- Capacity plans, compared to the reference profile, show that Estonia may have a capacity surplus of 15.2% - 17.9% in all years of RP3.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						67	67	67	69	72	74
Current routes						67	69	70	73	76	77
Baseline	63	63	63	67	67						
2014-2019	62	62	65	68	71	72					
2015-2019		63	65	67	70	74					
2016-2020			63	66	68	71	71				
2017-2021				70	73	77	77	77			
2018-2022					67	67	67	67	67		
2019-2024						77	79	81	83	86	89

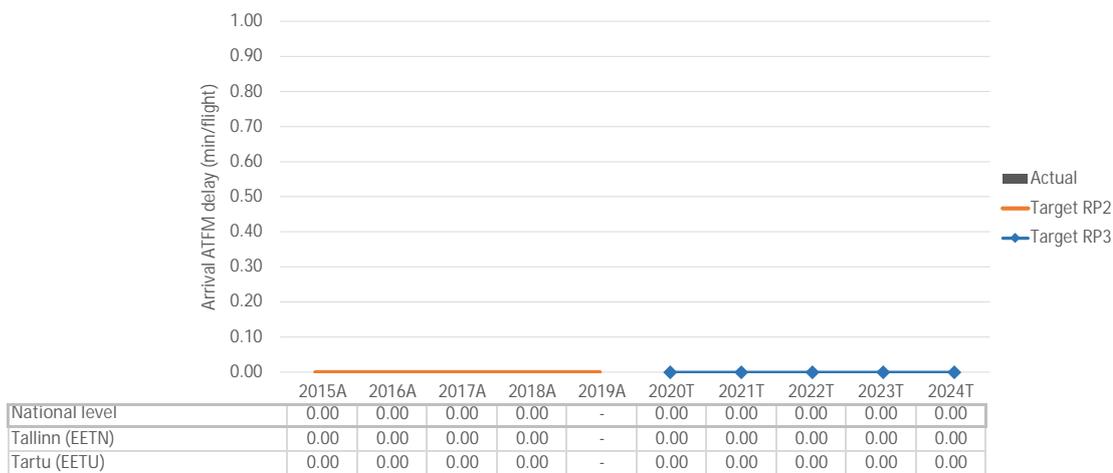
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- National targets follow the national reference values, the NOP delay forecasts are well below the reference values.
- The planned capacity profiles and capacity enhancement measures indicate that Estonia will have a capacity surplus in RP3.
- Not all capacity enhancement measures from the NOP are listed in the performance plan, however, there is no expected capacity gap.

3.3.1 Overview of arrival ATFM delay per flight



3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Estonia includes two airports in its performance plan for RP3: Tallin and Tartu. These airports did not register any delays during RP2, and the target for RP3 reflects that with a 0.0 minutes per arrival delay target.

3.3.3 Contribution of individual airports to the national target



As none of the airports are expected to generate any delay, the final average arrival ATFM delays at Estonia should remain zero.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Tallinn (EETN)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Tartu (EETU)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The performance of both Estonian airports, with zero delays, is in line with similar airport although slightly better.

3.3.5 PRB Key Points ✓

Estonia includes Tallin and Tartu, two airports that have not experienced any arrival ATFM delay during RP2 and are not expected to generate any delays during RP3, as the target reflects.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.05 min	0.000%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	No

	2020	2021	2022	2023	2024
NOP reference values	0.05	0.05	0.04	0.03	0.03
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.05	0.05	0.04	0.03	0.03
Pivot values for RP3	0.01	0.01	0.01	0.01	0.01

Threshold review

There is no possibility for bonus. For determination of penalty, the pivot value is based on the reference values published in the NOP.

Modulation review

The pivot value will be modulated according to the updated reference values published in the NOP each year.

Review of financial advantages/disadvantages

No bonus is possible. A maximum penalty of 0.5% of revenue is possible. Delay forecasts in the Network Operations Plan anticipate an annual delay of 0.02 minutes per flight for each year in RP3. Accordingly, it is unlikely that the ANSP would experience penalties.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±(blank) min	0.000%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	No

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.00	0.00	0.00	0.00	0.00
Pivot values for RP3	0.10	0.10	0.10	0.10	0.10

Threshold review

As the target is zero delays, there is no dead band per se, but the performance plan includes a modulation of the pivot value to ensure there is a margin between 0.00 to 0.10 to accommodate minimum variations in performance with no resulting bonus/penalty.

Modulation review

Estonia has decided to modulate the pivot values. The chosen pivot value is 0.1 minutes per arrival, and has the objective of building a dead band between 0.00 - 0.01 minutes per arrival.

Review of financial advantages/disadvantages

The scheme includes no possible bonus, but a maximum penalty of 0.5% as of 0.15 minutes per arrival of delay (all causes).

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✓

En route incentives:

- The scheme does not allow for bonuses.
- For the penalty only incentive scheme, the pivot value is based on the updated reference values published in the NOP. Delay forecasts in the NOP show that the ANSP is unlikely to incur penalties (0.02 minutes per flight for entirety of RP3).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

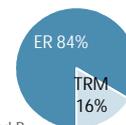
Terminal incentives:

- Estonia has chosen to modulate the pivot values to allow for a reasonable dead band around the zero delay target.
- There are no bonuses and the penalties are only 0.5%.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	7.1	8.1	6.9	5.7	5.5	33.3
En route	M€ (nominal)	6.0	6.7	5.8	4.8	4.5	27.8
Terminal	M€ (nominal)	1.2	1.3	1.1	1.0	0.9	5.5

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
Total:						0.0	0.0

Airspace user feedback regarding major investments

Airspace users expressed their concerns regarding the possible inability of Estonia to realise the planned investments within an adequate timeframe, which is mostly concentrated in the years 2020 and 2021. As a response, Estonia acknowledged the tight schedule to implement all planned investments, but ensured that preparatory work has been already done. However, Estonia admitted that there is an extra risk of minor delays which might emerge for reasons beyond control.

Review of investments

Estonia did not report any new major investments in RP3.

In 2015-2018 actual CAPEX delivery reaches some 158% of planned for the same period and the amount overspent is 7.09M€.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	26.0	26.0	1.0	2.1	2.6	2.8	3.1	11.6
Existing investments			4.7	4.5	2.9	1.6	1.2	14.8

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 44% of the total determined costs of investments over RP3, while existing investments represent 56%. Estonia plans the following projects for RP3 into the following categories:</p> <ul style="list-style-type: none"> - COM: Tallinn Airport forecast of PAX and operations shows considerable increase in coming 5 years. Implementation of DTIS supports tower digitalization and controllers workload reduction (2021; 0.5M€); - NAV: Replacement of DME-s. Existing navigation infrastructure has been installed in the middle of 90s and is close to its life time (2020; 1.1M€); - SUR: Tallinn airport renovation causes the need for surface movement surveillance network expansion (2020; 0.25M€), MSSR/PSR combined secondary and primary radar replacement, Tallinn TMA radar is close to its lifetime. Primary radar gives surveillance picture about transponder non-equipped military traffic over neutral waters in Baltic sea to the controllers (2021; 0.65M€); - ATS: Implementation of new and upgrading the existing safety nets, monitoring tools and message exchange according to the local needs and SESAR master Plan (2020; 1.15M€; 2021 1.65M€), Upgrade of the ATM systems to support dynamic cross-border sectors concept according to the FINEST Conops (2020; 1.38M€), Tallinn ATCC main ATM system EUROCAT2000/Topsky system annual software upgrade builds (2020; 1.88M€; 2021 3.72M€), Upgrade of Tallinn ATCC existing VCS system (2020; 0.7M€), Electronic Flight Strip System (In other words it is Tallinn aerodrome ATM system), Adding support of ICAO runway reduced minimum separation concept in order to increase Tallinn airport runway capacity (2020; 0.27M€); - AIS: Digital Notam (2020; 1.15M€; 2021 0.88M€), Work Flow Management in data processing, implementation of aeronautical information quality regulation (2020; 0.86M€; 2021; 0.800M€, Upgrade of Tallinn AIM system AIS-EE (Aeronautical information system Estonia - meteo, preflight data processing, NOTAMS, AIP) (2020; 0.43M€).
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

Estonia performed well in the Capacity KPA in previous years, reaching reference values and almost zero delays. The capacity plan provides sufficient capacity for entire RP3 with reasonable surplus. The capacity enhancement measures introduced within the capacity plan include mainly operational improvements, airspace and sectors management and advanced concepts including capacity and ATCO sharing established between Estonia and Finland. Estonia has introduced no major investments for the RP3. Some of the other new and existing investment may contribute to the capacity measures (e.g. ATS, AIS, NAV and SUR indicated in the table 3.5.2.3 above). The assessment of the capacity contribution level would require more details in description of the sub-projects and details on status of implementation for the existing investments.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

There are no major investments and limited details on other new and existing investments make the evaluation difficult. More details on other new and existing investments are needed.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

There are no major investments and limited details on other new and existing investments make the evaluation difficult. More details on other new and existing investments are needed.

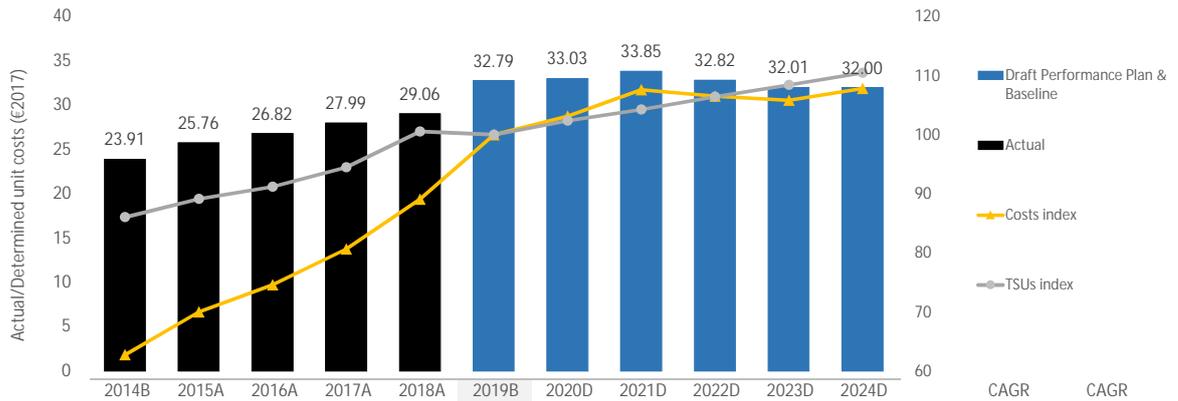
3.5.4 PRB Key Points

- No major issues identified concerning the investments costs. Estonia does not report any new major investments in RP3. The core of the investments costs consist on the existing investments, that represent 56% of the total investment costs.
- Some of the other new and existing investment may contribute to the capacity measures introduced in the capacity plan (NOP 2019-2024). More details on other new and existing investments are needed.

ESTONIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	18	20	22	24	27	-	33	35	35	35	37	-	+7.2%
Total costs	M€ (2017)	19	21	22	24	27	30	31	32	32	32	32	+1.5%	+5.6%
TSU	'000	787	816	834	866	920	915	937	954	974	992	1,011	+2.0%	+2.5%
AUC/DUC	€ (2017)	23.91	25.76	26.82	27.99	29.06	32.79	33.03	33.85	32.82	32.01	32.00		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	23.91	25.76	26.82	27.99	29.06	32.79	33.03	33.85	32.82	32.01	32.00		
Annual change	%		+7.7%	+4.1%	+4.4%	+3.8%	+12.8%	+0.7%	+2.5%	-3.0%	-2.5%	-0.0%	-0.5%	+3.0%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	32.79 €2017	✗
Baseline TSUs selected in the performance plan are -5.7% below STATFOR February 2019 base forecast. Estonia has adopted STATFOR October 2019 base TSU forecast for 2019 as a baseline.		
The 2019 baseline costs reported for Estonia are some +12.2% above 2018 actual costs and, according to Estonia, reflect "latest budgeted costs for 2019".		

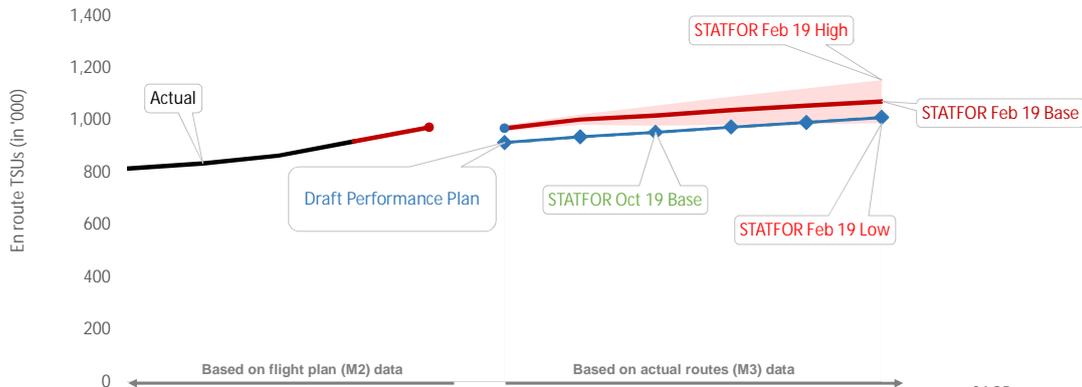
4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-0.5%	✗
The RP3 DUC trend of -0.5% planned for Estonia is not achieving the Union-wide RP3 DUC trend.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	3.0%	✗
The long term DUC trend of +3.0% is much higher than the Union-wide target trend of -2.7% p.a. The long-term DUC trend of +3.0% is not achieving the Union-wide DUC long-term trend.		
c) DUC level (2019 baseline) lower than the average of comparator group (D) average (29.74 €2017)?	+10.2%	✗
In terms of DUC level, Estonian 2019 baseline DUC is +10.2% above the average of the comparator group. Considering current data, the DUC is expected to remain slightly above the average by the end of RP3.		
The DUC level for Estonia is also influenced by the decision to use STATFOR October 2019 base case TSU forecast as a basis for RP3. If Estonia had used the STATFOR February 2019 TSU forecast, the resulting baseline DUC would be +4.0% above the comparator group average.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		✗
The performance plan shows costs deviation with respect to the RP3 and the long-term DUC trends of +8.7M€2017 and +65.8M€2017, respectively. It is estimated that only a small portion of these additional costs can be explained by the costs of additional ATCOs in OPS expected to be employed over the RP3. At the same time, Estonia does not foresee any new major capex projects for the RP3. Due to lack of information provided in the performance plan, it is difficult to establish additional determined costs related to capacity enhancement measures stemming from other new and existing investments. The cost deviations are not exclusively considered related to capacity measures.		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Estonia should not be approved.
 - Estonia is not meeting any of the cost-efficiency criteria. Moreover, the deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	816	834	866	920								
Annual change	%		+2.3%	+3.8%	+6.3%								
STATFOR Feb 19 Base	'000 TSUs					973	970	1,003	1,018	1,039	1,056	1,073	+2.0%
Annual change	%					+5.8%	+5.5%	+3.4%	+1.5%	+2.1%	+1.6%	+1.6%	
STATFOR Oct 19 Base	'000 TSUs					-	915	937	954	974	992	1,011	+2.0%
Annual change	%					-	-0.5%	+2.4%	+1.9%	+2.1%	+1.9%	+2.0%	
Performance Plan	'000 TSUs						915	937	954	974	992	1,011	+2.0%
Annual change	%						-0.5%	+2.4%	+1.8%	+2.1%	+1.8%	+1.9%	

4.2.2 Baseline review

✓ M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	✗ Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)		
2019B (PP baseline, M3)	915			2019B (PP baseline, M3)	915			
2019F (as in the Reporting tables, M2)	918			2019F (STATFOR Feb 19, M3)	L 958	B 970	H 982	-5.67%
2019B/ 2019F	-0.31%	-0.32%	-0.47%	2019F (STATFOR Oct 19, M3)	L 912	B 915	H 918	=B

- Baseline TSUs selected in the performance plan are -5.7% below STATFOR February 2019 base forecast.
- According to the information in the performance plan, Estonia has chosen the STATFOR October 2019 base TSU forecast for 2019 as a baseline.
- The latest available actual TSU figures for 2019 (cumulative until November) show a decrease of -1.1%. As such, it is possible that 2019 actual outturn could be even lower than included in the October forecast.

4.2.3 Review of the PP traffic forecast

✗ Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? **No**

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

- According to Annex T to the performance plan, "latest forecasts show that the traffic has dropped in 2019 to the level of 2018. Moreover, for the period of 2020-2024 on average the drop in the traffic in forecast is more than 6% in Oct 2019 forecasts compared to February 2019 forecast [...] to avoid unnecessary revisions of the unit rates".

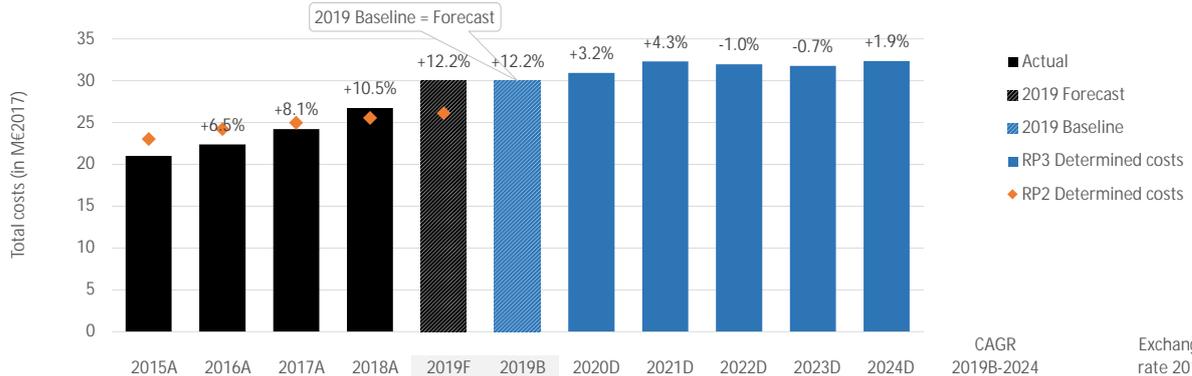
Review of the PP traffic forecast

- As already noted above, Estonia has considered STATFOR October 2019 base TSU growth forecast as a basis for the RP3 DUC.
- The use of STATFOR October 2019 forecast TSUs has an impact on the level of DUC for Estonia since it foresees some -6% less TSUs, cumulatively over RP3, than the February forecast (see section 4.4 for details).
- In the draft performance plan submitted in October, Estonia used the STATFOR February 2019 traffic forecast. However, in the update made following the completeness verification phase, Estonia changed its traffic forecast to adopt the October forecast. This change was not allowed.
- The two forecasts (February/October) mainly differ on 2019, while the % CAGR between 2019 and 2024 is similar (2.0%). Based on the year-to-date developments (see above), the October forecast is closer to reality.

4.2.4 PRB Key Points

- Estonia updated the traffic forecast during the completeness verification phase. The update was not foreseen to be done at this stage.
- Baseline TSUs and entire TSU forecast for RP3 is based on STATFOR October 2019 base TSU forecast. The two forecasts (February/October) mainly differ on 2019, while the percentage CAGR between 2019 and 2024 is similar (2.0%).
- Based on latest available actual TSU figures, TSUs in 2019 are likely to be even lower than forecasted.

4.3.1 Overview of en route costs in RP2 and RP3



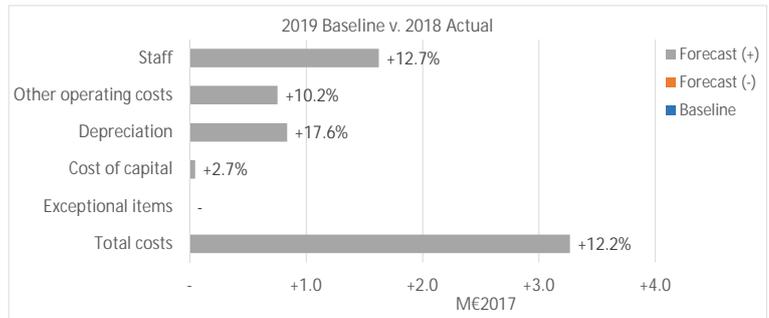
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	20	22	24	27	31	-	33	35	35	35	37	-	€:€
Annual change	%	-	+7.0%	+10.5%	+12.6%	+14.3%	-	-	+5.9%	+0.8%	+1.2%	+3.6%	+2.6%	1.00000
Inflation index	2017 = 100	95.7	96.4	100.0	103.4	106.5	106.5	109.5	112.3	115.1	118.0	121.0	-	-
Total costs	M€ (2017)	21	22	24	27	30	30	31	32	32	32	32	+1.5%	-
Annual change	%	-	+6.5%	+8.1%	+10.5%	+12.2%	+12.2%	+3.2%	+4.3%	-1.0%	-0.7%	+1.9%	+1.5%	-
Total costs	M€ (2017)	21	22	24	27	30	30	31	32	32	32	32	+1.5%	-

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+3.3	+12.2%
2019F v. 2019 RP2 DC	+3.9	+14.9%
2019F v. average 2015-2018	+6.4	+27.2%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

- The 2019 cost forecast reported by Estonia is in line with baseline costs and is some +12.2% above 2018 actual costs, in real terms.
- This increase reflects forecast increases across all cost categories with largest growth observed in staff costs (+12.7%, or +1.6M€2017), other operating costs (+10.2%, or +0.8M€2017) and depreciation costs (+17.6%, or +0.8M€2017). According to the information provided in the performance plan, the level of these costs reflect "latest budgeted costs for 2019". Based on the ATCO data provided in the plan, it is understood that three additional ATCO FTEs are planned to start working in Tallinn ACC in 2019, which contributes to the observed increase in staff costs.
- On the other hand, the forecast costs exceed the 2019 determined costs (RP2) by some +14.9% (or +3.9M€2017). At the same time, actual en route costs for Estonia grew by some +8.4% annually, on average, between 2015 and 2018, as a result of which, the proposed cost baseline is some 43% above the 2015 costs.

2019 baseline analysis

- The 2019 baseline costs are in line with 2019 cost forecast. Please see box above for detailed analysis.

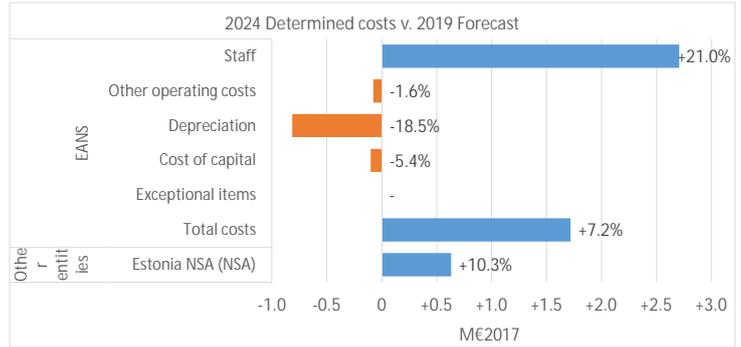
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 📌 Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ✗ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- Between 2019 forecast and 2024, the costs are planned to grow by +1.5% annually, resulting in an overall increase of some +7.8% over the period, in real terms. Cost increases are foreseen for both the ANSP - EANS (+7.2%, or +1.7M€2017 over the period) and the Estonian NSA (+10.3%, or +0.6M€2017).
- For EANS, the increase is solely driven by additional staff costs (+21.0%, or +2.7M€2017), while other cost categories are planned to decrease, with the most significant reduction planned in depreciation costs (-18.5%, or -0.8M€2017). According to the information provided in the performance plan, the trend in depreciation costs is driven by the investment plan, which, as discussed in section 3.5 of this document, does not foresee any new major investments over RP3.

From the information provided in Annex C of the performance plan, the planned growth in staff costs is driven by:

- Changes in national labour legislation in effect as of mid-2020 which will increase maternity and paternity leave days, while as of mid-2022, additional (paid) leave days will be granted to parents with young children. Both of these legislative changes are expected to affect staff availability.
- Overall trend of convergence in cost of living and wage levels across Europe, which puts upwards pressure on employment costs, in particular for Eastern European ANSPs including EANS.

EANS plans to increase overall staffing levels (in terms of FTEs) by some 10% between 2019 and 2024, while number of ACC ATCOs are expected to increase by some +6% over this period (see section 3.2 of this document for details). Therefore, it can be inferred that the planned increase in staff costs, for most part, reflects increases in gross wages for existing staff rather than recruitment of additional staff.

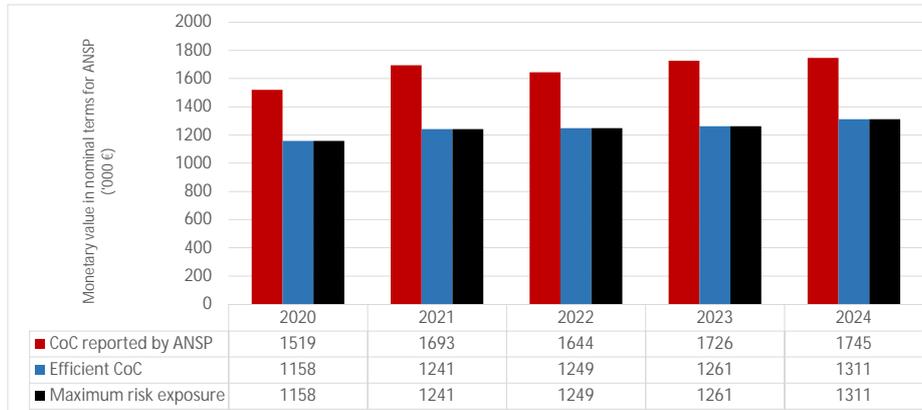
4.3.4 PRB Key Points

- The baseline costs are much higher than 2018 actual costs. It is understood to reflect latest budgeted costs for 2019, however they exceed the 2019 determined costs (RP2) by +14.9%. As a result, the proposed baseline is 43% above 2015 actual costs.
- Cost increases over the RP3 (2019 forecast-2024) primarily reflect significant increases in staff costs. This is understood to result from: i) changes in national legislation regarding leave days, ii) growth in cost of living and wage levels in Estonia, and iii) moderate increase in staffing levels for the ANSP (+10%).

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	26,320	28,215	28,379	28,670	29,803
Monetary value of Return on Equity	1,326	1,566	1,500	1,611	1,640
Ratio RoE/DC (%)	5.0%	5.5%	5.3%	5.6%	5.5%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	361	452	396	464	434

Total 2020-2024	2,107
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.3%	n/a								
Interest on debts	1.4%	n/a								
Capital structure (% debt)	43.4%	n/a	30.3%	n/a	33.4%	n/a	27.2%	n/a	25.4%	n/a
WACC	4.7%	3.6%	5.5%	4.0%	5.3%	4.0%	5.7%	4.2%	5.8%	4.4%

Is the interest on debts in line with the market? Yes

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices. EA NS reports three loans: one investment loan since 2010 at 1.69%, a second investment loan since 2017 at 1.50% and a third investment loan since 2019 at 1.29%.
- The Estonian Ministry of Finance requires a return on equity of 7.3 % after tax, thus the reported WACC has been calculated based on this requirement.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 2.11M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 5%-5.6%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	24,259	22,394	20,862	18,935	16,614
Net current assets	7,831	8,373	9,981	11,393	13,513
Adjustments total assets	0	0	0	0	0
Total asset base	32,091	30,767	30,843	30,328	30,127

- Fixed asset base will decrease over the period. This is in line with the existing investments described in section 3.5 of this document.
- Net current assets seem excessive considering the expected cash flow.
- RAB does not include adjustments to the total asset base.
- Total asset base generally decreases within the period, mainly due to the decrease in the fixed asset base.

4.3.A.5 PRB Key Points



- The Estonian Ministry of Finance requires a return on equity of 7.3 % after tax, thus the reported WACC has been calculated based on this requirement.
- The reported cost of capital is 2.11M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 5%-5.6%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables) n/a

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? n/a

Estonia did not report pension costs in the en route or terminal reporting tables. According to Estonia, as described in Annex T of the performance plan: "Social security cost contributions (social security tax) includes contributions to common state health care and pension system. That it is not possible to extract precisely the pension element from these total social security contributions. In Estonia does not exist separate pension fund that is funded and managed by ANSP."

On the other hand, the data and information on social security contributions, as well as an indicative proportion of those contributions allocated to pensions are provided in the body of the RP3 performance plan. As such, the statement of Estonia cited above is, to an extent, contradicting the information provided in the body of the performance plan.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? n/a

See above for description of reporting issues related to pension costs.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? n/a

See above for description of reporting issues related to pension costs.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? n/a

See above for description of reporting issues related to pension costs.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

According to the information provided in the performance plan: "The contribution rate and law changes are set by the state and there is no means to mitigate this risk by ANSP."

4.3.B.4 PRB Key Points ✘

- Estonia did not report pension costs in the en route or terminal reporting tables.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Estonia did not mention a change in the cost allocation methodology with respect to RP2.
 - EANS costs are allocated to en route and terminal cost bases based on following: ACC costs are allocated to en route service, TWR costs are allocated to terminal cost base and APP costs are allocated according to the around the airport to terminal cost base or to en route cost base. Costs of common (i.e. administration, AIS etc.) services are allocated to both en route and terminal services in proportional way based on ABC methodology. EANS has internal guidance document on Activity Based Costing (ABC) methodology, where all necessary instructions are described for allocating costs (administration and other centralised services are allocated to different cost bases) for different services (en route and terminal navigation services).

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

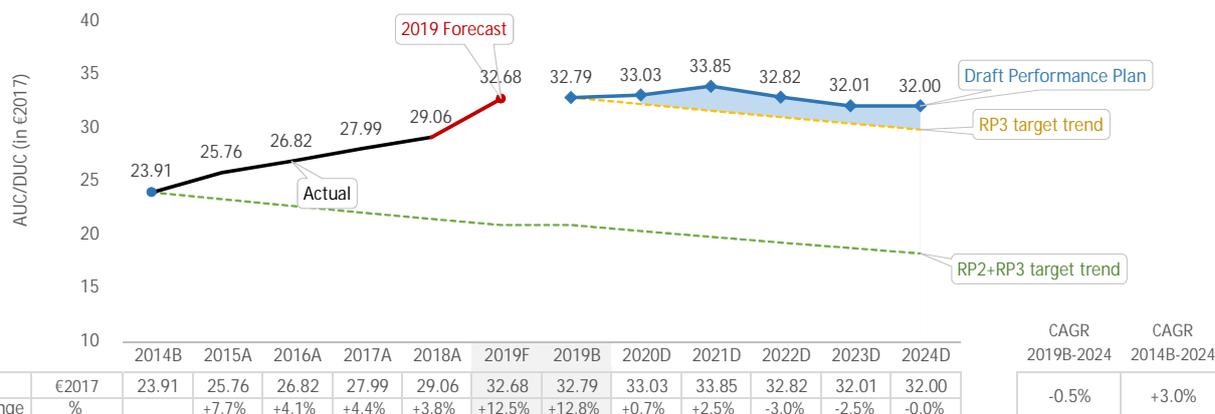
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.3.C.3 PRB Key Points ✓

- Estonia did not mention a change in the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-0.5%	Union-wide trend	-1.9%	Difference	+1.4p.p.
PP trend	+3.0%	Union-wide trend	-2.7%	Difference	+5.7p.p.
PP 2019 baseline	32.79	Average comp. group	29.74	Difference	+10.2%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 DUC trend of -0.5% planned for Estonia is not achieving the Union-wide RP3 DUC trend.

The long-term DUC trend of +3.0% is not achieving the Union-wide DUC long-term trend.

In terms of DUC level, Estonian 2019 baseline DUC is +10.2% above the average of the comparator group. Considering current data, the DUC is expected to remain slightly above the average by the end of RP3. As already indicated in the section 4.2 of this document, the DUC level for Estonia is also influenced by the decision to use STATFOR October 2019 base forecast as a basis for RP3. If Estonia had used the STATFOR February 2019 forecast, the resulting baseline DUC would be +4.0% above the comparator group average.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017):	v. RP3 trend over the period 2020-2024	+8.7	v. RP2+RP3 trend over the period 2020-2024	+65.8
ATCO planning (en route) (see details in 3.2.2 (1b))				
	Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+9.0	Additional ATCO costs (M€2017)*	+0.9
	* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	
Determined costs related to investments (en route)				
	Total determined costs of new major investments (in M€2017)	0.0	of which, related to capacity (see Section 3.5 for details)	0.0

Analysis

Estonia is estimated to exceed the Union-wide RP3 DUC trend by +8.7M€2017 cumulatively, considering the TSU and inflation forecasts reported in the performance plan. At the same time, the estimated deviation with respect to the long-term DUC trend is estimated at +65.8M€2017.

As already indicated in analysis provided in section 4.3 of this document, the major driver for this deviation over RP3 are the staff costs. However, the estimated costs of additional ATCOs in OPS planned to start working in the OPS room (approximated using the average unit cost for ATCO in OPS reported by EANS in the ACE 2017 report) only constitute a small portion of the observed deviation (+0.9M€2017 compared to +8.7M€2017). To that end, it is understood that these costs are mostly linked to the general increase of employment costs for the ANSP. While no new major investments are planned by Estonia for RP3, it is understood that some of the other new and existing investments may contribute to the capacity measures. It is noted, however, that due to a lack of detailed information in the draft performance plan, it is difficult to identify the additional determined costs related to capacity enhancement measures stemming from these investments (see section 3.5 of this document for more details).

Estonia did not experience significant capacity issues during RP2, reaching reference values and almost zero delays. It should also be noted that the national en route capacity targets for RP3 follow the reference values, and that the NOP delay forecasts are lower than the reference values (see section 3.2 of this document for further details).

Considering the points noted above, it cannot be established that the deviation from the RP3 DUC trend of +8.7M€2017 is exclusively due to capacity-related measures.

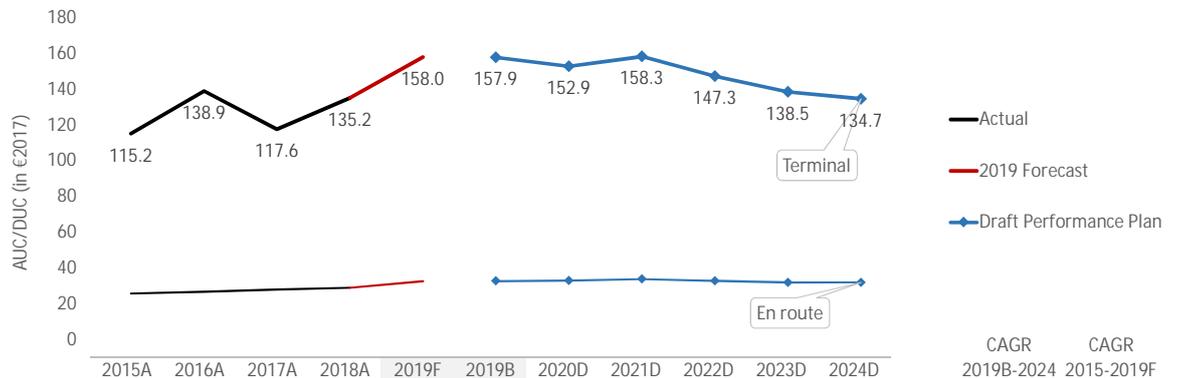
- ✗ Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points 

- Estonia is not meeting any of the cost-efficiency criteria. Moreover, the deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F
AUC/DUC - Terminal	€2017	115.2	138.9	117.6	135.2	158.0	157.9	152.9	158.3	147.3	138.5	134.7	-3.1%	+8.2%
Annual Change	%		+20.6%	-15.3%	+14.9%	+16.9%	+16.8%	-3.2%	+3.6%	-6.9%	-6.0%	-2.8%		
AUC/DUC - En route	€2017	25.8	26.8	28.0	29.1	32.7	32.8	33.0	33.8	32.8	32.0	32.0	-0.5%	
Annual Change	%		+4.1%	+4.4%	+3.8%	+12.5%	+12.8%	+0.7%	+2.5%	-3.0%	-2.5%	-0.0%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Tallinn (EETN)	GROUP IV	673.8	103.4	-81.7%	647.6	118.5	-81.7%
Tartu (EETU)	GROUP IV	673.8	1476.6	+119.1%	647.6	2085.5	+222.0%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Average DUCs for Tallinn and Tartu airports are planned to be respectively -81.7% below and +222.0% above the median DUCs of their respective comparator groups over RP3.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	20.1			
2019F (STATFOR Feb 19)	L 19.4	B 20.1	H 20.6	=B
2019F (STATFOR Oct 19)	L 18.7	B 18.9	H 19.0	+6.3%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+0.6	+21.3%
2019 Forecast v. Avg. 2015-2018 Actual	+1.0	+43.4%
2019 Baseline v. 2019 Forecast	0.0	+0%

TNSU baseline

- Baseline 2019 TNSUs are in line with STATFOR February 2019 forecast. This is different from en route, where, as discussed in section 4.2 of this document, Estonia has decided to use STAFOR October 2019 forecast.

Terminal cost baseline

- Baseline 2019 costs are +21.3% above actual terminal costs for 2018 (or +21.0%, if IMF inflation is considered).
 - Estonia has reported different inflation figures for the years 2019-2021 in the terminal reporting tables than those reported for en route (in line with IMF). This affects the level of terminal cost figures, when expressed in real terms. If the inflation rates were aligned with IMF, the terminal baseline costs for 2019 would be -0.2% below the currently reported figure.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

Review of the PP traffic forecast

- TNSUs selected in the performance plan are in line with STATFOR February 2019 base TNSU growth forecast. This is different from en route, for which Estonia decided to adopt STATFOR October 2019 base forecast.

Determined costs (terminal)

✗ Is inflation in PP in line with IMF (April 2019 forecast)?

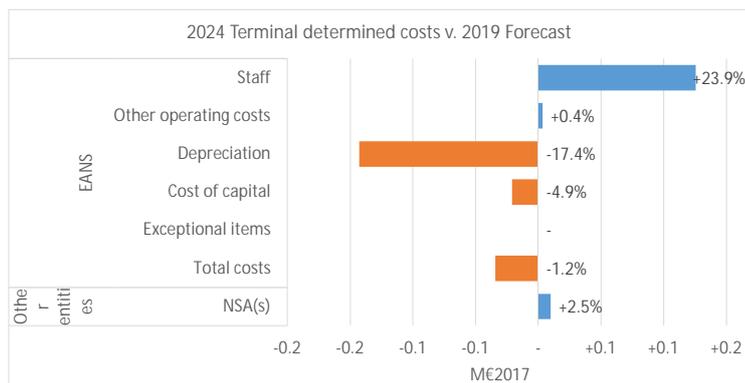
No

Cost elements - EANS (terminal)

- ✓ Investments (see details in 3.5)
- ⓘ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✗ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The terminal DUC trend over the RP3 planned for Estonian TCZ (-3.1% p.a.) is much lower than the one planned for en route (-0.5% p.a.).
- Terminal WACC is different from en route WACC due to the capital structure. The share of financing through equity in terminal is expected to stay on the level 45-60 %, whereas the share for en route is 55-75%. This is a company-level decision that does not affect how Estonia has considered the risk for the WACC calculation in terminal and en route.
- As already noted above, inflation rates for the years 2019-2021 reported by Estonia in its terminal reporting tables differ from those reported for en route (in line with IMF). Due to the cumulative effect of this reporting issue, it affects all terminal cost figures expressed in real terms for the years 2019-2024. If the inflation rates had been aligned, terminal ANS costs would be -0.5% lower by 2024 than currently reported. Consequentially, the RP3 terminal DUC trend for Estonia would be -3.2% p.a., instead of current -3.1% p.a.
- Over the RP3, the terminal costs are planned to reduce, on average, by some -0.2% annually or by some -0.8% overall. This is primarily due to planned cost reductions for the ANSP – EANS, which results primarily from a planned decrease in depreciation costs (-17.4%, or -0.1M€2017), which more than compensates the planned growth in staff costs (+23.9%, or +0.1M€2017). Overall, the drivers for these variations are similar to those for en route described in detail in section 4.3.
- As described in section 4.3.B of this document, Estonia did not report any pension costs in terminal reporting tables.

4.5.4 PRB Key Points

- The Terminal RP3 DUC trend is -3.1%, which is better than the en route RP3 DUC trend of -0.5%.
- The Terminal RP3 DUC trend is -3.1%, which is better than the Terminal RP2 DUC trend of +8.2%.
- Tallinn, the main airport, had a DUC 84.7% lower than the average of its comparator group. The difference is expected to be -81.7% over RP3.
- Estonia used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with the STATFOR February 2019, for every year from 2020 to 2024.
- Estonia has reported different inflation figures for the years 2019-2021 in the terminal reporting tables than those reported for en route (in line with IMF). This affects the level of terminal cost figures, when expressed in real terms. If the inflation rates were aligned with IMF, the terminal baseline costs for 2019 would be -0.2% below the currently reported figure. Terminal costs slightly decrease over the period, mainly due to depreciation.
- Estonia did not report pension costs in the terminal reporting tables.

PRB Assessment

FABEC

Draft Performance Plan

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21-11-2019

Relative weight compared to the SES area (2018):

% Flight-hours v. SES	23.8%
% Costs V. SES	27.9%

Scope

FAB: FABEC

ANSPs:	skeyes DSNA DFS ANA LUX LVNL Skyguide MUAC Météo France Deutscher Wetterdienst (DWD) Royal Netherlands Meteorological Institute (KNMI) Office Fédéral de la Météorologie et de Climatologie MétéoSuisse
--------	--

ATM, MET
ATM
ATM
ATM, MET
ATM
ATM
ATM
MET
MET
MET
MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317):	Belgian Supervisory Authority for Air Navigation Services (BSA-ANS) French Civil Aviation Authority, Air Transport Directorate German Federal Supervisory Authority for Air Navigation Luxembourg Civil Aviation Authority NSA The Netherlands Federal Office for Civil Aviation (FOCA), Safety Division Eurocontrol
---	--

Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges
En route	Belgium-Luxembourg	n/a	No	No	no
	France	n/a	No	No	no
	Germany	n/a	No	No	no
	Netherlands	n/a	No	No	no
	Switzerland	n/a	No	No	no
Terminal	Belgium EBBR	1	No	No	yes
	France - Zone 1	2	No	No	no
	France - Zone 2	56	No	No	no
	Germany - TCZ	16	No	No	no
	Luxembourg - TCZ	1	No	No	yes
	Netherlands - TCZ	4	No	No	no
	Switzerland - TCZ	2	No	No	no

Changes in the CZs from RP2: yes

There is only one Terminal CZ that includes the EBBR airport in the Performance Plan. No information still available regarding the inclusion of other revenues, as it was the case in RP2. In RP2 the RT reflects the fact that 25% of the terminal costs in Brussels TCZ are subsidised by the State or regional authorities through other revenues.

Comparator group: n/a Other States in the comparator group: n/a

Currency: n/a Exchange rate: n/a

1. Safety See States' conclusions

2. Environment ✘

Environment PP targets

	2020	2021	2022	2023	2024
FAB target for horizontal en route flight efficiency (KEA) (%)	3.25%	3.25%	3.25%	3.15%	3.00%

PRB Assessment

The PRB concludes that the environment targets proposed by FABEC should not be approved.
 - FABEC's horizontal flight efficiency targets are inconsistent with its national reference values published in the June 2019 ERNIP.

3. Capacity ✘

Capacity PP targets

	2020	2021	2022	2023	2024
FAB target for en route ATFM delay per flight (min)	3.45	3.88	3.61	2.19	1.78

PRB Assessment

The PRB concludes that the capacity targets proposed by FABEC should not be approved.
 - FAB targets are higher than FAB reference values for all years of RP3.
 - FAB targets fall within the NOP delay forecast range in the first three years and are lower than NOP delay forecast values in the last two years of RP3.
 - There are inconsistencies in the performance plan between capacity enhancement measures, capacity plans and proposed capacity targets.
 - There are capacity surpluses in Amsterdam ACC, Paris ACC, Bremen ACC, and Munich ACC, based on the capacity profile plans.
 - The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.
 - The FAB level performance plan does not contain enough evidence to demonstrate the added value of a FAB level performance plan compared to national performance plans.

4. Cost-efficiency See States' conclusions

PRB Recommendations

CAPACITY

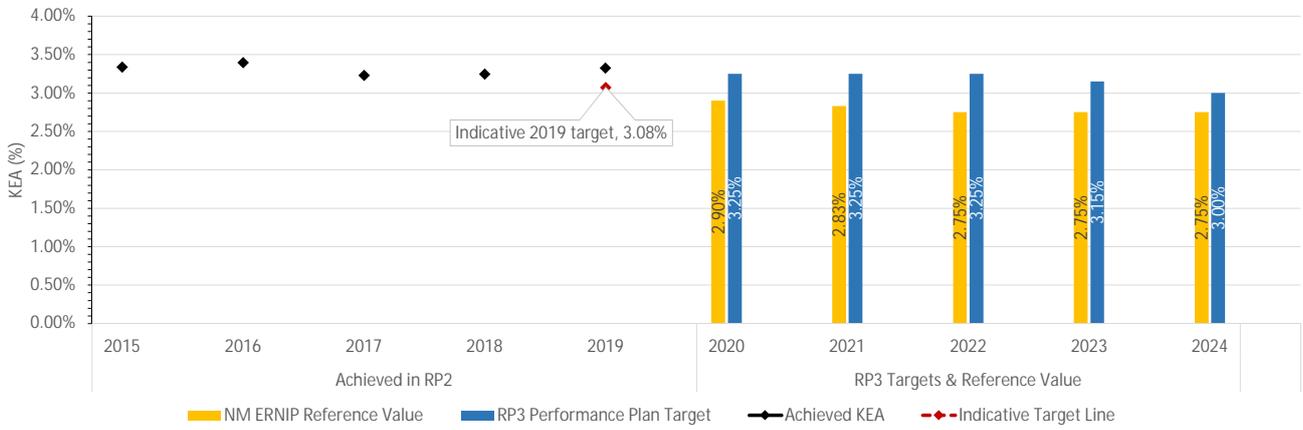
- FABEC should revise the performance plan, introduce additional measures and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets.
- FABEC should revise the FAB level incentive scheme so that it has a material impact on the revenues and motivates the ANSPs to improve their performance.

FABEC

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
FAB reference values	2.90%	2.83%	2.75%	2.75%	2.75%
Draft performance targets	3.25%	3.25%	3.25%	3.15%	3.00%
Comparison of draft performance targets with reference values	▲0.35%	▲0.42%	▲0.50%	▲0.40%	▲0.25%
Consistency with reference values	✗	✗	✗	✗	✗



2.1.2 PRB Conclusions ✗

The PRB concludes that the environment targets proposed by FABEC should not be approved.
 - FABEC's horizontal flight efficiency targets are inconsistent with its ANSP reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✘
FABEC have multiple local FRA projects to enable FAB-wide FRA and the individual Member State plans indicate that this could be available before 2023 although it is not clear.	

Reference in PP
3.2.1(a)

Major ERNIP Recommended Measures:	15
Measure included within performance plan?	
Expand cross-border FRA operations with adjacent FABs	✔
Implementation of FRAM2 - Phase 2	✔
Implementation of FRAM2 - Phase 3	✔
Cross-border FRA Maastricht UAC, Karlsruhe UAC & DK/SW FAB	✔
Implementation of FRA Germany - Step 2a bis	✔
Implementation of FRA Germany - Step 2b	✔
Implementation of FRA Germany - Step 2c	✔
Implementation of Free Route Airspace Brest - Step 1	✔
Implementation of Free Route Airspace Brest - Step 2	✔
Implementation of Free Route Airspace Brest - Step 3	✔
Implementation of Free Route Airspace Marseille ACC	✔
Implementation of Free Route Airspace Reims	✔
Implementation of Free Route Airspace Paris	✔
Implementation of Free Route Airspace Bordeaux	✔
Implementation of Free Route Airspace Switzerland	✔

Reference in PP	Reference in ERNIP
3.2.1(b)	Page 11
Implemented	Page 89
3.2.1(a)	Page 130
Implemented	Page 102
Implemented	Page 97
Implemented	Page 147
3.2.1(a)	Page 165
3.2.1(a)	Page 165
3.2.1(a)	Page 173
3.2.1(a)	Page 176
3.2.1(a)	Page 173
3.2.1(a)	Page 173
3.2.1(a)	Page 167
3.2.1(a)	Page 166
3.2.1(a)	Page 165

FUA Implementation according to latest LLSIP	Implementation
1	✔
2	✔
3	✔

FABEC believes that the largest benefit its Member State's collaboration is derived from the FRA project and Extended Arrival Management (XMAN) project. The FABEC Performance Management Group (PMG) in collaboration with the NM assessed on an annual basis the step-by-step improvements of FRA benefits. FABEC analysis shows that FRA implementation will enable an annual route reduction of nearly 50M nautical miles by 2023. However, maximum DCT routing and FRA benefits are stated to only be achieved at the end of RP3 or RP4. This is concerning since each Member State commits to offering FRA by 2023 and therefore the full benefits should be available sooner.

Extended Arrival Management and Performance Based Navigation in the High-Density Terminal Manoeuvring Areas functionality is expected to improve the precision of approach trajectory as well as facilitate traffic sequencing at an earlier stage, thus allowing reduced fuel consumption and environmental impact in descent/arrival phases. Although this might not all translate into improvements in the environmental KPI, the PRB believes it is a crucial improvement for overall environmental performance.

As part of the NM 2019 action plan, FABEC have planned to establish a FABEC/NM Airspace Design Coordination Group (ADCG) to define a target plan for the implementation of optimised airspace structures (below FRA). Other initiatives include technical interoperability and dynamic cross-border airspace implementations. FABEC noted that the application of FUA (and A-FUA) is heterogeneous and its joint FUA taskforce will work towards harmonising these across the FAB and making data exchanges in real time.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does FABEC plan for an environmental incentive scheme?	✘
FABEC does not plan to apply an optional incentive scheme for the environment KPA, which is disappointing since it is particularly relevant in its case. As FABEC's historical performance suggests that achieving the targets may be challenging, an incentive scheme would have provided the correct momentum for it to prioritise the environment KPA and placed revenue at risk.	

FABEC

Capacity KPA

3.1.1 En route ATFM delay

The FAB targets are higher than FAB reference values for all years of RP3. FAB targets fall within the NOP delay forecast range in the first three years and are lower than the NOP delay forecast values in the last two years of RP3.

Capacity plans indicate that FABEC will face a capacity gap throughout the years of RP3, even though Amsterdam ACC, Paris ACC, Bremen ACC, and Munich ACC has capacity surpluses according to the analysis of capacity profiles (detailed analyses are in the respective factbooks).

Capacity enhancement measures and capacity plans indicate that FABEC targets should be revised downward further towards the reference values.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	2.76	3.20	3.10	1.82	1.42
2. NOP delay forecast is lower or equal to the PP capacity target	✗	!	!	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.1.2 Arrival ATFM delay

3.1.3 Incentives

En route capacity incentives:

Threshold is symmetrical around pivot value. Pivot value is not based on reference values published in NOP, but on FAB proposed targets.

FAB targets will also be modulated annually according to the update of reference values in the NOP. Instead of updating directly according to NOP, the FAB targets will be adjusted according to the 'trend' of FAB reference values from previous year. The revised FAB targets are then subject to further modulation according to CRSTMP attribution.

A maximum penalty of 0.5% is countered with a maximum penalty of 0.5% across the FAB. If the FAB delay (CRSTMP only) is lower than the dead band, penalties will not apply for any ANSP and bonuses will apply only to ANSPs for which delay is in bonus range. If the FAB delay (CRSTMP only) is greater than the dead band, bonuses will not apply for any ANSP and penalties will only apply to ANSPs for which delay is in penalty range. FAB delay (CRSTMP only) within the dead band will result in no bonuses nor penalties for any ANSP regardless of individual performance. The dead band has been "fixed as wide as possible". As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

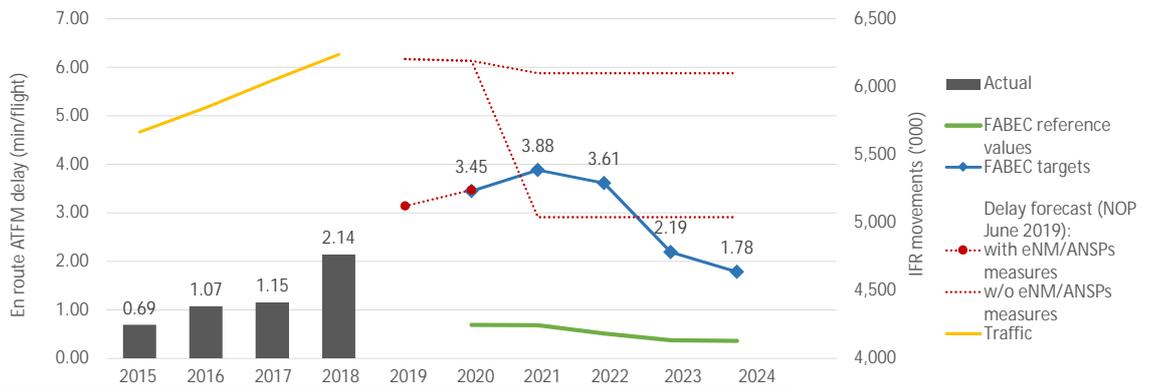
The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments n/a

3.1.5 PRB conclusions ✗

- The PRB concludes that the capacity targets proposed by FABEC should not be approved.
- FAB targets are higher than FAB reference values for all years of RP3.
 - FAB targets fall within the NOP delay forecast range in the first three years and are lower than NOP delay forecast values in the last two years of RP3.
 - There are inconsistencies in the performance plan between capacity enhancement measures, capacity plans and proposed capacity targets.
 - There are capacity surpluses in Amsterdam ACC, Paris ACC, Bremen ACC, and Munich ACC, based on the capacity profile plans.
 - The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.
 - The FAB level performance plan does not contain enough evidence to demonstrate the added value of a FAB level performance plan compared to national performance plans.

3.2.1 Overview of en route ATFM delay per flight ✘



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+1.7%	+3.2%	+3.4%	+3.1%						
Actual ATFM delay per flight	0.69	1.07	1.15	2.14						
FABEC reference values					0.69	0.68	0.51	0.37	0.36	
FABEC targets					3.45	3.88	3.61	2.19	1.78	
Forecast with eNM/ANSPs measures*					3.14	3.47				
Forecast w/o eNM/ANSPs measures*					6.17	6.13		2,91-5,88		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✘	✘	✘	✘
Deviation target v. reference value (minutes per flight)	2.76	3.20	3.10	1.82	1.42
2. NOP delay forecast is lower or equal to the PP capacity target	✘	⚠	⚠	✘	✘

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP ⓘ

Description of capacity enhancement measures

In addition to the capacity enhancement measures outlined in the FAB EC Member States' factbooks, the performance plan contains the following measures on the FABEC level:

- Set-up of a FABEC/NM Airspace Design Coordination Group (ADCG) to optimise the airspace structure and sectorization on the FAB level, as well as to set up cross-border FRA and an optimised route structure below FRA airspace.

The following initiatives are also listed under cross-border cooperations in the performance plan and are indicated to have positive effects on capacity:

- iCAS deployment collaboration;
- Collaboration for Flight Object Interoperability (FO IOP);
- Implementation of common Coflight cloud service (CCS) at DSNA and skyguide;
- MUAC, BAC and skeyes introduce first shared civil-military ATM system (SAS);
- The 14 ACCs of FABEC are internally benchmarked with the focus on sector level capacity;
- Framework for Cross-Border Business Continuity / Contingency;
- RAD Optimisation Workshops;
- Joint States/ ANSPs FUA Task Force.

The performance plan also directly refers to measures listed in the latest edition of the NOP as well.

The performance plan contains reference to the FABEC Catalogue of Airspace Projects for years 2020 - 2025, which will include a consolidated evaluation of all FABEC capacity enhancement measures and their expected benefits. This document is anticipated to be developed by the performance plan in 2020.

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) n/a

See FAB EC Member States' factbooks

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps !

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure !
 The performance plan contains additional measures addressing the closure of the capacity gap, however, these are not sufficient to close the whole gap.
- b) Measures proposed by the NM are implemented in the Performance Plan ✓
 The performance plan directly refers to the measures contained in the latest edition of the NOP.
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM ✓
 All measures are referred in the performance plan.
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values ✗
 The performance plan contains no information regarding measures proposed by the NSAs.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements) ✗
 Although the performance plan contains information regarding staffing plan and these measures are seen as effective in partially closing the gap, ATCO planning numbers are not provided consistently, and staffing plans do not allow the full closure of the capacity gap.
- f) Flexible use of operational staff is planned and ensured n/a
 See States' factbooks. No specific FABEC level information is provided.
- g) Limitations of ATM system/infrastructure is mitigated ✓
 There are cross-border initiatives between FABEC members to mitigate the limitations of ATM system/infrastructure.

3.2.6 PRB Key Points ✗

- FAB targets are higher than FAB reference values for all years of RP3. FAB targets fall within the NOP delay forecast range in the first three years and are lower than NOP delay forecast values in the last two years of RP3.
- Capacity plans indicate that FABEC will face a capacity gap throughout the years of RP3.
- Capacity enhancement measures and capacity plans indicate that FABEC targets should be revised downward further towards the reference values.
- Although the performance plan contains information regarding staffing plans and these measures are seen as effective in partially closing the gap, ATCO planning numbers are not provided consistently and there is not enough evidence that staffing plans will allow the full closure of the capacity gap.
- The analyses of capacity profiles reveals that there are ACCs within FABEC, which are expected to have capacity surpluses in RP3. There is no reference in the performance plan to the use of these surpluses in balancing capacity with demand.
- The FAB level performance plan does not contain sufficient information on capacity enhancement measures to be put in place on FAB level.
- The performance plan does not provide sufficient information on the re-sectorisation of the airspace controlled by MUAC and the surrounding ACCs.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±2.7%	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.69	0.68	0.51	0.37	0.36
Alert threshold (Δ Ref. value in fraction of min)	±0.075	±0.074	±0.066	±0.059	±0.058
Performance Plan targets	3.45	3.88	3.61	2.19	1.78
Pivot values for RP3	2.28	2.56	2.38	1.45	1.17

Threshold review

Threshold is symmetrical around pivot value. Pivot value is not based on reference values published in NOP, but on FAB proposed targets.

Modulation review

FAB targets will also be modulated annually according to update of reference values in the NOP. Instead of updating directly according to NOP, the FAB targets will be adjusted according to the 'trend' of FAB reference values from previous year. The revised FAB targets are then subject to further modulation according to CRSTMP attribution.

Review of financial advantages/disadvantages

A maximum penalty of 0.5% is countered with a maximum penalty of 0.5% across the FAB. If the FAB delay (CRSTMP only) is lower than dead band, penalties will not apply for any ANSP and bonuses will apply only to ANSPs for which delay is in bonus range. If FAB delay (CRSTMP only) is greater than dead band, bonuses will not apply for any ANSP and penalties will only apply to ANSPs for which delay is in penalty range. FAB delay (CRSTMP only) within the dead band will result in no bonuses nor penalties for any ANSP regardless of individual performance. The dead band has been "fixed as wide as possible". As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme (see States' fact books)

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Facts ⓘ

- En route capacity incentives:

Threshold is symmetrical around pivot value. Pivot value is not based on reference values published in NOP, but on FAB proposed targets.

- FAB targets will also be modulated annually according to update of reference values in the NOP. Instead of updating directly according to NOP, the FAB targets will be adjusted according to the 'trend' of FAB reference values from previous year. The revised FAB targets are then subject to further modulation according to CRSTMP attribution.

- A maximum penalty of 0.5% is countered with a maximum penalty of 0.5% across the FAB. If the FAB delay (CRSTMP only) is lower than dead band, penalties will not apply for any ANSP and bonuses will apply only to ANSPs for which delay is in bonus range. If FAB delay (CRSTMP only) is greater than dead band, bonuses will not apply for any ANSP and penalties will only apply to ANSPs for which delay is in penalty range. FAB delay (CRSTMP only) within the dead band will result in no bonuses nor penalties for any ANSP regardless of individual performance. The dead band has been "fixed as wide as possible". As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

PRB Assessment

BELGIUM

Draft Performance Plan

Context and scope

Belgium

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21.11.2019
 Documents no: 1761, 1691, 1692, 1694, 1695, 1452, 1425, 1429, 1426, 1483, 1432, 1461, 1466, 1762

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.3%
 % Costs V. SES 1.9%

Scope

FAB: FABEC

ANSPs: skeyes
 MUAC

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Belgian Supervisory Authority for Air Navigation Services (BSA-ANS)

ATM, MET
 ATM

Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Belgium-Luxembourg	n/a	No	No	No	
Terminal	Belgium EBBR	1	No	No	Yes	
Changes in the CZs from RP2		Yes				
<p>There is only one Terminal CZ that includes the EBBR airport in the Performance Plan. No information still available regarding the inclusion of other revenues, as it was the case in RP2. In RP2 the RT reflects the fact that 25% of the terminal costs in Brussels TCZ are subsidised by the State or regional authorities through other revenues.</p>						

Comparator group: Group E Other States in the comparator group: Austria
 Netherlands
 Switzerland

Currency: € Exchange rate: 1.00000

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
skeyes	Safety policy and objectives					C
	Safety risk management					D
	Safety assurance					C
	Safety promotion					C
	Safety culture					C

PRB Assessment

The PRB concludes that the safety targets proposed by Belgium and Luxembourg should not be approved.

- Belgium and Luxembourg did not provide the EoSM targets for 2020-2023.
- Belgium and Luxembourg did not provide relevant and sufficient measures to achieve the RP3 safety target levels.
- Belgium and Luxembourg did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	7.12%	7.12%	7.12%	7.12%	7.12%

PRB Assessment

The PRB concludes that the environment targets proposed by Belgium should not be approved.

- Skeyes's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
Breakdown values for <u>en route</u> ATFM delay per flight (min)	0.64	0.61	0.56	0.48	0.48
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	1.82	1.71	1.61	1.50	1.50

PRB Assessment

The PRB concludes that the capacity breakdown values proposed by Belgium should not be approved.

- The capacity breakdown values are not reaching the reference values for each year of the RP3.
- The measures provided in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	85.99	88.83	90.13	89.97	89.54
Target for determined unit cost (DUC) (€2017) - Terminal	241.43	247.56	245.86	243.26	243.75

CAGR 2014-2024	CAGR 2019-2024
+2.7%	+1.8%
n/a	+3.1%

PRB Assessment

The PRB concludes that the cost-efficiency targets as proposed by Belgium should not be approved.

- Belgium does not meet any of the cost-efficiency criteria.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

PRB Recommendations

SAFETY

- Belgium and Luxemburg should define the EoS safety targets for each year of the reference period.
- Belgium and Luxemburg should define measures for the management objectives to achieve the RP3 safety targets levels.
- Belgium and Luxemburg should describe how the independencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

ENVIRONMENT

- Belgium should commit to implementing direct routings as recommended by the Network Manager in the June 2019 ERNIP.
- Belgium should work with its FABEC partners to ensure eNM measures will not be necessary and thereby relieving the impact of these on its airspace.
- Belgium should ensure the application of the FUA concept is homogenised, hence ensuring continuous data flows concerning the environmental performance indicators and minimising the impact on civil airspace users.
- Belgium should revise its environment targets in order to achieve consistency with its national reference values in line with the above recommendations.

CAPACITY

- Belgium should revise the ANSP breakdown values and set more ambitious en route ATFM delay breakdown values to achieve consistency with Union-wide targets.
- Belgium should ensure that capacity profile plans, capacity enhancement measures and proposed capacity breakdown values are aligned.
- Belgium should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.
- Belgium should justify the terminal RP3 capacity targets with respect to RP2 actual performance and with respect to similar airports, or should revise terminal RP3 capacity targets downwards.

COST-EFFICIENCY

- Belgium should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Belgium should consider a downwards correction of the 2019 cost forecast/baseline.
- Belgium should remove from the performance plan the cost of the drone detection investment.
- Belgium should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

BELGIUM AND LUXEMBOURG

Safety KPA

1.1.1 Target for EoSM for ANSPs

The performance plan with regards to the safety KPA is incomplete, i.e. the targets are missing for 2020-2023 for skeyes and ANA LUX.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes in the ATM functional system on interdependencies and trade-off with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.1.4 Change Management

Detailed change management processes and transition plans are described for skeyes and ANA LUX.

The described processes ensure that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by Belgium and Luxemburg should not be approved.

-Belgium and Luxembourg did not provide the EoSM targets for 2020-2023.

-Belgium and Luxembourg did not provide relevant and sufficient measures to achieve the RP3 safety target levels.

-Belgium and Luxembourg did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
skeyes	Safety policy and objectives	✗	✗	✗	✗	C	✓	
	Safety risk management	✗	✗	✗	✗	D	✓	
	Safety assurance	✗	✗	✗	✗	C	✓	
	Safety promotion	✗	✗	✗	✗	C	✓	
	Safety culture	✗	✗	✗	✗	C	✓	

The interim Effectiveness of Safety Management (EoSM) targets have not been defined for 2020-2023 for skeyes. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any specific measures but explains that: “Regular exchange amongst experts in the FABEC Safety Performance and Risk Coordination (SPRC) Task Force three times a year as permanent agenda item. Furthermore, within the yearly FABEC Performance Monitoring Reporting (Report) EoSM results of the previous year are gathered and monitored. Weaknesses / major discrepancies will be spotted and counteracted by the responsible six NSAs.”

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3. Additionally, it is considered that the measures are not sufficiently described in the draft performance plan.

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
ANA LUX	Safety policy and objectives	✗	✗	✗	✗	C	✓	
	Safety risk management	✗	✗	✗	✗	D	✓	
	Safety assurance	✗	✗	✗	✗	C	✓	
	Safety promotion	✗	✗	✗	✗	C	✓	
	Safety culture	✗	✗	✗	✗	C	✓	

The interim EoSM targets have not been defined for 2020-2023 for ANA LUX. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any measures ANA LUX.

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3.

Additionally, it is considered that the measures are not sufficiently described in the draft performance plan.

1.3.1 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-offs with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.3.2 Change Management Practices

Both ANSPs apply the specific change management procedures, adapted to the needs of the change that has to be implemented.

Change management procedure at skeyes and ANA LUX consists a part of standard safety assessment. Moreover, any changes to the functional system is a subject to NSA approval.

None of the described change management procedures referred directly to the current regulation. However, the approaches presented by the ANSPs provide assurance that any new implementation will be conducted in a manner that minimises any negative impact on the network performance.

BELGIUM

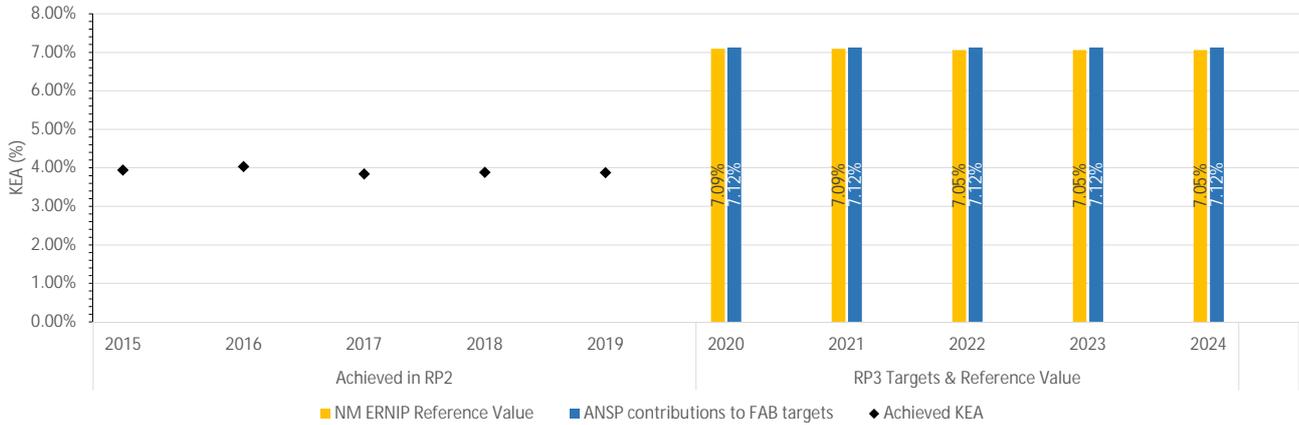
Environment KPA

2.1 Summary of environment key data and assessment results

Belgium

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Draft FABEC targets	3.25%	3.25%	3.25%	3.15%	3.00%
ANSP reference values	7.09%	7.09%	7.05%	7.05%	7.05%
ANSP contributions to FAB targets	7.12%	7.12%	7.12%	7.12%	7.12%
Comparison of ANSP contributions with ANSP reference values	▲0.03%	▲0.03%	▲0.07%	▲0.07%	▲0.07%
Consistency with ANSP reference values	✗	✗	✗	✗	✗



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Belgium should not be approved.
 - Skeyes's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? skeyes operates an ATS route network in lower airspace (GND - FL195) and upper airspace lower than FL245. Above FL245, MUAC offers FRA in the Brussels FIR.	✓	Reference in PP 3.2.1(a)	Reference in LSSIP Page 67
Major ERNIP Recommended Measures: Measure included within performance plan?	3	Reference in PP Implemented	Reference in ERNIP Page 89
Implementation of FRAM2 - Phase 2	✓	Implemented	Page 130
Implementation of FRAM2 - Phase 3	✓	None	Page 145
Implementation of DCT Brussels FIR	✗		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

FABEC's draft environmental performance targets were broken down at the level of each individual air navigation service provider covered by the performance plan. Measures of achievement, explanations and justifications were also provided at individual air navigation service provider levels and Member State levels.

The chart in section 2.1.1 shows that Belgium achieved a KEA of 3.87% in 2019. The indicative target is not valid for Belgium since the difference in KEA on a national and ANSP level are very different due to the impact of MUAC. The ERNIP reference values were provided at an ANSP level for RP3 and therefore do not allow for a fair comparison since KEA is measured on a national level.

skeyes' draft environment performance targets were set with lower ambition than its national reference values assigned by the NM. The draft FABEC performance plan does not foresee any improvement during RP3 for Belgium.

The main reason Belgium believes it is unable to meet its reference values is the NM campaign to fly as filed and other measures such as re-routing to avoid sector overloads and the avoidance of reassigning military airspace at tactical stages. On the latter point, FABEC admits that the application of FUA (and A-FUA) is 'heterogenous' and its joint FUA taskforce will work towards harmonising these across the FAB and make data exchanges in real time.

Belgium acknowledged the PRB's recommendation that FRA is an important enabler for horizontal flight efficiency improvement, however, it claimed that FRA is not applicable for its performance plan since MUAC controls the airspace above FL245. Belgium operates an ATS route network which is within its control. Additionally, Belgium has not committed to the ERNIP recommended measure to implement DCTs below FL245, the measure is considered as important to achieve the targets and is recommended for implementation by summer 2020.

At a FABEC level, RAD workshops are planned to help simplify the ATS route network and to concentrate on efficient connections with other FABs.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Belgium plan for an environmental incentive scheme? Belgium does not plan to apply an optional incentive scheme for the environment KPA.	✗
--	---

BELGIUM

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

ANSP breakdown values are set significantly above the ANSP reference values and the NOP delay forecast values as well. There is a decreasing tendency in ANSP breakdown values, but the gap between ANSP breakdown values and ANSP reference values is not decreasing significantly over the period.

Capacity plans show that if measures are implemented successfully, skeyes may be able to close the capacity gap, especially if airspace users continue to fly according to current routes.

There is inconsistency in the performance plan regarding capacity plans and proposed targets. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	0.44	0.40	0.39	0.36	0.36
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.1.2 Arrival ATFM Delay

Brussels is the only airport included in the performance plan for RP3. The method used to build the proposed target raises some concerns, and results in delays that double the past observed performance during RP2, and are also considerably worse than for similar airports.

3.1.3 Incentives

En route incentives:

Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for skeyes. Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous years. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio. Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB deadband. Bonus could be paid out at approximately 2-3 times the delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

Pivot values are modulated according to CRSTMP causes. The pivot value chosen is based on 2018 performance before the post ops adjustment and includes a 0.05 minutes per arrival buffer for local circumstances. The dead band of ±25%, enough to allow for small variations in performance without resulting penalties or bonuses. The maximum bonus/penalty are only 0.125%/0.5% respectively.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Skeyes does not provide performance related benefits while justifying its investments.

The implementation of CAPEX in 2015-2018 reached 72% of the plan, the RP3 performance plan does not provide clear explanation with regards to the continuation of the projects from RP2 or reimbursement to airspace users for the costs of undelivered projects.

Some new investments above 5M€ listed in Annex E of the performance plan are not included in the section "new major investments".

Most of the investments projects (main and other new and existing) are related to infrastructure development and replacement of end of life equipment.

3.1.5 PRB conclusions ✗

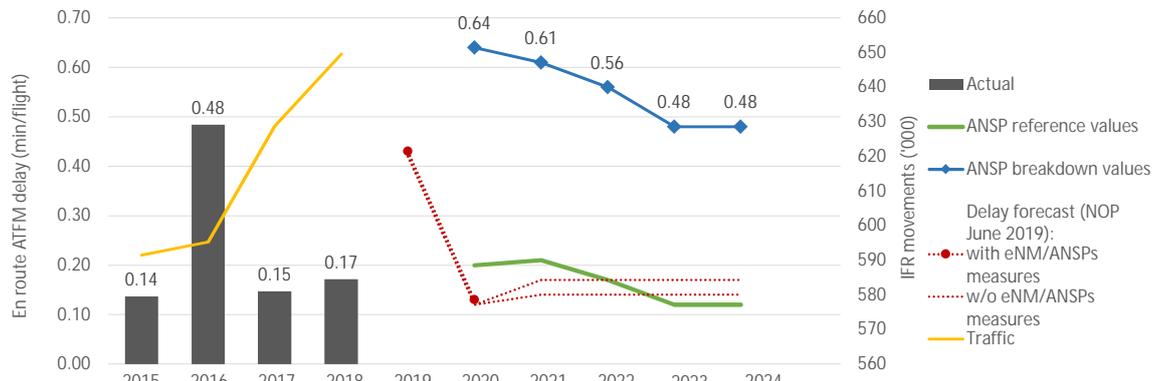
The PRB concludes that the capacity breakdown values proposed by Belgium should not be approved.

- The capacity breakdown values are not reaching the reference values for each year of the RP3.

- The measures provided in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight ✘



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+5.0%	+0.6%	+5.6%	+3.3%						
Actual ATFM delay per flight	0.14	0.48	0.15	0.17						
ANSP reference values						0.20	0.21	0.17	0.12	0.12
ANSP breakdown values						0.64	0.61	0.56	0.48	0.48
Forecast with eNM/ANSPs measures*					0.43	0.13				
Forecast w/o eNM/ANSPs measures*					0.42	0.12		0.14-0.17		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✘	✘	✘	✘
Deviation target v. reference value (minutes per flight)	0.44	0.40	0.39	0.36	0.36
2. NOP delay forecast is lower or equal to the PP capacity target	✔	✔	✔	✔	✔

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP !

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- Development of complexity assessment tool (to be operational from 2021);
- New, PCP compliant ATM system, shared with MUAC (from 2023-2024);
- Renewed WAN network (from 2021);
- Civil-military ACC co-location at skeyes from 2019;
- Recruitment and training of additional ATCOs at full capacity of the training facilities.

Measures are in line with those of the NOP, ATCO planning numbers are not provided.

ATCO Planning (FTEs)

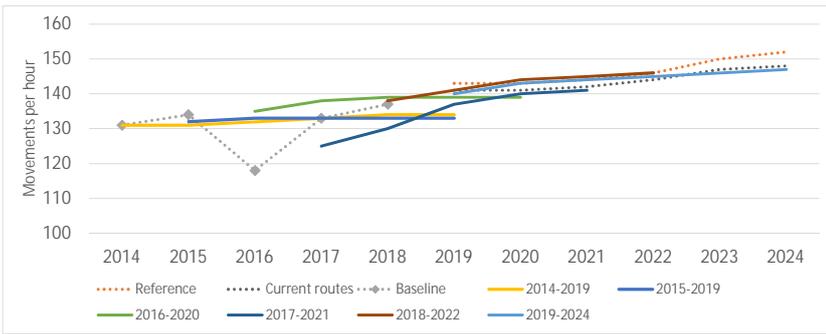
		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Total - skeyes (en route)	Additional ATCOs in OPS to start working in the OPS room	n/a						
	ATCOs in OPS to stop working in the OPS room	n/a						
	ATCOs in OPS to be operational at year-end	n/a						

2024 (end) - 2020 (beg.)

n/a

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Brussels ACC (EBBU)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						143	143	144	146	150	152
Current routes						141	141	142	144	147	148
Baseline	131	134	118	133	137						
2014-2019	131	131	132	133	134	134					
2015-2019		132	133	133	133	133					
2016-2020			135	138	139	139	139				
2017-2021				125	130	137	140	141			
2018-2022					138	141	144	145	146		
2019-2024						140	143	144	145	146	147

- Historical data shows a significant drop in baseline values in 2016, which is reflected in actual delay values as well. In all other years the baseline and planned values were consistent, except for 2017, where planned capacity was lower than the actual baseline value. Average growth of baseline values is 1.5% annually.

- Latest planned capacity profile shows an average annual growth of 0.98% over RP3. Growth is slightly above 2% in 2020, followed by a steady 0.7% growth in 2021-2024.

- When compared to the reference profile, the planned capacity profile shows a 0% - -3.4% capacity gap over RP3, which gradually increases towards 2024. When compared to the current routes profile, there is a 1.4% surplus in 2020 and 2021, 0.7% in 2022, and a capacity gap of only -0.7% in 2023-2024.

- Capacity profiles indicate that if capacity enhancement measures are implemented successfully, Belgium may be able to close the capacity gap, even if airspace users fly according to the shortest route scenario.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures ✗

Review of the special events leading to higher delays in some years of RP3

The performance plan gives reference to the implementation of a new, PCP compliant ATM system, which is going to be shared with MUAC and the Belgian Defence. According to the justification provided regarding the capacity targets, the implementation of the system should introduce additional capacity constraints during 2023-2024. These effects, however, are not reflected in the capacity profiles.

Review of the capacity enhancement measures related to special events

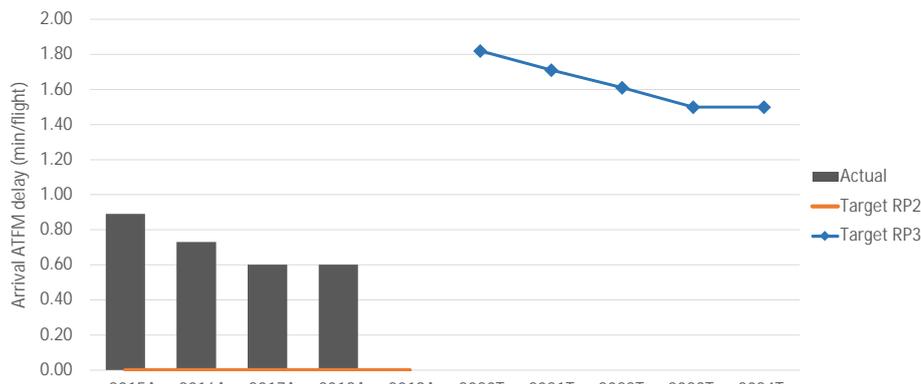
The performance plan contains no information regarding the capacity enhancement measures related to the special events mentioned above. It is to be noted that the special event is actually listed as a capacity enhancement measure itself.

3.2.5 Review of the measures to increase capacity and address capacity gaps ✗

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure ✓
The performance plan contains additional measures compared to the NOP. These measures may be adequate to close the capacity gap.
- b) Measures proposed by the NM are implemented in the Performance Plan ✗
Capacity enhancement measures are in line with those of the NOP, however, there are measures which are listed in the NOP, but not implemented in the performance plan.
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM ✗
The performance plan provides no rationale for not including all the measures from the NOP.
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values ✗
The performance plan contains no reference to additional measures proposed by the NSA.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements) ✗
The performance plan does not contain information regarding the planned number of ATCOs, only a general reference that recruitment and training are running at full capacity.
- f) Flexible use of operational staff is planned and ensured ✗
The performance plan contains no information regarding the flexible use of operational staff.
- g) Limitations of ATM system/infrastructure is mitigated ✓
The performance does contain a reference to a new ATM system, which will be PCP compliant, implemented in 2023-2024.

- ANSP capacity breakdown values are set significantly above the ANSP reference values and the NOP delay forecast values as well. There is a decreasing tendency in ANSP breakdown values, but the gap between ANSP breakdown values and ANSP reference values is not decreased significantly over the period.
- Capacity plans show that if measures are implemented successfully, skyes may be able to close the capacity gap, especially if airspace users continue to fly according to current routes.
- There is inconsistency in the performance plan regarding capacity plans and proposed targets. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.89	0.73	0.60	0.60	-	1.82	1.71	1.61	1.50	1.50
Brussels (EBBR)	1.26	0.93	0.81	0.85	-	1.82	1.71	1.61	1.50	1.50

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Belgium did not set any targets for delay all causes in RP2. The national level in the graph above concerns the performance of the five airports included in the performance plan for RP2. For RP3, the only airport in the performance plan is Brussels, where the actual delays decreased along the second reference period from 1.26 minutes delay per arrival in 2015 to 0.85 minutes delay per arrival in 2018.

The proposed targets (all causes) for RP3 have been built based on the CRSTMP target, taking as a basis the CRSTMP delays at Brussels in 2018 before post ops adjustments (as Belgium argues, there is no certainty of a post ops adjustment), resulting in 0.12 minutes delay per arrival and adding a buffer of 0.05 minutes delay per arrival due to local circumstances.

In parallel, Belgium calculates the ADF (Attributable Delay Factor) based on 2014-2018 actual performance as 9.34% (CRSTMP pre post-ops/ALL CAUSES pre post-ops), and this has been used to build then the target all causes for 2020.

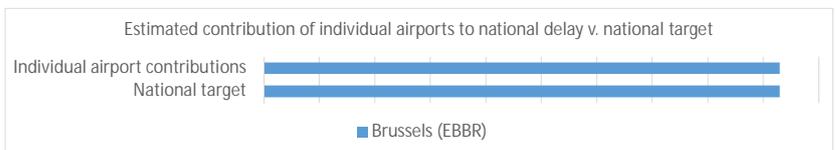
There are several considerations in the review of this method for assigning the target all causes:

- When calculating the ADF, Belgium has used the historical values for 2014-2018, which result in an ADF 9.34% (CRSTMP pre post-ops / ALL CAUSES pre post-ops), but when choosing the CRSTMP target, it takes the observed performance of only 2018 (ADF in 2018 pre-post ops was 14.1%, which would result in a much lower target).
- As the new CRSTMP targets are applying a buffer for the special event cause (with delay code "P") of 0.05 minutes per arrival, this would invalidate the historic ADF, as this means a higher CRSTMP proportion in the future. This could be solved by building the target on the CRSTMP pre-post ops: 0.12 minutes delay per arrival and the calculated ADF: 9.34% (=1.28 minutes delay per arrival), and then the extra 0.05 minutes per arrival could have been added, resulting in a target all causes of 1.33 minutes delay per arrival.

In summary, the method used to build the target all causes raises some concerns, and results in delays that double the past performance, even if the CRSTMP target for 2020 aims at maintaining the performance of 2018, only adding 0.05 minutes delay per arrival for the local circumstances.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min./flight)
Brussels (EBBR)	1.63
National Target	1.63



As Brussels is the only airport included in the performance plan, the national target coincides with the airport target and the potential delay contribution is only associated to this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Brussels (EBBR)	GROUP I	0.87	0.96	+0.09	1.63	+0.76

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The performance of Brussels in the past reference period is slightly worse than the median of similar airports (+0.09 minutes delay per arrival). The target set for RP3 represents a drastic further worsening with respect to the actual performance of similar airports (+0.76 minutes more delay per arrival).



- Brussels is the only airport included in the Belgian performance plan for RP3. The method used to build the proposed target raises some concerns, and results in delays that double the past observed performance during RP2, and are also considerably worse than for similar airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.04 min	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.20	0.21	0.17	0.12	0.12
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.051	±0.050	±0.050	±0.050
Performance Plan targets	0.64	0.61	0.56	0.48	0.48
Pivot values for RP3	0.42	0.40	0.37	0.32	0.32

Threshold review

Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for skeyes.

Modulation review

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Review of financial advantages/disadvantages

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. Bonus could be paid out at approximately two-three times the delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±25.0%	0.125%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.085	±0.080	±0.075	±0.070	±0.070
Performance Plan targets	1.82	1.71	1.61	1.50	1.50
Pivot values for RP3	0.17	0.16	0.15	0.14	0.14

Threshold review

The terminal incentive scheme includes a dead band of ±25% that allows for small variations in the arrival ATFM delay with no resulting bonuses or penalties.

Modulation review

Belgium has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen (0.17 minutes delay per arrival) takes as a basis the CRSTMP delays at Brussels in 2018 before post ops adjustments (as Belgium argues, there is no certainty of a post ops adjustment), which equals to 0.12 minutes delay per arrival, and adds a buffer of 0.05 minutes delay per arrival - due to local circumstances. In the next two years, this pivot value is reduced by 0.01 minutes delay per arrival per year.

Review of financial advantages/disadvantages

The penalty (only 0.5%) and very low bonus (only 0.125%), together with the relatively low risk of not meeting the targets if post-ops adjustment is applied, make this incentive scheme a little weak to try to improve current performance.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✗

En route incentives:

- Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for skeyes. Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous years. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio. Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB deadband. Bonus could be paid out at approximately 2-3 times the delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:- Belgium has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is based on 2018 performance before the post ops adjustment and includes a 0.05 minutes per arrival buffer for local circumstances. The dead band of ±25%, enough to allow for small variations in performance without resulting penalties or bonuses. The maximum bonus/penalty are only 0.125%/0.5% respectively.

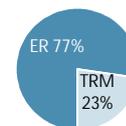
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	18.4	18.8	20.5	21.1	22.2	100.9	
	En route	M€ (nominal)	14.1	14.4	16.0	16.4	17.1	78.0
	Terminal	M€ (nominal)	4.2	4.3	4.6	4.7	5.1	22.9

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Single Data Services solution	Replacement of the current ATM System by a Single Data Services solution (SAS3) with Eurocontrol MUAC and Belgian Defense. SAS3 will include main, fallback and ultimate solutions. The primary and fallback will be implemented in 2024-2025. The ultimate solution will be implemented in 2021-2022.	50.5	Yes	Yes	1.7	0.5
2	Digital Tower Center EBLG & EBCI	The 'Digital Towers' program aims to implement a centre that provides remote/digital ATC service to the airports of Liege (~60k movements) and Charleroi (~80k movements). Only the investments allocated to en-route (approach services) are included in the performance plan. The investments allocated to terminal services for Regional airports are not included in the plan.	11.4	No	No	0.7	0.0
3	Radio communication	Installation of remote radiosites (radio equipment, electronic equipment and infrastructure (shelters and pylones)).	17.6	No	No	2.4	0.5
4	Non-cooperative Surveillance Sensors	Replacement of non-cooperative sensors (primary radars) in cooperation with Belgian Defense.	20.8	No	No	1.3	0.0
5	Cooperative Surveillance sensors	Replacement of cooperative sensors (Mode_S Bertem and Saint-Hubert) and deployment of Wide Area Multilateration (extension MLAT EBCI, EBLG, and WAM with ADS-B).	10.4	No	No	0.9	0.0
6	Refurbishment of building	The purpose of the project is to put in place future-proof building/workspace that meet the needs for skeyes space (offices, operational room, technical rooms). This project will consist of the refurbishment and/or demolition of the old CANAC buildings and the transformation of H and U buildings in activity-based offices.	15.0	No	No	0.4	0.1
7	New WAN	Creation of a new Wide area network to support all our business and missing critical application as well as all our partner and customers.	5.4	No	No	2.5	0.4
8	A-SMGCS EBBR	Replacement of the A-SMGCS data fusion system, the three Surface Movement Radars (SMR) and the MLAT-system.	5.0	No	yes	0.0	0.9
Total:						9.9	2.4

Airspace user feedback regarding major investments

Airspace users questioned the level of investments of skeyes and commented that the benefits of the investments were not enough demonstrated. Skeyes replied that a lot of equipment had to be replaced being at the end-of-life. Skeyes' plans regarding the unspent CAPEX in RP2 remained unclear for the airspace

Review of investments

New major investments represent 12% of the total determined costs over RP3. The 2015-2018 actual CAPEX has been 73% of the planned for the same period and the amount underspent is 19.34M€. It is uncertain if this amount will be returned to the airspace users or if skeyes will materialise all the investments by the end of RP2.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
2	Digital Tower Center EBLG & EBCI	none	n/a	The Liège and Charleroi airports have grown significantly over the last few years. Both airports do not currently have a contingency control tower to guarantee the continuity of operations in the event of unavailability of the main control tower. In addition, both control towers must undergo a major renovation and will not be available during the renovation period.
3	Radio communication	network/local	n/a	This project has been set up in order to improve the redundancy and resilience of the air-ground radio communication infrastructure (chain A, B and C). This includes 18 "new" sites for en route and approach.
4	Non-cooperative Surveillance Sensors	network/local	n/a	<ul style="list-style-type: none"> Urgent need to update end-of-life sensors (Liège, St-Hubert, Bertem, Brussels); growth of wind farms; strong pressure to relax planning restrictions; applicable regulations coming into force such as SPI-IR.
5	Cooperative Surveillance sensors	network/local	n/a	<ul style="list-style-type: none"> Urgent need to update end-of-life sensors (St-Hubert, Bertem, Liège); growth of wind farms; strong pressure to relax planning restrictions; applicable regulations coming into force such as SPI-IR: <ul style="list-style-type: none"> Major TMA: duplicated secondary and single primary surveillance radar coverage; en route: duplicated secondary surveillance radar coverage.
6	Refurbishment of building	none	n/a	The old CANAC building is becoming obsolete and needs an extensive refurbishment (HVAC, exterior building envelope, insulation...). The old CANAC building is currently used for offices, training and testing facility, contingency room and technical rooms for equipments and datacenters.
7	New WAN	network/local	n/a	Skeyes uses an old technology (SDH network) that will not be supported anymore by Proximus (= ISP) as of 2022. The choice has been made to go to an IP network, which involves current software replacement since they are not IP compatible. The redesign of the network is also an opportunity to improve its redundancy and resilience
8	A-SMGCS EBBR	local	n/a	<ul style="list-style-type: none"> Address the obsolescence of the A-SMGCS (Advanced Surface Movement Guidance and Control System) at the airport of Brussels, to continue to provide surveillance and alerting to tower controllers; enable the continuous provision of MLAT data for the A-SMGCS system in Brussels.

Additional information

Belgium provided explanations of the investments not required by SES legislation, however, the justifications do not indicate any performance related benefits. The investments are mainly focusing on delivering enablers for new technologies, resilience, upgrades or replacements of existing systems. More details are provided in Annex E of the performance plan.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	86.2	91.3	5.0	7.3	8.9	9.8	9.9	40.9
Existing investments			13.3	10.3	9.1	7.9	7.2	47.7

<p>Description and justification of other new and existing investments in fixed assets planned over RP3</p>	<p>Other new investments represent 41% of the total determined costs of investments over RP3, while existing investments represent the 47%. Other new and existing investments related to replacement of end of life equipment, infrastructure optimization, IT, rolling stock etc. required to provide continuity of air navigation services. In particular, the investment plan detailed in Annex E of the performance plan describe the following new other investments:</p> <ul style="list-style-type: none"> - ILS (Instrument Landing Systems): This investment covers the replacement of various ILS which will reach the end of their scheduled operational lifetime. Some investments in ILS were foreseen in RP2 at Brussels, Liège, Ostend, Charleroi and Antwerp but the actual CAPEX is less than planned. The CAPEX is 7.3M€. This investment should be listed as new major investment. - Drones detection: The installation of drones detection equipment will start in 2021 in EBBR. The CAPEX is 6M€. This investment should be listed as new major investment. - VCS Main upgrade: This investment is related to the upgrade of the current VCS (Voice Communication Switch) to be compliant with VoIP. The CAPEX is 4M€. - New RDF (Radio Direction Finder): The goal of this investment is to renew the 7 RDF stations of Skeyes and support the integration in SAS3. The CAPEX is 4M€. - Networks: The foreseen budget encompasses various investments related to Data communication systems upgrade, replacement and strategical changes. The CAPEX is 6.9M€. This investment should be listed as new major investment. - Data cabling: The objective of the investment is to conclude a Framework contract for Data cabling installation required by investment's execution. The CAPEX is 3.15M€. - New way of working: Transformation of W-building into an activity-based working area including amongst others NWOW workspaces on two floors and new meeting rooms. The CAPEX is 3.5M€. - Solar panels: Installation of solar panels to compensate partially the electrical consumption. The CAPEX is 3M€.
---	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

Belgium has provided list of major investments, which are difficult to link to the capacity enhancement measures provided via the NOP 2019 - 2024. Although not directly focused on capacity, the investments #1 and #8 may bring capacity benefits if duly implemented. The capacity plan provided in the NOP includes measures agreed between the ANSP and eNM and focuses on the operational procedures, airport integration, ATFM, staffing management and airspace changes. Those measures are expected to deliver required capacity between 2020 and 2021. Towards the end of the RP3, the capacity gap will become gradually worse. Some of the investments could be only implicitly linked to the capacity enhancement measures.

Investment #1 may support capacity enhancement relevant functionalities through implementation of SESAR solutions and EAAS recommendations, which could be linked to the capacity enhancement measures for RP3 introduced in the NOP. From the description provided in the performance plan and Annex E, it is not clear whether this investment relates to the CANAC2 hardware upgrade introduced within the NOP (it is assumed so in this assessment).

Investment #8 may support capacity relevant functionalities at Brussels airport through implementation of SESAR solutions (such as AMAN).

Most of the investments projects (main and other new and existing) are related to infrastructure development and replacement of end-of-life equipment.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

Most of the investment projects are related to infrastructure development and replacement of end-of-life equipment.

Investment #1 is listed in the in the NOP. It is expected to deliver benefits from 2020/2021. The project is planned to enter service in 2024. Based on the description provided in the performance plan and the implicit link to the NOP capacity enhancement measure (CANAC2 hardware upgrade), all operational and capacity aspects are duly considered.

Investment #8 is not listed in the NOP but may provide additional capacity at Brussels airport and support implementation of Enhanced AMAN and ATFCM measures.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

The relevant information is provided in the performance plan and in its Annex E. The capacity related expenditures are planned to start with projects' implementation and entry into operations. The main part of the investment projects #1 and #8 are going to bring benefits to airspace users in the first half of the RP3.

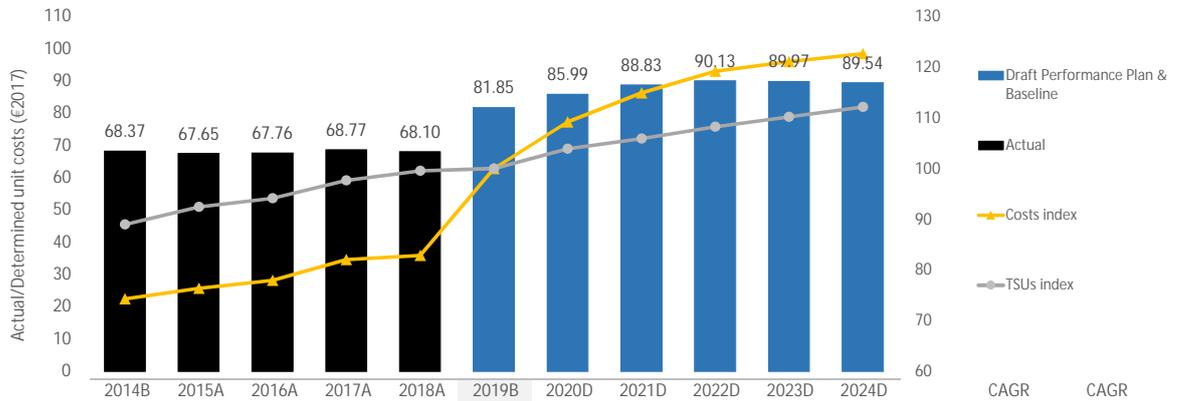
3.5.4 PRB Key Points

- Some new investments above 5M€ listed in Annex E of the performance plan are not included in the section "new major investments".
- Skeyes includes a drone detection investment as other new investments.
- Skeyes does not provide performance related benefits while justifying its investments.
- Most of the investments projects (main and other new and existing) are related to infrastructure development and replacement of end of life equipment.

BELGIUM

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	156	161	166	178	184	-	249	267	281	291	300	-	+6.8%
Total costs	M€ (2017)	161	166	169	178	180	217	237	250	259	263	267	+4.2%	+5.1%
TSU	'000	2,362	2,454	2,500	2,594	2,644	2,654	2,759	2,811	2,873	2,925	2,978	+2.3%	+2.3%
AUC/DUC	€ (2017)	68.37	67.65	67.76	68.77	68.10	81.85	85.99	88.83	90.13	89.97	89.54		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	68.37	67.65	67.76	68.77	68.10	81.85	85.99	88.83	90.13	89.97	89.54		
Annual change	%		-1.1%	+0.2%	+1.5%	-1.0%	+20.2%	+5.1%	+3.3%	+1.5%	-0.2%	-0.5%	+1.8%	+2.7%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	81.85 €2017	✘
--	-------------	---

The 2019 TSU baseline is in line with STATFOR 2019 February base forecast (M3). The 2019 forecast costs amount to 217M€2017, which is +37.2M€2017 (+20.7%) higher than the 2018 actual cost. This is partially justified due to a new costs allocation between en route and terminal (which has been included in the forecast instead of in the baseline).

The 2019 forecast costs amounts to 217M€2017 which is +37.2M€2017 (+20.7%) higher than the 2018 actual costs. This is a significant increase, especially when considering that in the first four years of RP2, Belgium actual costs were always lower, in real terms, than the RP2 determined costs. Moreover, the cost allocation methodology of skeyes for the approach services and supervision has been modified for RP3 to better reflect the operational requirements (see Annex M of the performance plan). This change in the methodology compared to the previous reference period corresponds to a transfer of 14.1M€2017 from the terminal charging zones to the en route charging zone. This change of allocation has been applied to the 2019 forecast while it should have been applied to the 2019 baseline in order to isolate the effect of this change.

4.1.3 Summary of cost-efficiency assessment results

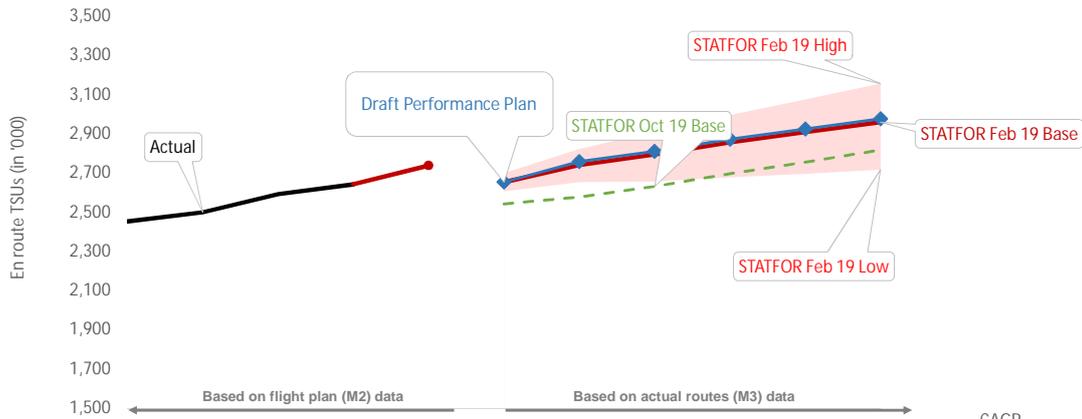
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	1.8%	✘
Belgium proposes a +1.8% trend, increasing the DUC over the RP3 period. The proposed trend deviates by 3.7 p.p. from the Union-wide RP3 DUC trend target (-1.9%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	2.7%	✘
The long-term DUC trend amounts to +2.7% and deviates by 5.4 p.p. from the Union-wide trend.		
c) DUC level (2019 baseline) lower than the average of comparator group (E) average (72.16 €2017)?	+13.4%	✘
The DUC level is +13.4% higher than the average of the comparator group for the 2019 baseline and +29.3% higher in 2024.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets as proposed by Belgium should not be approved.

- Belgium does not meet any of the cost-efficiency criteria.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	2,454	2,500	2,594	2,644								
Annual change	%		+1.9%	+3.7%	+1.9%								
STATFOR Feb 19 Base	'000 TSUs					2,739	2,654	2,742	2,795	2,858	2,910	2,960	+2.2%
Annual change	%					+3.6%	+0.4%	+3.3%	+1.9%	+2.3%	+1.8%	+1.7%	
STATFOR Oct 19 Base	'000 TSUs					-	2,543	2,578	2,632	2,697	2,757	2,819	+2.1%
Annual change	%					-	-3.8%	+1.4%	+2.1%	+2.5%	+2.2%	+2.2%	
Performance Plan	'000 TSUs						2,654	2,759	2,811	2,873	2,925	2,978	+2.3%
Annual change	%						+0.4%	+3.9%	+1.9%	+2.2%	+1.8%	+1.8%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient		Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
		3 months	12 months		L	B	H	
2019B (PP baseline, M3)	2,654			2019B (PP baseline, M3)		2,654		
2019F (as in the Reporting tables, M2)	2,654			2019F (STATFOR Feb 19, M3)	2,607	2,654	2,699	=B
2019B/ 2019F	0.00%	-3.10%	-3.13%	2019F (STATFOR Oct 19, M3)	2,534	2,543	2,551	+4.36%

- The 2019 TSU baseline is in line with STATFOR February 2019 base forecast (M3). This is a +4.36% higher than the October 2019 base forecast (M3).
- The 2019 traffic baseline used in the performance plan is the same as the 2019 forecast in the reporting tables despite the fact that they should be calculated according to M3 and M2 methodologies, respectively.
- The year-to-date (up to end of October) traffic evolution shows a decrease in traffic of -0.8% compared to the same period of 2018.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? **No**

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Belgium used the STATFOR May 2019 forecast for the year 2020, which is slightly higher than the February forecast and then have applied the annual growth rates foreseen in the STAFTOR February forecast the rest of the RP3 period.

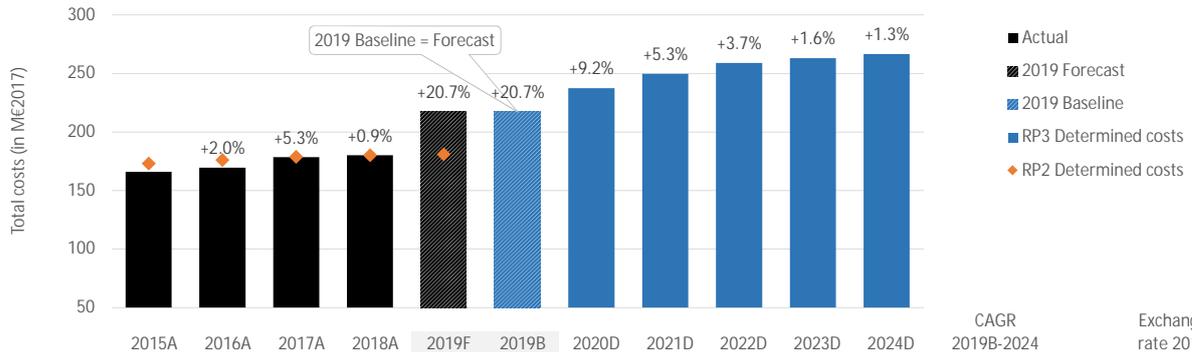
Review of the PP traffic forecast

Belgium uses a more recent but partial traffic forecast based on the STATFOR May 2019 forecast. By doing so, the CAGR between 2019 and 2024 is 2.3%, which is slightly higher than the +2.2% CAGR of the STATFOR February 2019.

4.2.4 PRB Key Points

- The traffic forecast is not in line with the STATFOR February 2019 base forecast.

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	161	166	178	184	225	-	249	267	281	291	300	-	€:€
Annual change	%		+3.5%	+7.2%	+2.9%	+22.7%	-	-	+7.1%	+5.4%	+3.3%	+3.1%	+1.9%	1.00000
Inflation index	2017 = 100	96.1	97.8	100.0	102.3	104.2	104.2	105.9	107.9	110.0	112.1	114.3		
Total costs	M€ (2017)	166	169	178	180	217	217	237	250	259	263	267	+4.2%	
Annual change	%		+2.0%	+5.3%	+0.9%	+20.7%	+20.7%	+9.2%	+5.3%	+3.7%	+1.6%	+1.3%		
Total costs	M€ (2017)	166	169	178	180	217	217	237	250	259	263	267	+4.2%	

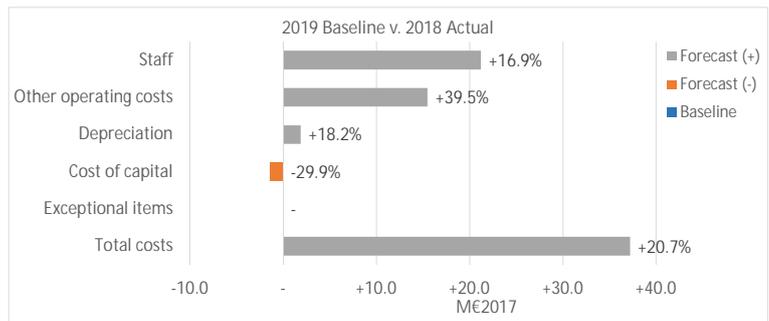
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

The index deviation by 2024 is only -0.01 p.p. due to rounding

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+37.2	+20.7%
2019F v. 2019 RP2 DC	+36.4	+20.1%
2019F v. average 2015-2018	+43.8	+25.2%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast costs amount to 217M€2017, which is +37.2M€2017 (+20.7%) higher than the 2018 actual costs, +20.1% higher than the 2019 determined costs and +25.2% above the average of the 2015-2018 actual costs. This is a significant increase, especially when considering that in the first four years of RP2, Belgium actual costs were always lower, in real terms, than the RP2 determined costs.

According to the information provided in the performance plan, the 2019 forecast/baseline values have been estimated by using the latest actual costs available and increased based on the following factors:

- Additional recruitments of staff to support the investments projects, with a significant portion coming from compulsory replacements (business continuity) and/or legal obligations;
- Social agreements on business continuity with unions;
- Additional recruitments of aspirant-ATCOs to ensure business continuity and prepare the wave of pre-retirement in the period 2020-2024;
- Increase of training costs due to the recruitment of additional ATCOs;
- Conclusion of new maintenance contracts for equipment and infrastructure not foreseen in 2014;
- Evolution of risk exposition to claims and court decisions requiring financial provisions;
- Increased depreciation charges due to (i) full time impact of 2018 investments, (ii) finalisation of assets under construction initiated before 31 December 2018 and (iii) new investment initiated or rolled-out during 2019.

Additionally, the cost allocation methodology of keyes for the approach services and supervision has been modified for RP3 to better reflect the operational requirements (see Annex M of the performance plan). This change in the methodology compared to the previous reference period corresponds to a transfer of 14.1M€2017 from the terminal charging zones to the en route charging zone. This change of allocation has been applied to the 2019 forecast while it should have been applied to the 2019 baseline in order to isolate the effect of this change.

2019 baseline analysis

The 2019 baseline costs are in line with 2019 forecast costs, in real terms. As mentioned above, the effect of the change in cost allocation method should have been excluded from the 2019 forecast and should have been included in the 2019 baseline since it is not a genuine cost for the year 2019 and should be included only to facilitate comparison with RP3.

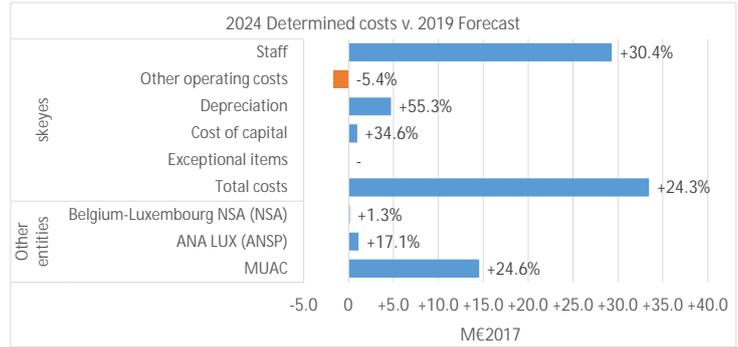
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 📌 Investments (see details in 3.5)
- ✅ Cost of capital (see details in 4.3.1)
- ✅ Pension costs (see details in 4.3.2)
- 📌 Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



Skeyes costs in 2024 are +24.3% or +33.5M€2017 higher than in 2019. Although there are significant increases in all cost categories, except other operating costs, the main driver for the overall increase are staff costs (+30.4%, or +39.6M€2017).

According to the performance plan, skeyes indicates that the staff costs base is planned to increase strongly for ATCO and non-ATCO by the end of 2024 (+35M€ and +26M€ respectively) due to an increase in ATCO population (+18% FTE by the end of RP3) for capacity reasons and to compensate the 20% of ATCOs population that will be in early retirement period. The increase of non-ATCO costs is related to a strengthen the corporate functions and 24 new technicians that will contribute to the projects reflected in the investment plan. Additionally the pay roll evolution is foreseen to a 3% increase annual.

According to the performance plan, during RP3 skeyes will invest more than +212M€ in various projects. This CAPEX plan will result in a net increase of depreciations costs of +7M€ in the determined costs base by 2024. Skeyes indicates that the major impact, from an operational point of view, of some of these investments will arrive in RP4.

Regarding the other ANSPs, there is an increase in the costs for both ANA LUX (+17.1% or +1.1M€2017) and MUAC (+24.5% or +14.6M€2017). MUAC costs increase due to:

- a new social agreement that will increase productivity and therefore capacity in RP3;
- the share of the MUAC budget allocated to Belgium derived by the complexity of the Brussels sector; and
- the increase of costs since a number of cost items (tax on pensions and support costs) - which were MUAC-related but which were previously paid by all Eurocontrol States through the general Eurocontrol budget - would be paid progressively by the four MUAC States through the MUAC budget, for Belgium (+12M€ in 2020 up to +29M€ in 2024) related to pension and support costs (+5M€).

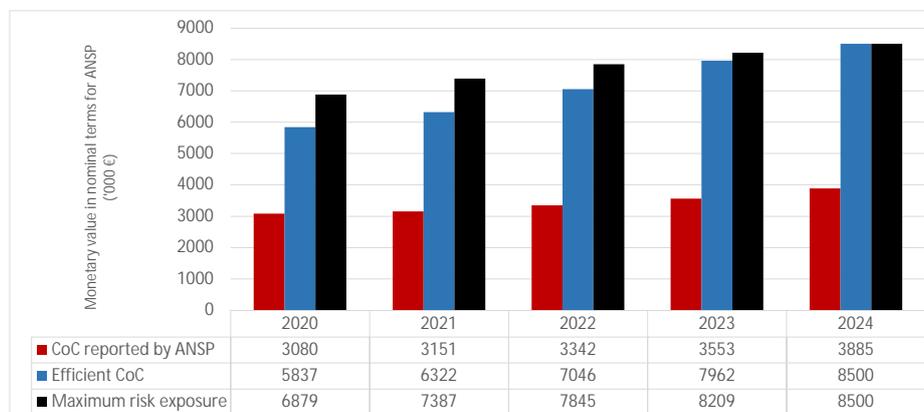
4.3.4 PRB Key Points

- The 2019 forecast costs amounts to 217M€2017 which is +37.2M€2017 (+20.7%) higher than the 2018 actual costs. This is a significant increase, especially when considering that in the first four years of RP2, Belgium actual costs were always lower, in real terms, than the RP2 determined costs. There is a new costs allocation between en route and terminal which partially justifies the increase in the baseline (+14.1M€2017).
- Staff costs increase (+30.4%) is the main driver for the Skeyes determined costs increase for RP3 (+24% or +33.5M€2017).

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	156,333	167,897	178,286	186,577	193,176
Monetary value of Return on Equity	3,007	2,998	3,136	3,187	3,485
Ratio RoE/DC (%)	1.9%	1.8%	1.8%	1.7%	1.8%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	3.1%	7.2%	3.1%	7.3%	3.1%	7.5%	3.1%	7.6%	3.1%	3.4%
Interest on debts	1.4%	1.9%	1.4%	2.2%	1.4%	2.4%	1.4%	2.5%	1.4%	1.6%
Capital structure (% debt)	5.0%	29.4%	10.0%	29.6%	12.5%	29.6%	20.0%	29.5%	20.0%	29.5%
WACC	3.0%	5.6%	2.9%	5.8%	2.8%	6.0%	2.7%	6.1%	2.7%	6.0%

Is the interest on debts in line with the market? **Yes**

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices. In order to lower the weighted average cost of capital and to dilute the cost of equity in this calculation over RP3, 45% of the new investments will be financed through debt by assumption.
- The efficient cost of capital is computed in line with competitive market practices and with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	87,280	97,832	112,410	125,314	136,778
Net current assets	16,500	11,391	5,114	5,294	6,066
Adjustments total assets	0	0	0	0	0
Total asset base	103,780	109,223	117,523	130,608	142,844

- The fixed asset base will increase over the period. This is in line with the increase of new major and other investments described in section 3.5 of this document, partially offset with the decrease in existing investments.
- The net current assets do not present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over RP3, this is mainly driven by an increase in the fixed asset base.

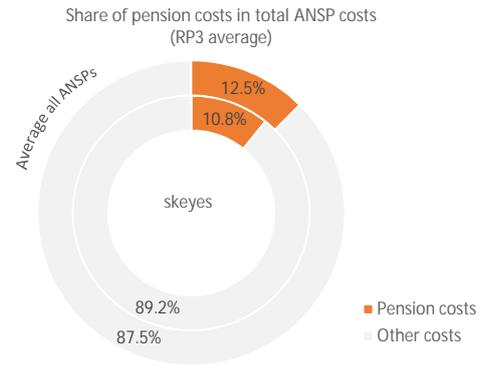
4.3.A.5 PRB Key Points

- The cost of capital is in line with the efficient calculated cost of capital and it is lower than the maximum risk exposure. ✓

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	15.4	16.5	17.5	18.4	19.2
Year on year variation	% change		+7.2%	+6.1%	+5.1%	+4.5%
Share in total ANSP costs	%	10.4%	10.5%	10.7%	10.9%	11.2%
Year on year variation	p.p.		0.2p.p.	0.2p.p.	0.2p.p.	0.3p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

"skeyes has a defined contribution pension scheme for members of the Executive Committee which are contractual employees. Skeyes pays premiums to an insurance company under an extra group insurance contract."

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

"skeyes has a defined benefit scheme for contractual staff members (excluding the Executive Committee). Skeyes pays premiums to an insurance company under an extra group insurance contract."
No information is provided in the performance plan regarding the main actuarial assumptions.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

No specific action is described in the performance plan apart of indicating that the pension costs have been determined based on existing regime.

4.3.B.4 PRB Key Points



- The increase in pensions costs are related to the increase in the number of staff.
- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Skeyes has an activity-based costing system and has created cost/activity centres in order to dispose of financial information. As a general principle, as many costs as possible are allocated directly to the appropriate cost/activity centre. The cost centres have been structured in different groups: CEO & Staff, Operations (ATS, Meteo & AIS), Equipment, Finance & administration and Buildings. Allocation keys are defined based on the general principle that every user (internal customer) is paying for the requested services.
- Certain expenses are directly allocated to en route, i.e.: staff cost of controllers for en route, staff cost of engineers working on development and maintenance of systems for en route, assets and depreciation of equipment and systems used in ACC.
- Some expenses are shared between terminal and en route, i.e.: staff costs, insurances, HR department etc.
- Allocation keys vary with the nature of the cost, which could be number of positions, number of controllers, number of m², frequencies, time spent etc.
- Skeyes have changed the cost allocation from RP2 to RP3 for approach services and NSA supervision allocation. The impact on the baseline for the approach service is a transfer of +14.6M€2017 from the terminal charging zones, while for NSA supervision allocation equals -0.5M€2017.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes
If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

Yes
If yes, description and justification of the changes from RP2 to RP3 specified in the PP

Belgium does not specify the allocation percentages. However, Belgium provides the following explanation of the changes:
For approach services, in RP2, the allocation mechanism was to estimate the total volume of airspace it controls and to deduct a “cylinder” representing a radius of 20 km around an airport to obtain the en-route costs.
The reasons are:
- In terms of the approach controllers’ workload, services provided for arrivals are significantly higher than those provided for departures;
- Splitting costs between the two cost bases based on volume of airspace using the 20-km cylinder does not closely follow operational practices. The method used in RP2 thus assigns a disproportionate part of approach cost to the terminal cost base.
Assigning the costs of approach services to the en route cost base while keeping the aerodrome control services within the terminal cost base, similarly as is currently done in Germany, Sweden, Poland, Denmark or the Netherlands, is more aligned with the operational practices in Belgium than the methodology used during RP2.
For supervision services: In RP2, the cost of BSA-ANS were allocated proportionally to the cost base of each charging zone and of each final product. However, the cost allocation methodology for supervision costs will be adapted for RP3 to better reflect the workload related to each charging zone and to each regional airport. The cost allocation key is based on the proportion of notifications of changes with potential impact on safety related to each unit (ACC, APP, TWR) during the last 3 years.

2.2. Are these changes in cost allocation duly described and justified?

Yes
If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline?

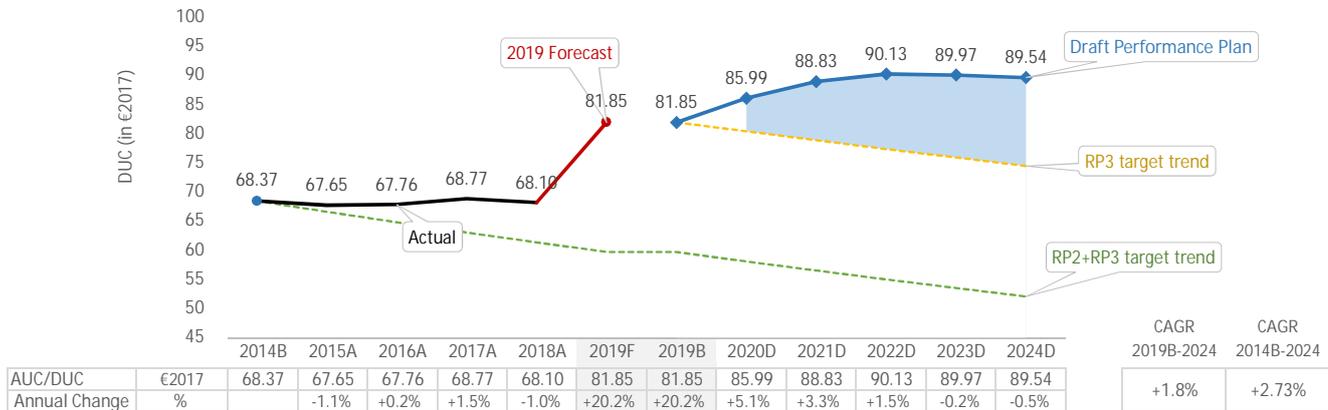
Yes
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

The change in the methodology compared to the RP2 corresponds to a transfer from the terminal charging zones to the en route charging zone. The impact on the baseline (which has been wrongly included in the 2019 cost forecast) is an increase in en route costs of +14.1M€2017.

4.3.C.3 PRB Key Points 1

- Belgium has changed the cost allocation methodology with respect to RP2 for approach and supervision services. This change in the methodology compared to the RP2 corresponds to a total transfer in 2019 of 14.1M€2017 from the terminal charging zones to the en route charging zone.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	+1.8%	Union-wide trend	-1.9%	Difference	+3.7p.p.
PP trend	+2.7%	Union-wide trend	-2.7%	Difference	+5.4p.p.
PP 2019 baseline	81.85	Average comp. group	72.16	Difference	+13.4%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Belgium proposes a DUC trend over the RP3 period equal to +1.8%. The proposed trend deviates by +3.7 p.p. from the Union-wide RP3 DUC trend target (-1.9%).

The 2014-2024 DUC trend amounts to +2.7% and deviates by +5.4 p.p. from the Union-wide long-term trend. It is noted that the 2014 DUC baseline has not been computed using the M3 traffic coefficient. If this would have been the case, the long-term trend would have been +2.4%. It is noted as well that the long-term trend does not take into account the en route terminal change in allocation (the estimated long-term trend would be around +1.5%, hence still not achieving the Union-wide trend).

The DUC level is +13.4% higher than the average of the comparator group for the 2019 baseline and +29.3% higher in 2024.

Belgium indicates that it will be impossible to achieve the Union-wide costs efficiency target for the following reasons:

- The complexity of the Belgian-Luxembourg airspace;
- Change of methodology for billing of service units;
- For skeyes:
 - strengthening the ATCO workforce to improve business continuity and increase capacity;
 - ageing of the ATCOs workforce;
 - investment plan in equipment;
 - investments in resources (non ATCO);
 - pay roll evolution.
- For MUAC:
 - Investments in productivity to increase capacity in RP.

The cost deviations from the cost-efficiency trends are not analysed since the capacity targets are not consistent (more details in section 3.2 of this document).

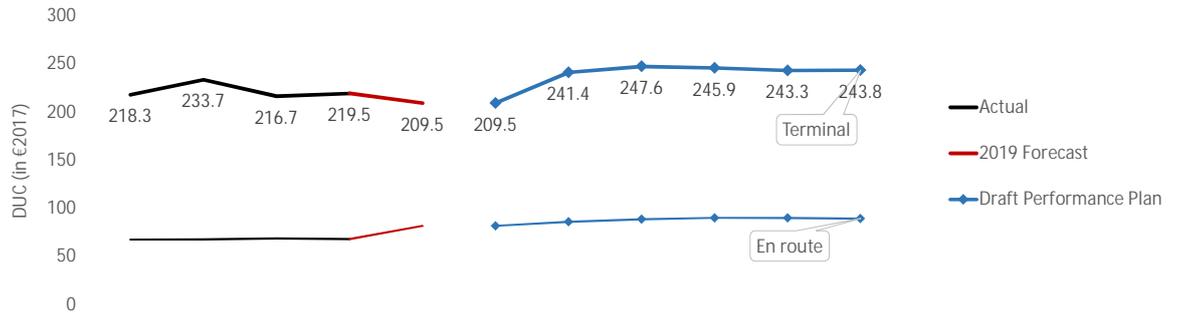
4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- Belgium is not meeting any of the cost-efficiency criteria.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal	€2017	218.3	233.7	216.7	219.5	209.5	209.5	241.4	247.6	245.9	243.3	243.8	+3.1%	-1.0%
Annual Change	%		+7.1%	-7.3%	+1.3%	-4.6%	-4.6%	+15.3%	+2.5%	-0.7%	-1.1%	+0.2%		
AUC/DUC - En route	€2017	67.6	67.8	68.8	68.1	81.8	81.8	86.0	88.8	90.1	90.0	89.5	+1.8%	
Annual Change	%		+0.2%	+1.5%	-1.0%	+20.2%	+20.2%	+5.1%	+3.3%	+1.5%	-0.2%	-0.5%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Brussels (EBBR)	GROUP I	139.5	224.1	+60.6%	130.5	246.0	+88.6%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The unit cost for Brussels (EBBR) was significantly higher than the median of their comparator group during RP2 (+60.6%) and the difference with respect to the median of the comparator group becomes even higher during RP3 (+88.6%).

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	164.5			
2019F (STATFOR Feb 19)	L 161.3	B 163.5	H 165.6	+0.61%
2019F (STATFOR Oct 19)	L 159.3	B 159.9	H 160.5	+2.88%

Costs

2019 forecast & baseline review	Mc2017	%
2019 Forecast v. 2018 Actual	-1.2	-3.4%
2019 Forecast v. Avg. 2015-2018 Actual	-0.2	-0.6%
2019 Baseline v. 2019 Forecast	0.0	+0%

The 2019 traffic baseline is +0.62% higher than the STATFOR February 2019 forecast.

The 2019 forecast costs baseline is lower (-3.4%) than the 2018 actual costs. The main driver for a lower 2019 forecasts costs, compared to 2018, is the new cost allocation methodology of skeys for the approach services. This change in the methodology compared to the previous reference period corresponds to a transfer of 4.9Mc2017 from EBBR terminal charging zones to the en route charging zone.

It is noted that the change in the methodology should have been included in the baseline value and not in the forecasted one.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

No justifications provided

Review of the PP traffic forecast

No justification is provided for not using the February forecast but the difference is very low. Additionally, the STATFOR October 2019 forecast is +2.88% higher.

Determined costs (terminal)

Is inflation in PP in line with IMF (April 2019 forecast)?

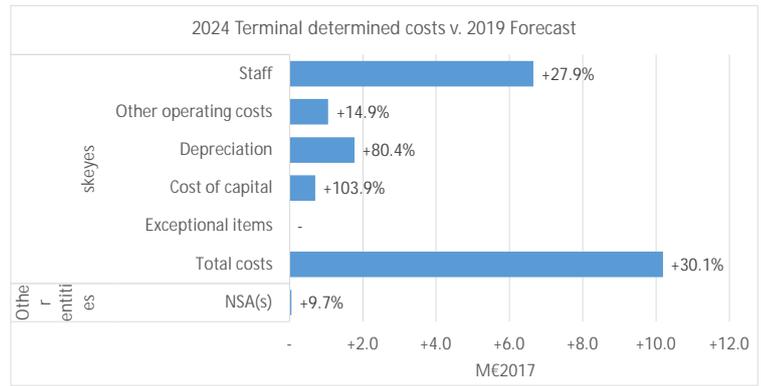
Deviation from index < 1p.p. in 2024

Cost elements - skeyes (terminal)

- Investments (see details in 3.5)
- Cost of capital
 - Interest on loans
 - RoE
 - WACC
- Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.125%
Maximum penalty (% of determined costs)	0.500%
Additional incentives?	No



- The share of terminal investment costs (23%) is slightly higher than the share of terminal total costs (21%).
- Terminal WACC and its parameters are equal to the ones used for en route.
- The terminal DUC trend over RP3 planned for Belgium TCZ (+3.1%) is much higher than that planned for en route (+1.8%).
- Although there is a new cost allocation that transfer some of the terminal costs to en route, over RP3 the terminal costs for skeyes are planned to increase by +30.1% (+10.2 ME2017). The drivers behind this planned increase, especially linked to the evolution of staff costs (+27.9%, or +6.7 ME2017), are similar to those described in details for en route.

4.5.4 PRB Key Points



- The Terminal RP3 DUC trend is +3.1%, which is worse than the en route RP3 DUC trend of +1.8%.
- The Terminal RP3 DUC trend is +3.1%, which is worse than the Terminal RP2 DUC trend of -1.0%.
- Brussels airport, the only airport included in the scope of the performance plan, had a DUC 60.6% higher than the average of its comparator group over RP2. The difference is expected to become +88.6% over RP3.
- Belgium used a custom forecast for terminal traffic. The baseline for this forecast is slightly higher (+0.61%) than the STATFOR February 2019 base forecast. The forecast for terminal traffic is not in line with the STATFOR February 2019 base forecast, for each year from 2020 to 2024.
- Despite the change in cost allocation, which moved costs from terminal to en route, terminal costs are planned to increase over the period mainly due to an increase in staff costs.

PRB Assessment

FRANCE

Draft Performance Plan

Context and scope

France

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21.11.2019
 Documents no: 1760, 1761, 1413, 1447, 1416, 1454, 1448, 1422, 1459, 1481, 1450, 1441, 1440, 1475, 1482, 1460, 1451, 1465, 1419, 1437, 1439, 1462, 1471, 1480, 1455, 1466, 1762

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 15.0%

% Costs V. SES 17.7%

Scope

FAB: FABEC

ANSPs: DSNA
Météo France

ATM
MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): French Civil Aviation Authority, Air Transport Directorate

Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	France	n/a	No	No	No	
Terminal	France - Zone 1	2	No	No	No	
	France - Zone 2	56	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group A Other States in the comparator group: Germany, Italy, Spain, United Kingdom

Currency: € Exchange rate: 1.00000

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
DSNA	Safety policy and objectives					C
	Safety risk management					D
	Safety assurance					C
	Safety promotion					C
	Safety culture					C

PRB Assessment

The PRB concludes that the safety targets proposed by France should not be approved.

- France did not provide the EoS targets for 2020-2023.
- France did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- France did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	3.33%	3.33%	3.33%	3.15%	3.00%

PRB Assessment

The PRB concludes that the environment targets proposed by France should not be approved.

- DSNA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
Breakdown values for <u>en route</u> ATFM delay per flight (min)	3.12	2.52	2.00	1.91	1.29
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.40	0.40	0.40	0.40	0.40

PRB Assessment

The PRB concludes that the capacity breakdown values proposed by France should not be approved.

- The capacity breakdown values are not reaching the reference values each year of RP3.
- The proposed breakdown values are below the NOP delay forecast values in each year of RP3, however, the forecasts do not fully take into account all the capacity enhancement measures proposed in the performance plan.
- There is an inconsistency between measures provided in the Performance plan with a 30 to 50% increase in capacity, the ANSP breakdown values proposed, and the planned capacity profiles in the NOP. If capacity enhancement measures are implemented successfully, the capacity gap could be closed.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	58.94	58.28	57.30	56.29	55.66	-1.6%	-1.4%
Target for determined unit cost (DUC) (€2017) - Terminal						n/a	-1.6%
						n/a	-1.4%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by France should not be approved.

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group.
- Deviation for cost-efficiency trends to achieve capacity targets is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document).

PRB Recommendations

SAFETY

- France should define the EoSM safety targets for each year of the reference period.
- France should define measures for the management objectives to achieve the RP3 safety targets levels.
- France should describe how the independencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

ENVIRONMENT

- France should revise its approach to addressing capacity and staffing issues expected until 2023. France expects it will be unable to meet its national reference values, also plans for a capacity increase which should have a bigger impact on environment performance since ATCOs could have more time to offer direct routings (this assumption seems to be backed by the FABEC performance plan).
- France should strongly consider its capacity plans and ensure it matches the anticipated demand in an optimal manner (given the performance plan does not aim to achieve the 2019 NOP reference values for any year of RP3 despite it also stating that capacity issues may impact environmental performance).
- France should ensure the application of the FUA concept is homogenised to ensure continuous data flows concerning the environmental performance indicators and to minimise the impact on civil airspace users.
- France should revise its environment targets in order to achieve consistency with its national reference values in line with the above recommendations.

CAPACITY

- France should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay breakdown values to achieve consistency with Union-wide targets.
- France should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.
- France should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- France should decrease the RP3 costs in order to meet the cost-efficiency criteria, or, alternatively, to revise the capacity targets and justify the balance between cost, capacity and traffic.
- France should justify the terminal RP3 cost-efficiency targets with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

FRANCE

Safety KPA

1.1.1 Target for EoSM for ANSPs

The targets for the Safety KPA are incomplete, i.e. the targets are missing for 2020-2023.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3.

Additionally, it is considered that the measures are not sufficiently described in the performance plan.

1.1.3 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM functional system on interdependencies and trade-off with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.1.4 Change Management

Detailed change management processes and transition plans compliant with Commission Implementing Regulation (EU) 2017/373 are described. The described processes provide assurance that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by France should not be approved.

- France did not provide the EoSM targets for 2020-2023.
- France did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- France did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
DSNA	Safety policy and objectives	✗	✗	✗	✗	C	✓	
	Safety risk management	✗	✗	✗	✗	D	✓	
	Safety assurance	✗	✗	✗	✗	C	✓	
	Safety promotion	✗	✗	✗	✗	C	✓	
	Safety culture	✗	✗	✗	✗	C	✓	

The interim EoSM targets have not been defined for 2020-2023. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any specific measures but explains that "Regular exchange amongst experts in the FABEC Safety Performance and Risk Coordination (SPRC) TF three times a year as permanent agenda item. Furthermore, within the yearly FABEC Performance Monitoring Reporting (Report) EoSM results of the previous year are gathered and monitored. Weaknesses/major discrepancies will be spotted and counteracted by the responsible six NSAs."

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3. Additionally, it is considered that the measures are not sufficiently described in the performance plan.

1.3.1 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-offs with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.3.2 Change Management Practices

Change management practices and transition plans for the entry into service of major airspace changes or for ATM system improvements are handled with MSP method (Managing Successfully Programs) established by DSNA.

Additionally, specific safety orientated approach was developed, called "Integrated Safety Approach". The program aims to improve the Safety Management System for better handling: safety event analysis in the safety studies, harmonise and optimise safety studies, capitalise on the analysis results of the findings, better handling the human factor element in the functional system. The new approach is compliant with the Commission Implementing Regulation (EU) 2017/373.

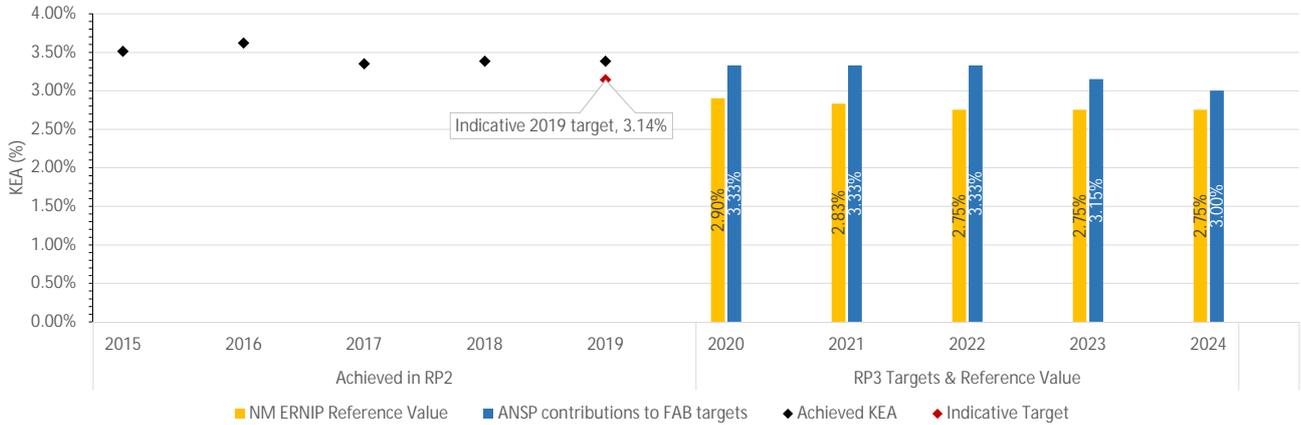
All described processes provide assurance that the new implementation will be conducted in a manner that it minimises any negative impact on the network performance.

FRANCE

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Draft FABEC targets	3.25%	3.25%	3.25%	3.15%	3.00%
ANSP reference values	2.90%	2.83%	2.75%	2.75%	2.75%
ANSP contributions to FAB targets	3.33%	3.33%	3.33%	3.15%	3.00%
Comparison of ANSP contributions with ANSP reference values	▲0.43%	▲0.50%	▲0.58%	▲0.40%	▲0.25%
Consistency with ANSP reference values	✗	✗	✗	✗	✗



2.1.2 PRB Conclusions ✗

The PRB concludes that the environment targets proposed by France should not be approved.
 - DSNA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✘	Reference in PP	Reference in LSSIP
DSNA operates an ATS route network in lower and upper airspace. It does not plan for an initial FRA in across all five ACCs until 2023.			3.2.1(a)	Page 81
Major ERNIP Recommended Measures:		7	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(a)	Page 165
Implementation of Free Route Airspace Brest - Step 1		✔	3.2.1(a)	Page 173
Implementation of Free Route Airspace Brest - Step 2		✔	3.2.1(a)	Page 176
Implementation of Free Route Airspace Brest - Step 3		✔	3.2.1(a)	Page 173
Implementation of Free Route Airspace Marseille ACC		✔	3.2.1(a)	Page 173
Implementation of Free Route Airspace Reims		✔	3.2.1(a)	Page 173
Implementation of Free Route Airspace Paris		✔	3.2.1(a)	Page 167
Implementation of Free Route Airspace Bordeaux		✔	3.2.1(a)	Page 166
FUA Implementation according to latest LLSIP		Implementation		
	1	✔		
	2	✔		
	3	✔		

The chart in section 2.1.1 shows that France achieved a KEA of 3.38% in 2019. The indicative target is not valid for France since the difference in KEA on a national and ANSP level are very different due to the impact of MUAC. The ERNIP reference values were provided at an ANSP level for RP3 and therefore do not allow for a fair comparison since KEA is measured on a national level.

Individually, DSNA's environmental performance targets were set with a lower ambition than the national reference values assigned by the NM. The gap between the performance plan targets and the reference values is planned to reduce by the end of 2024 but remains considerably inconsistent with the reference values.

France acknowledges the importance of FUA and FRA to achieve the targets; but according to its latest LSSIP, the implementation of FRA is delayed. Full FRA implementation, supported by 4-Flight, is planned for completion in 2025. Initial FRA implementation in France has started according to the ERNIP plan (i.e. DCT routing compliance during RP2). This will be completed by the end of 2021 in Brest ACC Atlantic sector and Bordeaux ACC, in Paris ACC by 2022, and in Brest (full FRA) by 2023 along with Marseille and Reims ACCs.

France's FRA is mostly in line with the ERNIP in terms of timeframes. However, for some ACCs that should deploy 24-H FRA by the end of 2022, while France has planned for it to be deployed in 2023.

Besides FRA, France is planning the following significant initiatives to improve its environmental performance:

- New night DCTs;
- XMAN;
- Re-sectorisation;
- Improved interface with Geneva ACC.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does France plan for an environmental incentive scheme?	✘
France does not plan to apply an optional incentive scheme for the environment KPA.	

FRANCE

Capacity KPA

3.1.1 En route ATFM delay

Breakdown values are not following the ANSP reference values, although they are set significantly below NOP delay forecast values and show a decreasing trend. Capacity plans indicate that DSNAs will face a significant capacity gap during RP3 in all ACCs except Paris.

There is inconsistency in the performance plan regarding capacity enhancement measures (30-50% increase foreseen over the period) and proposed targets. The ANSP should update the capacity plan to show all improvements.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	2.69	2.09	1.68	1.68	1.06
2. NOP delay forecast is lower or equal to the PP capacity target	✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values?

Capacity target in the year 2024 is less than or equal to the 2024 reference value?

3.1.2 Arrival ATFM delay

The national target proposed for RP3 is constant and represents an improvement with respect to RP2 target and actual performance. However, this national target does not imply a proportional improvement of the targets at airport level due to planned works and implementations at Paris airports.

3.1.3 Incentives

En route capacity: Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values. Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB deadband; penalty only applicable if total FAB performance is worse than FAB dead band. Bonus could be paid out at approximately seven times delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal Incentives:

The French terminal incentive scheme modulates the pivot values according to CRSTMP causes and includes low bonus/penalty (0.50%) with the maximum dead band, which limits the impact of the incentive scheme.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Some of the investment projects may contribute to the capacity increase, however from the description of the projects' implementation timeline it is not clear whether benefits would materialise in RP3.

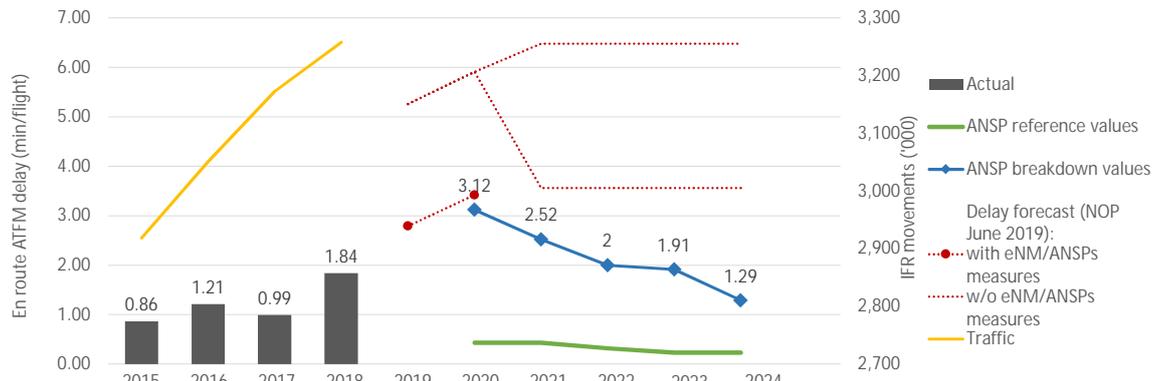
3.1.5 PRB conclusions



The PRB concludes that the capacity breakdown values proposed by France should not be approved.

- The capacity breakdown values are not reaching the reference values each year of RP3.
- The proposed breakdown values are below the NOP delay forecast values in each year of RP3, however, the forecasts do not fully take into account all the capacity enhancement measures proposed in the performance plan.
- There is an inconsistency between measures provided in the Performance plan with a 30 to 50% increase in capacity, the ANSP breakdown values proposed, and the planned capacity profiles in the NOP. If capacity enhancement measures are implemented successfully, the capacity gap could be closed.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight ✘



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+1.7%	+4.5%	+4.0%	+2.7%						
Actual ATFM delay per flight	0.86	1.21	0.99	1.84						
ANSP reference values						0.43	0.43	0.32	0.23	0.23
ANSP breakdown values						3.12	2.52	2.00	1.91	1.29
Forecast with eNM/ANSPs measures*					2.79	3.42				
Forecast w/o eNM/ANSPs measures*					5.26	5.91		3.56-6.48		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✘	✘	✘	✘
Deviation target v. reference value (minutes per flight)	2.69	2.09	1.68	1.68	1.06
2. NOP delay forecast is lower or equal to the PP capacity target	✘	✘	✘	✘	✘

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✔

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures. Measures concerning ATM systems:

- DataLink to be available from 2020, allowing for 10% capacity increase;
- ERATO implementation in Brest and Bordeaux ACC allowing for 5-25% capacity increase;
- 4Flight implementation in Reims and Marseille ACC in 2021/2022 allowing for 20-30% capacity increase, implementation in Paris ACC in March 2023, another 20-30% capacity increase;
- Final implementation of 4Flight from beginning of RP4.

Measures concerning human resources:

- 100 ATCO per year recruitment and training initiative ongoing, 130 ATCOs for 2020;
- Additional recruitment and training of ATCOs subject to decision on new social agreement (negotiation starts in 2019);
- New rostering and flexibility elements to be introduced, also subject to social agreement;
- ATCO productivity measures (transferring parts of the airspace to APPs, adaptation of local rostering, etc.);
- Reduction of the length of training by 15% until 2025, joint study on training with ENAC.

France concludes that all these measures combined allow for a 30-50% increase in capacity over the course of RP3. ATCO planning is not provided in the performance plan, however the performance plan refers to the material presented at the stakeholder consultation on ATCO numbers. The numbers included in the referred Annex C of the performance plan are, however, not in line with the above described measures.

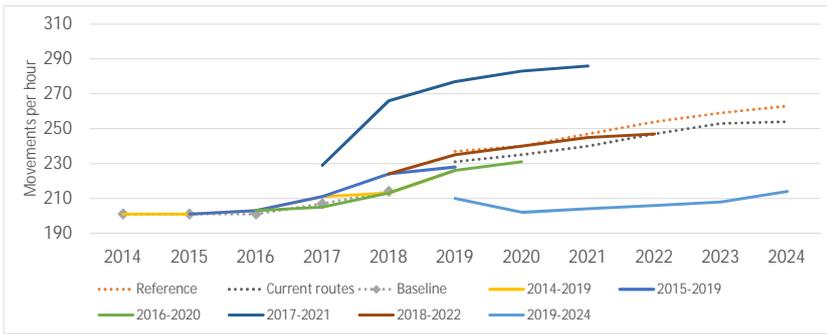
		2020P						
Total - DSNA (en route)	Additional ATCOs in OPS to start working in the OPS room	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	ATCOs in OPS to stop working in the OPS room	n/a	n/a	n/a	n/a	n/a	n/a	n/a

2024 (end) - 2020 (beg.)

n/a



Bordeaux ACC (LFBB)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						237	240	247	254	259	263
Current routes						231	235	240	247	253	254
Baseline	201	201	201	207	214						
2014-2019	201	201	203	211	213	226					
2015-2019		201	203	211	224	228					
2016-2020			203	205	213	226	231				
2017-2021				229	266	277	283	286			
2018-2022					224	235	240	245	247		
2019-2024						210	202	204	206	208	214

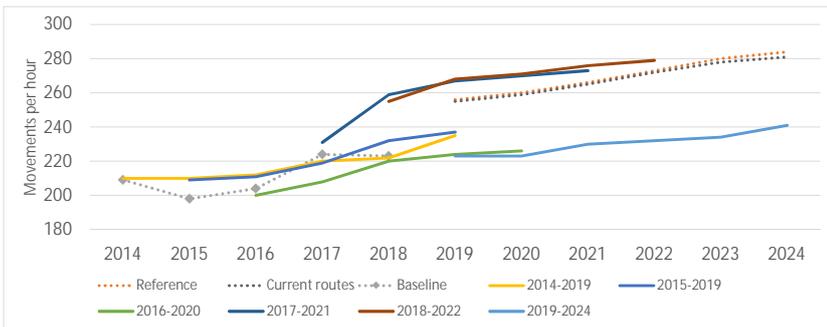
- Historical data shows that baseline value in RP2 grew by around 1.6% annually and that ANSP capacity plans were significantly above the baseline values for 2017 and 2018.

- The latest capacity plan for RP3 shows an average growth of 0.4% over the period, with an almost -4% decrease in 2020 followed by 1% increase in 2021-2023, and 2.9% increase in 2024.

- The latest capacity plan, when compared against the reference scenario, shows a significant capacity gap between -18.8% and -22.9% annually, during the RP3. When compared against the current routes profile, the capacity gap is slightly smaller (between -16.7% and -21.5%). Capacity gaps are increasing until 2023, followed by a minor decrease in 2024.

- Bordeaux ACC is expected to have a significant capacity gap throughout RP3, irrespective of the routes flown by airspace users.

Brest ACC (LFRR)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						256	260	266	273	280	284
Current routes						255	259	265	272	278	281
Baseline	209	198	204	224	223						
2014-2019	210	210	212	220	222	235					
2015-2019		209	211	219	232	237					
2016-2020			200	208	220	224	226				
2017-2021				231	259	267	270	273			
2018-2022					255	268	271	276	279		
2019-2024						223	223	230	232	234	241

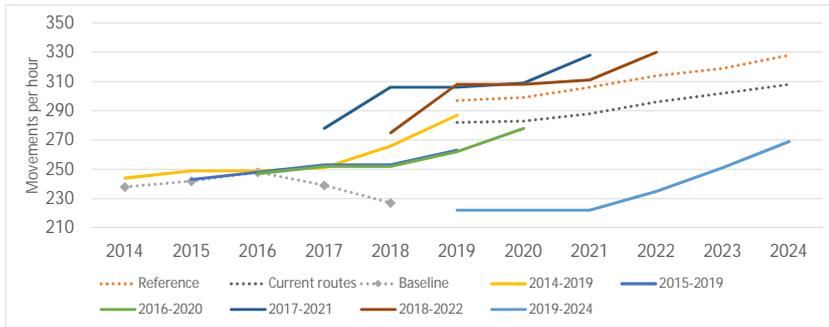
- Historical data shows that baseline value in RP2 grew by around 1.8% annually and that ANSP capacity plans were significantly above the baseline values for 2015 and 2018.

- The latest capacity plan for RP3 shows an average growth of .6% over the period, with no change in the years 2020, 2022 and 2023, and around 3% increase in 2021 and 2024.

- The latest capacity plan, when compared against the reference scenario, shows a significant capacity gap between -16.6% and -19.7% annually, during RP3. The capacity gaps is increasing until 2023, followed by a minor decrease in 2024. There is no significant difference between current routes and shortest routes profiles.

- Brest ACC is expected to have a significant capacity gap throughout RP3, irrespective of the routes flown by airspace users.

Marseille ACC (LFMM)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						297	299	306	314	319	328
Current routes						282	283	288	296	302	308
Baseline	238	242	248	239	227						
2014-2019	244	249	249	251	266	287					
2015-2019		243	248	253	253	263					
2016-2020			247	252	252	262	278				
2017-2021				278	306	306	309	328			
2018-2022					275	308	308	311	330		
2019-2024						222	222	222	235	251	269

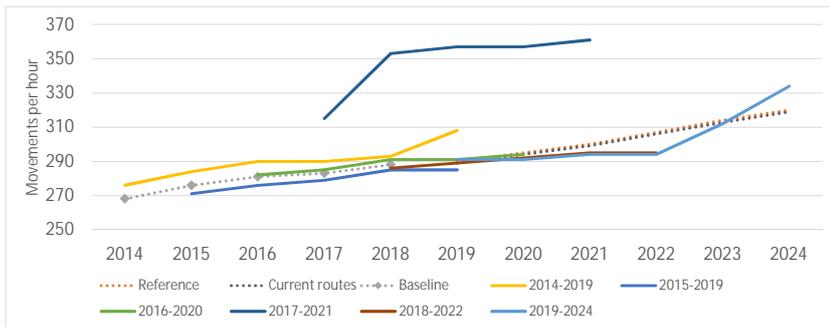
- Historical data shows that baseline value in RP2 grew by around 1.1% annually, with significant decrease in 2017 and 2018. ANSP capacity plans were significantly above the baseline values for 2017 and 2018.

- The latest capacity plan for RP3 shows an average growth of 4% over the period, with no change in the first two years and significant increases between 2022-2024.

- The latest capacity plan, when compared against the reference scenario, shows a significant capacity gap between -21.9% and -37.8% annually, during RP3. When compared against the current routes profile, the capacity gap is slightly smaller (between -14.5% and -29.7%). Capacity gaps are increasing in the first two years of RP3 and then decreasing between 2022-2024.

- Marseille ACC is expected to have a significant capacity gap throughout RP3. The capacity gap may be slightly smaller, if airspace users continue to fly according to the current traffic patterns.

Paris ACC (LFFF)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						290	295	300	307	314	320
Current routes						289	294	299	306	313	319
Baseline	268	276	281	283	288						
2014-2019	276	284	290	290	293	308					
2015-2019		271	276	279	285	285					
2016-2020			282	285	291	291	294				
2017-2021				315	353	357	357	361			
2018-2022					286	289	292	295	295		
2019-2024						291	291	294	294	312	334

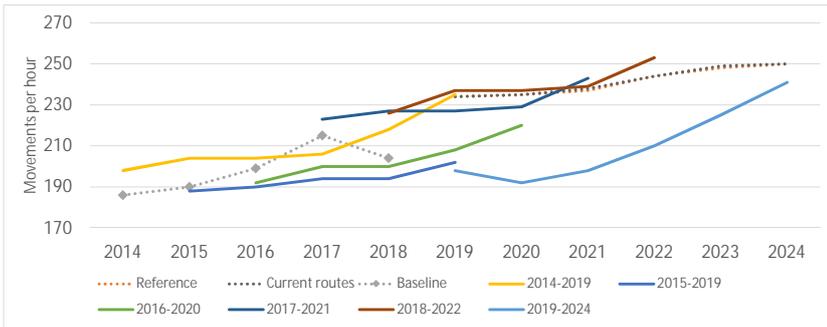
- Historical data shows that baseline value in RP2 grew by around 1.8% annually and that ANSP capacity plans were consistent with baseline values, except in 2017, when the planned value was significantly above the baseline value.

- The latest capacity plan for RP3 shows an average growth of 2.8% over the period, with the bulk of the increase taking place in 2023 and 2024 (6.1% and 7.1% respectively).

- The latest capacity plan only shows a minor capacity gap (-4.4%) in 2022 compared against the reference scenario (the current route scenario has no significant impact). In all other years of RP3, the gap is at or below -2%, with 2024 even showing 4.2% surplus.

- Paris ACC may experience a capacity gap in 2022, but is expected to close the gap by 2024.

Reims ACC (LFEE)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						234	235	237	244	248	250
Current routes						234	235	238	244	249	250
Baseline	186	190	199	215	204						
2014-2019	198	204	204	206	218	235					
2015-2019		188	190	194	194	202					
2016-2020			192	200	200	208	220				
2017-2021				223	227	227	229	243			
2018-2022					226	237	237	239	253		
2019-2024						198	192	198	210	225	241

- Historical data shows that baseline value in RP2 grew by around 2.5% annually, which includes a -5.1% drop in 2018. ANSP capacity plans were significantly above the baseline values for 2014, 2017 and 2018.

- The latest capacity plan for RP3 shows an average growth of 4.1% over the period, including a decrease of 3% in 2020, followed by increases in ranging from 3.1% in 2021 to 7.1% in 2024.

- The latest capacity plan, when compared against the reference scenario, shows a significant capacity gap between -3.7% and -22.4% annually, during RP3. There is a positive tendency in the plans, as the capacity gap is almost closed by 2024, finally settling on 3.7% in 2024. There is no significant difference between current routes and shortest routes profiles.

- Reims ACC is expected to have a significant capacity gap for most years in RP3, irrespective of the routes flown by airspace users. The capacity gap is expected to be reduced significantly over the period.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps !

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure

The performance plan contains reference to training more ATCOs and reducing the length of training.
- b) Measures proposed by the NM are implemented in the Performance Plan

The performance plan explicitly refers to the NOP measures and the measures, which are detailed in the performance plan are in line with the NOP and the NM proposed measures.
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM n/a

All the proposed measures are implemented.
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values

The performance plan contains no reference to additional measures proposed by the NSA.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)

ATCO numbers are not provided directly in the performance plan, however, are included in stakeholder consultation material, and are annexed to the performance plan. Measures also contain plans regarding ATCO training and recruitment. The numbers outlined under the capacity enhancement measures are seem to be inconsistent with the numbers provided for stakeholder consultations.
- f) Flexible use of operational staff is planned and ensured

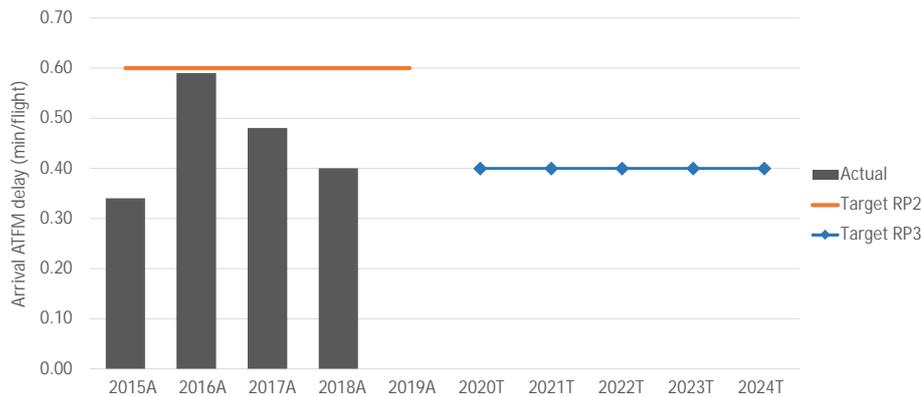
The performance plan contains measures aimed at flexible use of operational staff, as well as the introduction of a new rostering scheme. This is however still subject to the conclusion of a new social agreement, and thus only provisional.
- g) Limitations of ATM system/infrastructure is mitigated

The performance plan contains measures to overcome the present limitations of ATM systems and a significant capacity gain is foreseen once the new system elements are implemented fully.

3.2.6 PRB Key Points ✗

- Breakdown values are not following the ANSP reference values, although, they are set significantly below the NOP delay forecast values and show a decreasing trend.
- Capacity plans indicate that DSNA will face a significant capacity gap during RP3.
- There is inconsistency in the performance plan regarding capacity enhancement measures (30-50% increase foreseen over the period) and proposed breakdown values. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.34	0.59	0.48	0.40	-	0.40	0.40	0.40	0.40	0.40
Toulouse-Blagnac (LFBO)	0.26	0.41	0.21	0.24	-	0.30	0.30	0.30	0.30	0.30
Lyon-Saint-Exupéry (LFLL)	0.03	0.03	0.10	0.09	-	0.44	0.46	0.48	0.50	0.50
Marseille-Provence (LFML)	0.12	0.54	0.13	0.16	-	0.16	0.16	0.17	0.17	0.17
Nice-Côte d'Azur (LFMN)	0.23	0.20	0.20	0.27	-	0.40	0.40	0.40	0.40	0.40
Paris-Charles-de-Gaulle (LFPG)	0.35	0.53	0.34	0.28	-	0.80	0.80	0.80	1.10	1.10
Paris-Orly (LFPO)	0.96	1.90	1.40	1.38	-	1.20	1.30	1.30	1.30	1.20
Other airports (LFXX)	0.23	0.39	0.52	0.29	-	0.20	0.20	0.20	0.20	0.20

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

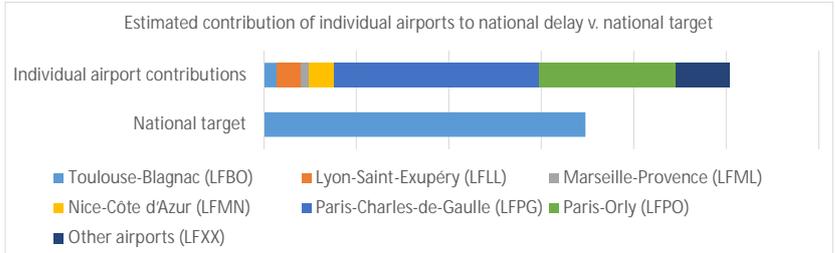
The national capacity targets have been set taking into account the actual RP2 performance for terminal capacity. They are set constant during RP3 and equal to the performance in 2018. The new targets represent an improvement with respect to the past targets for RP2 (33% lower arrival ATFM delays).

Nevertheless, when looking at the airports' breakdown, the proposed targets for the two main airports in terms of movements (Paris Charles de Gaulle and Paris Orly) is higher than their targets in RP2, and in the case of Charles de Gaulle, than the observed performance. These airports are planned to undergo several works, systems implementation or restructuring of airspace, which according to the performance plan will require ATFM regulations.

The performance plan uses a local forecast due to the impact of the bankruptcies of both French and foreign airlines. This local forecast however leads to the same yearly average growth as STATFOR Base over the period.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Toulouse-Blagnac (LFBO)	0.30
Lyon-Saint-Exupéry (LFLL)	0.48
Marseille-Provence (LFML)	0.17
Nice-Côte d'Azur (LFMN)	0.40
Paris-Charles-de-Gaulle (LFPG)	0.92
Paris-Orly (LFPO)	1.26
Other airports (LFXX)	0.20
National Target	0.40



According to the local breakdown per airport of the national target and the traffic distribution observed in RP2, the delay that would result with all airports performing as their local target for RP3 would be 30% more than the delay corresponding to meeting national target. That is, the national target is more restrictive than the local breakdown if similar traffic distribution would be to take place.

The higher targets for Paris Charles de Gaulle and Paris Orly are driving this higher contribution to delays from the individual airports than from the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Toulouse-Blagnac (LFBO)	GROUP III	0.25	0.28	+0.03	0.30	+0.05
Lyon-Saint-Exupéry (LFLL)	GROUP III	0.25	0.07	-0.18	0.48	+0.23
Marseille-Provence (LFML)	GROUP III	0.25	0.23	-0.01	0.17	-0.08
Nice-Côte d'Azur (LFMN)	GROUP II	0.22	0.22	+0.00	0.40	+0.18
Paris-Charles-de-Gaulle (LFPG)	GROUP I	0.87	0.37	-0.50	0.92	+0.05
Paris-Orly (LFPO)	GROUP I	0.87	1.41	+0.54	1.26	+0.19
Other airports (LFXX)	GROUP IV	0.01	0.36	+0.35	0.20	+0.19

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80000 and < 225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80000 and < 225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

During RP2, the performance of the main French airports, except Paris Orly, was similar or better than the performance of similar airports. Most of the new targets for RP3 at airport level are however worse than then past observed performance for similar airports.

3.3.5 PRB Key Points

- The national target proposed for RP3 is constant and represents an improvement with respect to RP2 target and actual performance. However this national target does not imply a proportional improvement of the targets at airport level due to planned works and implementations at Paris airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±2.8%	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.43	0.43	0.32	0.23	0.23
Alert threshold (Δ Ref. value in fraction of min)	±0.062	±0.062	±0.056	±0.052	±0.052
Performance Plan targets	3.12	2.52	2.00	1.91	1.29
Pivot values for RP3	2.06	1.66	1.32	1.26	0.85

Threshold review

Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values.

Modulation review

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Review of financial advantages/disadvantages

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band, penalty only applicable if total FAB performance is worse than FAB dead band. Bonus could be paid out at approximately seven times delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±50.0%	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.40	0.40	0.40	0.40	0.40
Pivot values for RP3	0.10	0.10	0.10	0.10	0.10

Threshold review

The French terminal incentive scheme has opted for a dead band of 50% of the pivot value, which means there is no linear progression in the application of bonuses/penalties, and only maximum bonus or penalty are to be applied.

Modulation review

France has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen (0.10 minutes delay per arrival) goes in line with the CRSTMP delay observed in RP2. The ADF (attributable delay factor) applied is 25%, although the observed share of CRSTMP delays in 2015-2018 is 19.4%.

Review of financial advantages/disadvantages

The scheme is symmetric. The maximum bonus/penalty is only 0.5%, which together with the wide dead band limits the impact of this incentive scheme.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✘

En route capacity:

- Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values..
- Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.
- Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. Bonus could be paid out at approximately seven times delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

- The French terminal incentive scheme modulates the pivot values according to CRSTMP causes and includes low bonus/penalty (0.50%) with the maximum dead band, which limits the impact of the incentive scheme.- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	228.2	238.2	243.1	249.9	264.5	1223.9
En route	M€ (nominal)	196.7	205.1	209.2	213.2	225.0	1049.1
Terminal	M€ (nominal)	31.6	33.1	33.9	36.7	39.5	174.8

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	4-FLIGHT	4-FLIGHT is a new generation ATM system that provides a fully electronic environment for en-route air traffic control. The system uses data drawn from the COFLIGHT FDPS and features a range of innovative controller tools that will enhance safety and help to optimize the capacity and efficiency of the airspace. More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.	853.4	Yes	Yes	137.6	0.0
2	AIS/AIM	Advanced data exchange services are required to communicate up to date aeronautical information (e.g. about flight plans, weather, airport data etc.) that help operational stakeholders to maximize the benefits of new ATM systems and tools. The Aeronautical Information Exchange Model (AIXM) and System Wide Information Management (SWIM) concept set out specifications that enable the distribution of key data in a common digital format. The AIM and SWIM concepts are being delivered via the SESAR programme to provide more accurate and efficient digital aeronautical information to civil and Military ANSPs, airspace users, airport operators, Meteorological service providers and the European Network Manager.	0.0	Yes	Yes	8.7	2.0
3	CDM/AMAN/DMAN/XMAN	Airport Collaborative Decision Making (ACDM) is about partners (airport operators, aircraft operators/ground handlers, ATC and the Network Operations) working together more efficiently and transparently in the way they work and share data. The Airport CDM project aims to improve the overall efficiency of operations at an airport, with a particular focus on the aircraft turn-round and pre-departure sequencing process. Tools for Collaborative Decision Making : CPDS (Collaborative Pre-Departure Sequence), DMAN (Departure Manager), AMAN (Arrival manager) More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.	100.0	Yes	Yes	21.7	5.1
4	COFLIGHT	COFLIGHT is a new generation Flight Data Processing System (FDPS) that is designed to meet the SESAR objective of gate to gate, 4D trajectory management. The system has been developed in collaboration with the Italian ANSP (ENAV) and the SESAR programme. COFLIGHT features a range of advanced functions including 4D trajectory prediction, datalink integration, traffic flow optimization and interoperability across European ACCs. More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.	330.0	Yes	Yes	57.7	13.5
5	CSSIP	The CSSIP (Ground-Ground Communications under Internet Protocol) program aims to implement a national telecommunications network of new generation based on IP protocols for voice digital conversion and the migration of voice and data communications of the current network to the new one called RENAR-IP. It will provide all voice and data exchanges for the air traffic control purposes. Connected to PENS, it will exchange data with various international networks and simplify the interoperability of systems and applications between adjacent ANSPs.	81.0	Yes	No	24.2	5.7

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
6	NVCS	New-Voice communication System aims to modernize the radio/telephone stations and emergency services operating in the 5 french ACCs and LFPG Airport. This high technology system will bring major changes : - end to end communications of the IP network voice (VoIP) - voice services on our ground to ground long distance communication network under IP (RENAR IP), compatible with the infrastructures of analogical telecommunications - integration of the radio and telephone - integrated radio and telephone backup system offering a new functional level close to the principal system - new functionalities permitting notably to supply a VCS service on a remote system	72.0	Yes	Yes	23.3	1.0
7	SYSAT	The program SYSAT aims to modernize the air traffic management of towers and approach control centers in mainland France and Corsica. The implementation of this electronic environment system will begin with a sequenced deployment (Tower system in Winter 2022/23 then Approach) in Orly and a sequenced deployment at CDG from 2021 (SOL@CDG to address as a priority the obsolescence of the A-SMGCS) to 2025 (TWR/APP). More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.	500.5	Yes	Yes	58.1	34.1
8	MCO and evol NAV/COM/ATM	Maintaining technical equipment in operational condition (MCO) is essential to continue to have a required level of optimal safety especially in a period of on-going optimisation of technical workforce management. It also Includes costs related to operational maintenance for NAV/COM/ATM devices	0.0	Yes	Yes	296.8	69.6

Total:	628.0	131.0
--------	-------	-------

Airspace user feedback regarding major investments

The airspace users welcomed DSNA's approach for the 2019-2025 and multi-year investment planning, together with the cooperative stakeholder approach for investment needs in line with future growth. However, the airspace users requested more transparency in the link between investments costs and benefits. IATA welcomed the information transparency provided for the common projects in terms of reporting the costs and reimbursements to airspace users.

Review of investments

New major investments represent 45% of the total determined costs of investments over RP3. Several major investments are a continuation of the investments presented in RP2. In line with this, 2015-2018 actual CAPEX delivery reaches 139% of the planned for the same period and the overspend amounts to 296.12M€. Annex E of the performance plan provides details and a long term vision of the investments. The sum of the determined cost for investments for RP3 is higher than the value of the assets allocated to ANS for investment #4. The total value of the asset (CAPEX or contractual leasing value) for investment #2 and #8 is not provided in the performance plan.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	0.0	309.9	20.2	24.7	31.9	37.8	44.7	159.4
Existing investments			202.7	178.8	141.4	122.7	111.1	756.7

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 10% of the total determined costs of investments over RP3, while existing investments represent 45%. Other new investments are described as follow:</p> <ul style="list-style-type: none"> - ASMGCS : ground control radar system, already in service on many platforms, implementation in Nice is forecast as a part of the SYSAT program by end 2025; - Facilities : many projects are already ongoing or will be launched during RP3. These projects aim at either maintaining existing facilities in operational conditions or at building new facilities (towers, technical buildings) to replace obsolete ones. This activity will last during the RP3 period and further on; - PBN : this program aims at the modernization of approach procedures. This program will go on during all RP3; - Airspace projects : these are all the projects implementing new air navigation concepts as FRA for example, as well as all the airspace changes needed to provide the best service and capacity to all users (commercial transport, drones, military, general aviation). This activity is ongoing and will last through the RP3 period and further on; - SESAR : these are all the research activities under the SESAR program needed to fulfil the PCP objectives and meet the associated deadlines. The activity will go on during the whole RP3 period and further on; - Datalink : this program implements air ground digital data link transmission. The final version is scheduled for end of 2020; - Cyber SI : this new program encompasses all the activities dealing with cyber security. This program will go on during the RP3 period and further on.
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand



The investment presented by France are complex enablers, most of which could be partly or totally linked to measures to achieve the capacity targets. All projects are aimed to replace France's critical systems for en-route control and developments of functionalities with added value. The performance plan does not provide enough details on the projects and their interdependencies, which makes it difficult to assess the level of contribution to the capacity targets' achievement or the necessity of a particular investment.

All selected investments might support the staffing measures by decreasing the ATCO workload and improving their effectiveness through improved procedures. Although the projects (and other measures) are estimated to provide additional capacity, they will not bring France's required capacity as identified by the NOP 2019-2024. Due to the lack of experienced ATCOs at the beginning of the reference period, all ACCs are estimated to experience big capacity gaps along the whole RP3 with only exception to Paris ACC, which may experience capacity gap around 1% - 4% with satisfactory capacity of 4.2% in 2024.

- Investment #1 is a new ATM system proposed as the capacity enhancement measure in the NOP, originally planned for deployment in RP2.
- Investment #2 is focused on the upgrade of aeronautical information management, which may support new functionalities of the new ATM systems. It may support as well measures to mitigate delays caused by weather. The description of the investment does not provide enough details to make an appropriate assessment.
- Investment #3 is the implementation of SESAR solutions, which contribute to capacity enhancement if implemented properly. The investment is difficult to identify within the NOP measures or the performance plan; but it is believed to support functionality of the new ATM systems and ATFM measures proposed in the NOP.
- Investment #4 is a new generation of Flight Data Processing System linked to the investment #1, which is a measure aimed at achieving the capacity targets.
- Investment #5 is the new Ground to Ground communication network loosely linked to the investment #1. However, the level of contribution to achievement of capacity targets cannot be assessed due low level of details provided in the description.
- Investment #6 is the new Voice Communication System proposed with the NOP and it is a prerequisite for dynamic sectorization.
- Investment #7 is the new ATM system program aimed at improving capacity of airports by enhancing TWR and APP services.
- Investment #8 is aimed at maintaining interoperability between legacy systems and the new systems introduced in the major investments. Other new and existing investments are estimated to support achievement of the capacity target. However, it difficult to assess the level of contribution, as they are described by domain and not by investment.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan



The capacity gaps are mainly caused by the lack of experienced ATCOs. The NOP 2019-2024 provides that the lack of ATCOs is going to remain a problem during the first half of RP3, producing capacity gaps regardless the investments.

The selected capacity enhancing projects are not directly focused on solving the issue. The performance plan indicates when and how the projects are planned to be deployed and financed. The entry into operation of many of the selected projects is spanned along the whole RP3 (i.e. SACTA and COFLIGHT 2021-2025, NVCS 2019-2024 or SYSAT 2021-2023), which may bring benefits only in RP4 and RP5.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented



The investment into the new ATM system with the supporting elements is spread along the whole RP3. Entry into operation is planned either between or along 2021-2025, which is not clear from the performance plan. Clarifications on the expected date of full operational capability and project's dependencies should be provided in order to assess expected benefits.

3.5.4 PRB Key Points

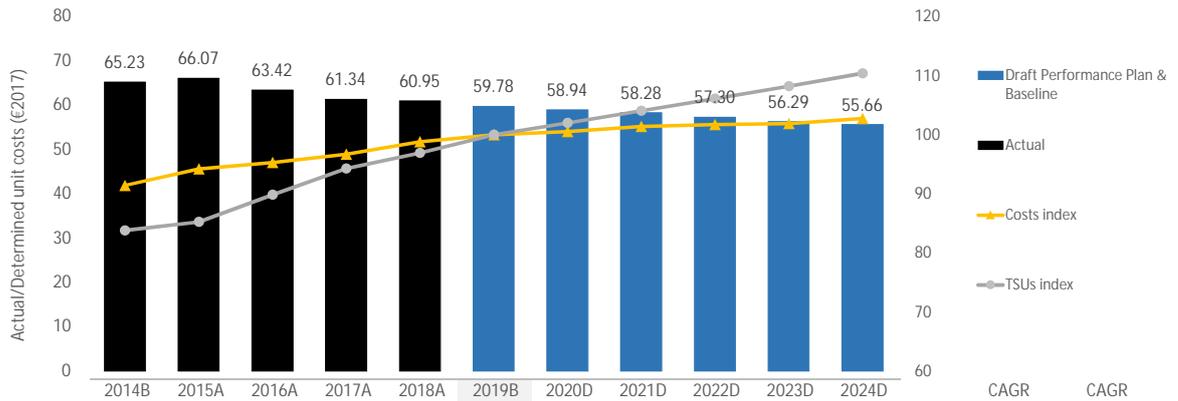


- No major issues regarding investments have been identified.
- Some of the investment may contribute to the capacity increase. However, based on the implementation timeline, it is not clear whether benefits would materialise in RP3.

FRANCE

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	1,195	1,232	1,249	1,280	1,329	-	1,382	1,411	1,434	1,457	1,490	-	+2.2%
Total costs	M€ (2017)	1,210	1,247	1,261	1,280	1,307	1,323	1,330	1,342	1,346	1,348	1,360	+0.6%	+1.2%
TSU	'000	18,544	18868	19883	20862	21450	22128	22569	23021	23481	23951	24430	+2.0%	+2.8%
AUC/DUC	€ (2017)	65.23	66.07	63.42	61.34	60.95	59.78	58.94	58.28	57.30	56.29	55.66		
Exchange rate	€:€				1.000									
AUC/DUC	€2017	65.23	66.07	63.42	61.34	60.95	59.78	58.94	58.28	57.30	56.29	55.66		
Annual change	%		+1.3%	-4.0%	-3.3%	-0.6%	-1.9%	-1.4%	-1.1%	-1.7%	-1.8%	-1.1%	-1.4%	-1.6%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	59.78 €2017	ⓘ
--	-------------	---

The 2019 baseline costs are in line with 2019 forecast costs, in real terms.

The 2019 forecast costs are +1.2% above the 2018 actuals (in real terms) and +1.1% higher than the planned RP2 determined costs. France uses a 2019 traffic forecast -0.84% lower than the STATFOR February 2019 base forecast, but +0.88% higher than the October 2019 base forecast (M3). The choice of a lower 2019 baseline traffic for France (compared to STATFOR Feb. base) is supported by the latest available TSU figures.

4.1.3 Summary of cost-efficiency assessment results

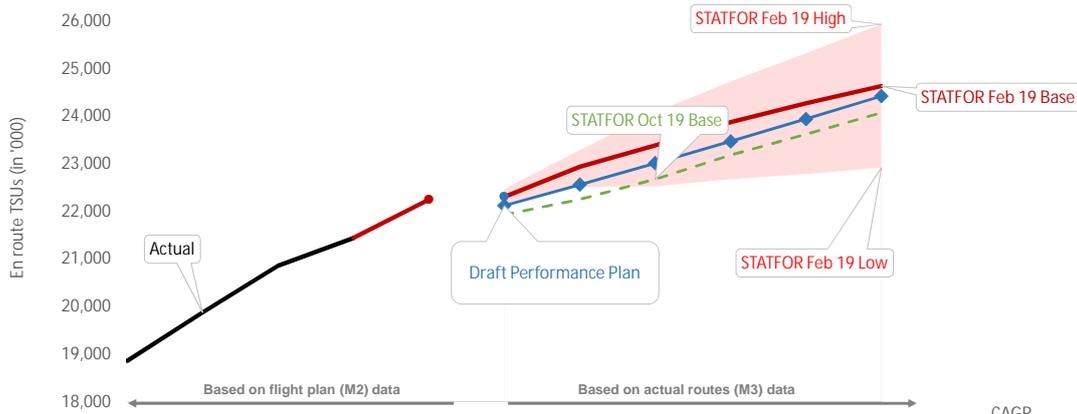
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-1.4%	✘
France, in its draft performance plan, has presented a -1.4% CAGR decreasing DUC trend over the RP3 period; the proposed trend deviates by +0.5 p.p. from the expected Union-wide RP3 DUC target.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-1.6%	✘
France does not meet the long-term (RP2+RP3) assessment criteria, with a long-term trend of -1.6% CAGR. The proposed trend deviates by +1.1 p.p. from the expected Union-wide RP3 DUC target.		
c) DUC level (2019 baseline) lower than the average of comparator group (A) average (62.89 €2017)?	-4.9%	✔
The DUC level is -0.6% lower than the average of the comparator group for the 2019 baseline and +1.3% higher in 2024.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB conclusions

The PRB concludes that the cost-efficiency targets proposed by France should not be approved.

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group.
- Deviation for cost-efficiency trends to achieve capacity targets is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document).

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	18,868	19,883	20,862	21,450								
Annual change	%		+5.4%	+4.9%	+2.8%								
STATFOR Feb 19 Base	'000 TSUs					22,258	22,315	22,942	23,395	23,885	24,277	24,642	+2.0%
Annual change	%					+3.8%	+4.0%	+2.8%	+2.0%	+2.1%	+1.6%	+1.5%	
STATFOR Oct 19 Base	'000 TSUs					-	21,935	22,262	22,683	23,190	23,625	24,081	+1.9%
Annual change	%					-	+2.3%	+1.5%	+1.9%	+2.2%	+1.9%	+1.9%	
Performance Plan	'000 TSUs						22,128	22,569	23,021	23,481	23,951	24,430	+2.0%
Annual change	%						+3.2%	+2.0%	+2.0%	+2.0%	+2.0%	+2.0%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	22,128		
2019F (as in the Reporting tables, M2)	22,072		
2019B/ 2019F	0.25%	+0.25%	+0.25%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	22,128			
2019F (STATFOR Feb 19, M3)	L 22,129	B 22,315	H 22,483	-0.84%
2019F (STATFOR Oct 19, M3)	L 21,889	B 21,935	H 21,978	+0.88%

France uses a 2019 traffic forecast -0.84% lower than the STATFOR February 2019 base forecast, but still +0.88% higher than the October 2019 base forecast (M3). France has applied the average CRCO M3/M2 for the calculation of the 2019 traffic baseline.

When considering year-to-date actual growth (cumulative growth up to October 2019), 2019 actual traffic is just +2.4% higher than in the same period of 2018 and the STATFOR February 2019 base forecast for the complete year is scientifically higher +3.8 annual change (M2) with only two months left in 2019. Therefore, it seems that the choice of 2019 baseline is in line with the latest available information.

France indicates that "in case the Commission would admit another update of STATFOR forecasts to be used by other States, DTA requests the Commission to thrive the same opportunity to revise the traffic scenario for the French targets".

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

The main factors cited by France in the performance plan (see Annex D of the performance plan) for choosing a lower scenario than the STATFOR February 2019 is summarised below:

- Two French airlines Aigle Azur and XL Airways went bankrupt and stopped their flights. In addition, Thomas Cook also stopped activities and Norwegian airlines (2.5% en route share) also declared economic difficulties.
- A new tax per passenger was announced by the French government to take effect in 2020. The impact is assessed by the DGAC unit for economic studies (DTA/SDE) to reduce initially the departure passenger number at French airports by -0.5% on the first year, which would mean about -0.2% in en route SUs and -0.5% in terminal SUs (CZ 1 and CZ 2).
- In the recent context, French NSA considers that the 2019 base traffic estimate is no longer realistic.

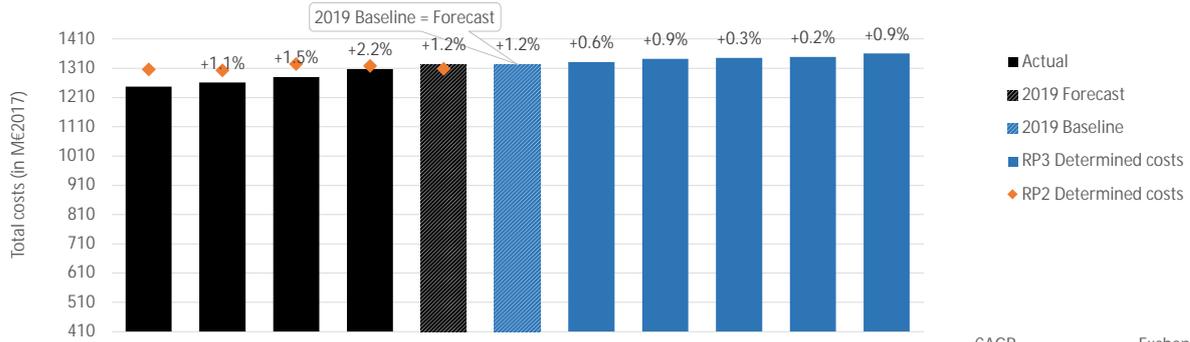
Review of the PP traffic forecast

As far as it concerns the 2020-2024 period, the CAGR (+2%) of the France performance plan forecast is equal to the CAGR STATFOR February 2019 and +0.1% higher than the CAGR STATFOR October 2019. The traffic evolution presented by the latest October forecast is slightly lower than the February base one, which place the performance plan between both STATFOR base forecasts. Finally, it is noted that the airspace users, consulted on the choice to diverge from STATFOR base, supported the use of a local forecast and the most recent actual data available.

4.2.4 PRB Key Points

The traffic forecast proposed by France is not in line with the STATFOR February 2019 base forecast, however deviations are duly justified. The 2019 October STATFOR forecast show lower traffic than the local forecast chosen by France.

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	1,232	1,249	1,280	1,329	1,358	-	1,382	1,411	1,434	1,457	1,490	-	€:€
Annual change	%	-	+1.4%	+2.4%	+3.8%	+2.2%	-	-	+2.1%	+1.6%	+1.6%	+2.3%	-	1.00000
Inflation index	2017 = 100	98.5	98.9	100.0	102.1	103.4	103.4	105.1	106.7	108.6	110.6	112.7	+1.7%	-
Total costs	M€ (2017)	1,247	1,261	1,280	1,307	1,323	1,323	1,330	1,342	1,346	1,348	1,360	+0.6%	-
Annual change	%	-	+1.1%	+1.5%	+2.2%	+1.2%	+1.2%	+0.6%	+0.9%	+0.3%	+0.2%	+0.9%	+0.6%	-
Total costs	M€ (2017)	1,247	1,261	1,280	1,307	1,323	1,323	1,330	1,342	1,346	1,348	1,360	+0.6%	-

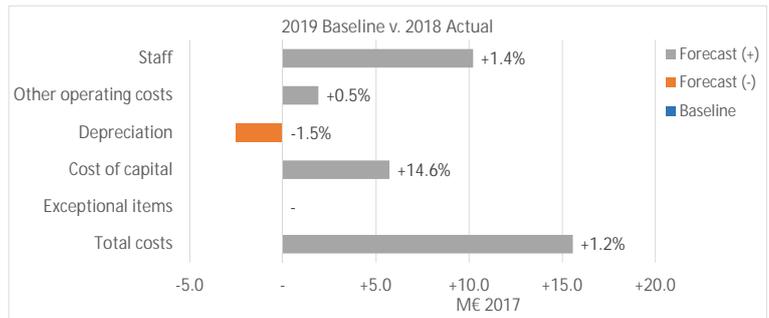
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

The index deviation by 2024 is only -0.01 p.p. due to rounding.

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+15.6	+1.2%
2019F v. 2019 RP2 DC	+14.8	+1.1%
2019F v. average 2015-2018	+49.3	+3.9%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast costs are +1.2% above the 2018 actuals (in real terms) and +1.1% higher than the planned RP2 determined costs. The main drivers for the 2019 forecast cost increase, compared to the 2018 actuals are the staff costs (+1.4% or +10.2M€2017) and the cost of capital (+14.6% or +5.7M€2017). Although it is not a significant increase, it could be considered higher than expected when looking to the first four years of RP2, where France actual costs have been always lower than the RP2 determined costs.

France indicated in the performance plan that baseline (forecast) value for 2019 determined costs was initially estimated by two methods :

- Using the latest available cost estimates for 2019 at mid-year adjusted to be expressed in 2017 prices: 1,322,898,728€ (finally adopted);
- Using an extrapolation methodology by linear regression as proposed by PRB: 1,315,169,746€ (not used).

The 2019 costs estimate used to establish en route 2019 baseline values have been calculated by using the actual 2018 costs and latest available 2019 assumptions or preliminary mid-year actual costs.

2019 baseline analysis

The 2019 baseline costs are in line with 2019 forecast costs, in real terms. Please see box above for detailed analysis.

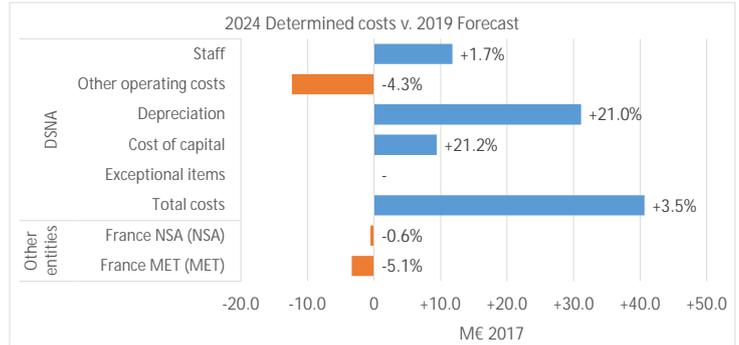
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✓ Investments (see details in 3.5)
- ✓ Cost of capital (see details in 4.3.1)
- ⓘ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



As far as the RP3 determined costs are concerned, these are expected to increase by about +0.6% CAGR between 2019 forecast and 2024 (+37M€2017). The main contributor to this increase is DSNA, the costs of which are expected to increase by +3.5% (+40.7M€2017) between 2019 forecast and 2024. Higher costs are mainly driven by significant higher depreciation (+21% or +31.1M€2017), as a result of the execution of the RP3 investment plan (considered by DSNA as required to tackle capacity issues). The consequent increase in the asset base is expected and the use of 5.2% will increase, as well, the cost of capital (+21.2%). Additionally staff costs are expected to increase (+1.7% or +11.8M€2017), resulting from the effect of additional recruitment of ATCOs in order to improve the capacity.

Finally, it is noted that the other entities included in the en route charging zone (i.e. NSA and MET providers) are expected decrease their costs, although their impact is minor when compared to the main ANSP.

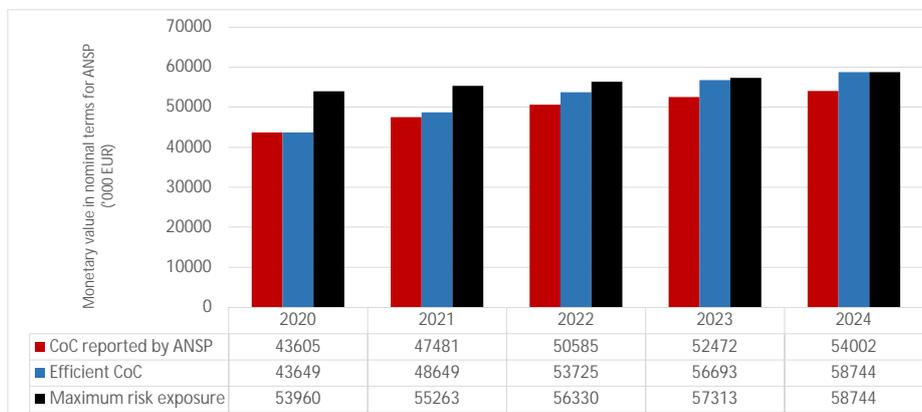
4.3.4 PRB Key Points

- The 2019 forecast costs are +1.2% above the 2018 actuals (in real terms) and +1.1% higher than the planned RP2 determined costs.
- The 2019 baseline costs are in line with 2019 forecast costs, in real terms.
- The RP3 determined costs, these are expected to increase by about +0.6% CAGR between 2019 baseline and 2024 (+37M€2017).
- Depreciation and staff costs are the major drivers of cost increase over RP3.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	1,226,356	1,255,982	1,280,218	1,302,560	1,335,081
Monetary value of Return on Equity	41,089	44,742	47,667	49,445	50,886
Ratio RoE/DC (%)	3.4%	3.6%	3.7%	3.8%	3.8%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.0%	7.0%	7.0%	7.2%	7.0%	7.4%	7.0%	7.5%	7.0%	7.6%
Interest on debts	1.0%	1.0%	1.0%	1.0%	1.0%	1.1%	1.0%	1.3%	1.0%	1.4%
Capital structure (% debt)	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
WACC	5.2%	5.2%	5.2%	5.3%	5.2%	5.5%	5.2%	5.6%	5.2%	5.7%

Is the interest on debts in line with the market? Yes

- DSNA, as part of the DGAC, does not raise its own loans. However, the cost of debt has been calculated based on CAPM model assuming that 30% is financed via debt. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.
- The efficient cost of capital is computed in line with competitive market practices and with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

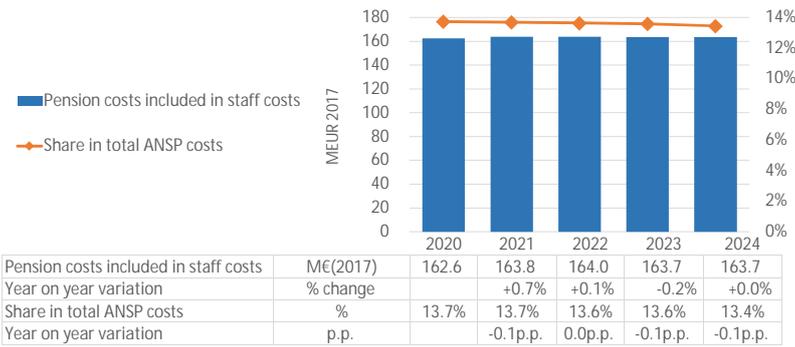
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	828,839	842,880	855,844	868,223	871,973
Net current assets	9,721	70,220	116,946	140,855	166,526
Adjustments total assets	0	0	0	0	0
Total asset base	838,560	913,100	972,790	1,009,078	1,038,499

- The fixed asset base increases over the period. This is in line with the investments described in section 3.5 of this document.
- The net current assets do not present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over RP3, due to the increase in the fixed asset base and the increase in net current assets.

4.3.A.5 PRB Key Points

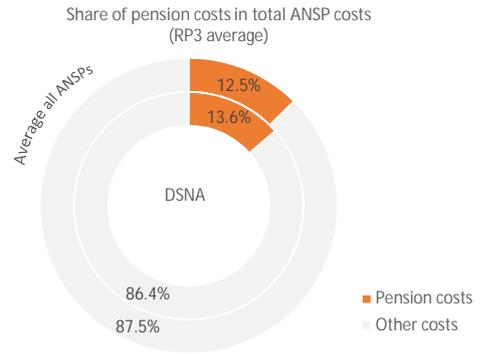
The cost of capital is in line with the maximum risk exposure and does not present major issues. ✓

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	ME(2017)	2020	2021	2022	2023	2024
Pension costs included in staff costs	ME(2017)	162.6	163.8	164.0	163.7	163.7
Year on year variation	% change		+0.7%	+0.1%	-0.2%	+0.0%
Share in total ANSP costs	%	13.7%	13.7%	13.6%	13.6%	13.4%
Year on year variation	p.p.		-0.1p.p.	0.0p.p.	-0.1p.p.	-0.1p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight decrease**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Higher**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables?	No
For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024?	No
"The contribution rate is decided by the Ministry of Economy & Finance and has been flat since 2013. A pension reform is envisaged at State level. But the date of this reform, if it occurs, is not known at the stage of the development of RP3, nor the form it could take."	
For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024?	No info
No information available.	

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

None. France indicates in their performance plan that since the contributions rates for the two pensions programmes are imposed by the Ministry of Economy & Finance, both are deemed "uncontrollable costs".

The following text has been extracted from section 3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS (section F): "Regarding pension costs, the major assumption which is that the contribution to the "CAS pension", which is the specific amount calculated from gross wages, will be set flat and at the same level of RP2 (74.6%) even if some uncertainties remain regarding future modification of the French pension regime for civil servants. Uncontrollable costs recovery mechanism will secure the funding of pensions. Corresponding adjustments will be made during the next reference period (RP4)".

Although the positive trend showed in section 1, the fact that a pension reform is envisaged and even if not yet known what could be the impact, the management of the costs-risk associated to the pension costs should not rely on the costs exempted mechanism as a way of secure the funding of the pensions.

4.3.B.4 PRB Key Points

Although the positive trend showed in section 1, the fact that a pension reform is envisaged and even if not yet known what could be the impact, the management of the costs-risk associated to the pension costs should not rely on the costs exempted mechanism as a way of secure the funding of the pensions, as indicated in the performance plan.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

France did not mention changing the cost allocation methodology with respect to RP2.
 Each expenditure is allocated to a cost accounting code, corresponding to the body incurring the expenditure. Costs are allocated to en route or terminal according to the cost accounting code.

Examples of elements taken into account for cost allocation:

- the kind of operational unit: ACCs are 100 % en-route allocated, small aerodromes with local control (TWR) are 100 % terminal allocated, aerodromes with approach control are split into terminal and en-route;
- the kind of technical installation: ILS are 100 % terminal, a VOR near a controlled aerodrome is partially allocated terminal while a VOR far from aerodromes is 100 % en route;
- for large TMAs, the proportion of traffic in transit and the flight length within the controlled airspace compared outside and inside a 20 km-circle around the airport are taken into account to split staff costs and general operating costs.
- costs relating to administrative support activities ("general administration") are split into terminal and en route at the end of the cost accounting process on a pro-rata basis.

More details regarding the cost allocation can be found in the Annex M of the performance plan.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

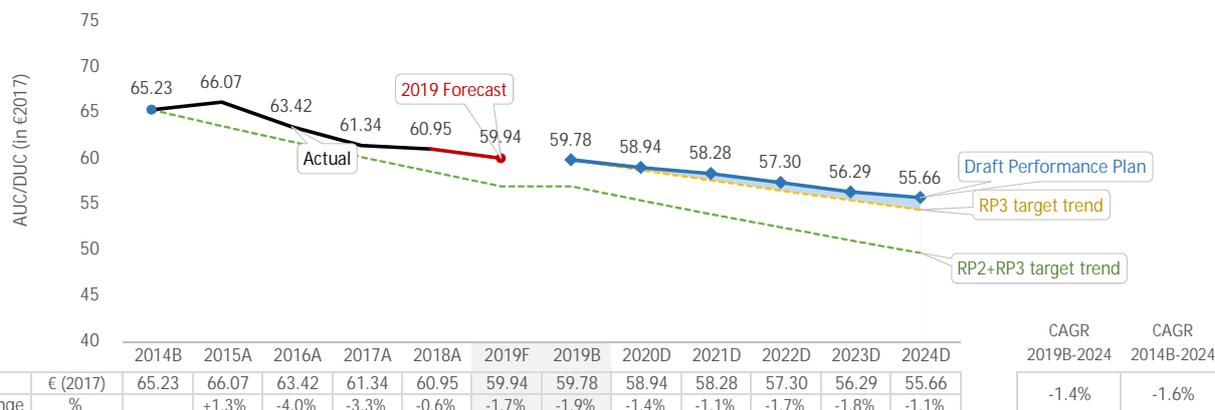
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.3.C.3 PRB Key Points ✔

- France did not mention changing the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	-1.4%	Union-wide trend	-1.9%	Difference	+0.5p.p.
PP trend	-1.6%	Union-wide trend	-2.7%	Difference	+1.1p.p.
PP 2019 baseline	59.78	Average comp. group	62.89	Difference	-4.9%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

- France proposes a -1.4% CAGR decreasing DUC trend over the RP3 period. The proposed trend deviates by +0.5 p.p. from the Union-wide RP3 DUC trend target.
- The 2014-2024 DUC trend amount to -1.6% CAGR and deviates by +1.1 p.p, this is significantly worse than the Union-wide target trend (-2.7%).
- The DUC level is -0.6% lower than the average of the comparator group for the 2019 baseline and +1.3% higher in 2024.

France justifies DUC deviation on the ground of capacity reasons. In section 3.4.1.e). Specifically, it is stated that “DSNA cost-efficiency gap with Union-wide target is mainly justified by the fact that the gap between EU target (-1.9% per year) and proposed DUC reduction (-1.42% per year) is due to additional expenditures on human resources (recruitment and productivity measures costs) and investments to increase capacity.”

However, the cost deviations from the cost-efficiency targets are not analysed since the capacity targets are not consistent (more details in section 3.2 of this document).

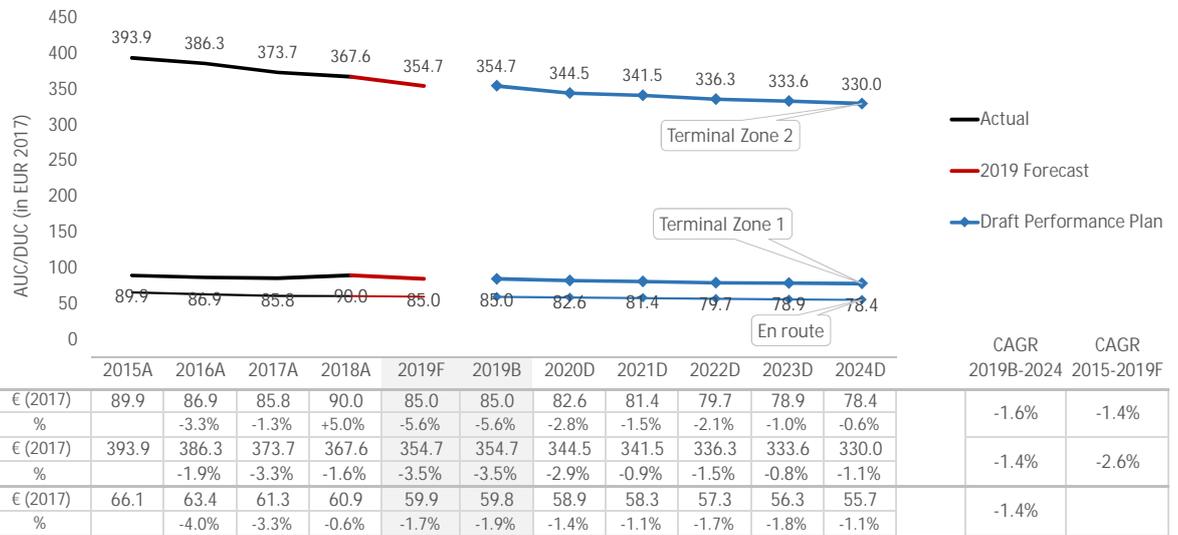
4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group.
- Costs deviation is well documented. However, the capacity targets are deemed as not consistent (more details in section 3.2 of this document).

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Toulouse-Blagnac (LFBO)	GROUP III	171.33	168.5	-1.7%	167.4	167.4	+0.0%
Lyon-Saint-Exupéry (LFLL)	GROUP III	171.33	198.0	+15.5%	167.4	170.9	+2.1%
Marseille-Provence (LFML)	GROUP III	171.33	201.0	+17.3%	167.4	178.6	+6.7%
Nice-Côte d'Azur (LFMN)	GROUP II	157.17	169.0	+7.5%	148.9	152.1	+2.1%
Paris-Charles-de-Gaulle (LFPG)	GROUP I	139.52	76.3	-45.3%	130.5	70.5	-46.0%
Paris-Orly (LFPO)	GROUP I	139.52	120.0	-14.0%	130.5	109.3	-16.2%
Bâle-Mulhouse (LFSB)	GROUP IV	673.82	172.3	-74.4%	647.6	150.8	-76.7%
Agen-La Garenne (LFBG)	GROUP IV	673.82	2651.5	+293.5%	647.6	3172.1	+389.8%
Albert-Bray (LFAO)	GROUP IV	673.82	2319.6	+244.2%	647.6	2544.4	+291.9%
Angers-Marcé (LFRJ)	GROUP IV	673.82	2199.9	+224.9%	647.6	-	-
Annecy-Meythet (LFLP)	GROUP IV	673.82	3963.9	+486.3%	647.6	4423.1	+583.0%
Avignon-Caumont (LFMV)	GROUP IV	673.82	3746.8	+454.1%	647.6	3353.8	+411.9%
Bastia-Poretta (LFKB)	GROUP IV	673.82	264.0	-60.8%	647.6	251.5	-61.2%
Beauvais-Tillé (LFOB)	GROUP IV	673.82	164.6	-75.6%	647.6	189.2	-70.8%
Bergerac-Roumanière (LFBG)	GROUP IV	673.82	1071.6	+59.0%	647.6	1207.0	+86.4%
Béziers-Vias (LFMU)	GROUP IV	673.82	1324.8	+96.5%	647.6	1312.3	+10.2%
Biarritz-Bayonne-Anglet (LFBZ)	GROUP IV	673.82	287.8	-57.3%	647.6	321.6	-50.3%
Bordeaux-Mérignac (LFBG)	GROUP IV	673.82	176.3	-73.8%	647.6	168.4	-74.0%
Brest-Bretagne (LFRB)	GROUP IV	673.82	258.0	-61.7%	647.6	241.5	-63.7%
Brive-Souillac (LFSL)	GROUP IV	673.82	1187.7	+76.3%	647.6	1364.8	+110.7%
Caen-Carpiquet (LFRK)	GROUP IV	673.82	1179.6	+75.0%	647.6	910.5	+40.6%
Calvi-Sainte-Catherine (LFKC)	GROUP IV	673.82	1086.3	+61.2%	647.6	1105.8	+70.7%
Cannes-Mandelieu (LFMD)	GROUP IV	673.82	1536.5	+126.0%	647.6	1606.6	+140.1%
Carcassonne-Salvaza (LFMK)	GROUP IV	673.82	845.5	+25.5%	647.6	866.6	+33.8%
Châlons-Vatry (LFOK)	GROUP IV	673.82	630.9	-6.4%	647.6	864.4	+33.5%
Chambéry-Aix-les-Bains (LFLB)	GROUP IV	673.82	609.9	-9.5%	647.6	549.8	-15.1%
Châteauroux-Déols (LFLX)	GROUP IV	673.82	765.2	+13.6%	647.6	776.2	+19.9%
Clermont-Ferrand-Auvergne (LFLC)	GROUP IV	673.82	529.2	-21.5%	647.6	521.4	-19.5%
Deauville-Normandie (LFRG)	GROUP IV	673.82	859.2	+27.5%	647.6	871.5	+34.6%
Dinard-Pleurtuit-Saint-Malo (LFRD)	GROUP IV	673.82	1756.8	+160.7%	647.6	1661.3	+156.5%
Dôle-Tavaux (LFGJ)	GROUP IV	673.82	1867.6	+177.9%	647.6	2332.9	+260.2%
Figari-Sud Corse (LFKF)	GROUP IV	673.82	764.1	+13.4%	647.6	715.7	+10.5%
Grenoble-Isère (LFLS)	GROUP IV	673.82	1057.5	+56.9%	647.6	857.2	+32.4%
Hyères-Le Palmyvestre (LFTH)	GROUP IV	673.82	541.4	-19.7%	647.6	556.1	-14.1%
Istres-Le Tubé (LFMI)	GROUP IV	673.82	158.1	-76.5%	647.6	163.5	-74.8%
La Rochelle-Ile de Ré (LFBH)	GROUP IV	673.82	673.8	+0.0%	647.6	695.8	+7.4%
Lannion (LFRG)	GROUP IV	673.82	1503.4	+120.1%	647.6	-	-
Le Havre-Octeville (LFOH)	GROUP IV	673.82	6735.8	+899.6%	647.6	-	-
Lille-Lesquin (LFOO)	GROUP IV	673.82	384.6	-42.9%	647.6	383.1	-40.8%
Limoges-Bellegarde (LFBG)	GROUP IV	673.82	553.5	-17.9%	647.6	578.9	-10.6%
Lorient-Lann Bihoué (LFRH)	GROUP IV	673.82	331.2	-50.8%	647.6	335.0	-48.3%
Lyon-Bron (LFLY)	GROUP IV	673.82	1982.2	+191.9%	647.6	1744.7	+169.4%
Metz-Nancy-Lorraine (LFLJ)	GROUP IV	673.82	777.2	+15.3%	647.6	639.0	-1.3%
Montpellier-Méditerranée (LFMT)	GROUP IV	673.82	399.5	-40.7%	647.6	417.2	-35.6%

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Nantes-Atlantique (LFRS)	GROUP IV	673.82	180.3	-73.2%	647.6	165.7	-74.4%
Ajaccio-Napoléon-Bonaparte (LFKJ)	GROUP IV	673.82	242.4	-64.0%	647.6	237.5	-64.3%
Nîmes-Garons (LFTW)	GROUP IV	673.82	1423.8	+111.3%	647.6	1565.4	+141.7%
Paris-Le Bourget (LFPB)	GROUP IV	673.82	699.2	+3.8%	647.6	657.0	+1.4%
Pau-Pyrénées (LFBP)	GROUP IV	673.82	404.7	-39.9%	647.6	430.2	-33.6%
Perpignan-Rivesaltes (LFMP)	GROUP IV	673.82	1008.1	+49.6%	647.6	839.5	+29.6%
Poitiers-Biard (LFBT)	GROUP IV	673.82	526.7	-21.8%	647.6	537.3	-17.0%
Quimper-Pluguffan (LFRO)	GROUP IV	673.82	2685.5	+298.5%	647.6	3431.0	+429.8%
Rennes-Saint-Jacques (LFRN)	GROUP IV	673.82	358.7	-46.9%	647.6	305.4	-53.8%
Rodez-Marcillac (LFCR)	GROUP IV	673.82	1105.1	+64.0%	647.6	2896.0	+347.2%
Rouen/Vallée-de-Seine (LFOP)	GROUP IV	673.82	-	-	647.6	-	-
Saint-Etienne-Bouthéon (LFMH)	GROUP IV	673.82	3461.4	+413.7%	647.6	8918.0	+1277.0%
Saint-Nazaire-Montoir (LFRZ)	GROUP IV	673.82	1023.9	+52.0%	647.6	1178.2	+81.9%
Strasbourg-Entzheim (LFST)	GROUP IV	673.82	388.0	-42.4%	647.6	414.9	-35.9%
Tarbes-Lourdes Pyrénées (LFBT)	GROUP IV	673.82	833.3	+23.7%	647.6	1154.8	+78.3%
Tours-Val de Loire (LFOT)	GROUP IV	673.82	768.8	+14.1%	647.6	827.9	+27.8%
Toussus-le-Noble (LFPN)	GROUP IV	673.82	4511.7	+569.6%	647.6	5453.7	+742.1%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

As far it concerns performance at terminal level, it is noted that the average RP3 DUC for Paris-Charles-de-Gaulle (LFPG) and Paris-Orly (LFPO), both in TCZ1, are well below than the median DUC of similar airports.

On the other hand, the 56 airports included in TCZ2 show, on average, a worse performance than similar airports. Still this analysis should be taken with cautions due to the variety of airports included by France in TCZ2.

In terms of DUC evolution over the RP3 period, TCZ1 is expected to decrease its DUC by -1.6% p.a. between 2019 baseline and 2024 (-0.9% p.a. over the long-term trend), while TCZ2 decreases -1.4% p.a. between 2019 baseline and 2024 (-0.8% p.a. over the long trend). These trends are very similar compared to the DUC trend presented for en route.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline) - TCZ1	610.3			
2019F (STATFOR Feb 19)	L 597.9	B 599.0	H 601.0	+1.89%
2019F (STATFOR Oct 19)	L 595.0	B 598.4	H 597.5	+1.99%
2019B (PP baseline) - TCZ2	548.8			
2019F (STATFOR Feb 19)	L 530.4	B 537.1	H 543.3	+2.18%
2019F (STATFOR Oct 19)	L 539.6	B 542.4	H 544.3	+1.18%

Costs

2019 forecast & baseline review	M€ 2017	%
2019 Forecast v. 2018 Actual - TCZ1	-1.6	-2.9%
2019 Forecast v. Avg. 2015-2018 Actual	+0.8	+1.5%
2019 Baseline v. 2019 Forecast	0.0	+0%
2019 Forecast v. 2018 Actual - TCZ2	+0.5	+0.2%
2019 Forecast v. Avg. 2015-2018 Actual	+2.3	+1.2%
2019 Baseline v. 2019 Forecast	0.0	+0%

TNSU baseline:

- For TCZ1, France uses a 2019 traffic forecast 1.89% higher than the STATFOR February 2019 base forecast and +1.99% higher than the October 2019 base forecast.
- For TCZ2, France uses a 2019 traffic forecast 2.18% higher than the STATFOR February 2019 base forecast and +1.18% higher than the October 2019 base forecast.

Terminal cost baseline:

- As far it concerns the 2019 baseline at terminal level, both TCZ1 and TCZ2 present the same baseline costs than the 2019 forecasted costs.
- It is noted that the 2019 forecast is lower than the 2018 actual costs for TCZ1 (-2.9%) and higher for TCZ2 (+1.2%), and for both relatively higher than the 2015-2018 average actual costs.

The baseline value for 2019 determined costs used by France for the two terminal charging zones have been estimated by using the latest available costs for 2019 at mid-year.

Traffic forecasts (terminal)

TZ1 TZ2

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?	No	No
--	----	----

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

France indicates in Annex D that "September 2019 traffic development shows higher traffic than anticipated on both French charging zones. Taking into account the mentioned bankruptcies impact on French airports as from September 2019 and the higher actual traffic previous trend, the local 2019 terminal traffic best estimate is +2.8% service units growth for charging zone 1 and +3.9% for charging zone 2".

France used baselines are higher for both Terminal CZs but, as showed in Annex D, regarding 2020-2024, in total, the combined impact warrants the alternate scenario presented to airlines in the consultation meeting on 4 July 2019, where traffic growth would be, in SU:

- TCZ1: +2.5% instead of +3.5% in 2020, then same as STATFOR February base growths in 2021 / 2022 / 2023 i.e. +1.7% / +1.7% / +1.6%, finally +1.4% instead of +0.4% in 2024. This leads to the same yearly average growth as STATFOR February 2019 base over the period;
- TCZ2: Same annual growths as STATFOR February 2019 base scenario.

Review of the PP traffic forecast

The above statement is in contradiction with the latest 2019 October STATFOR base scenario. There are not enough evidence for the use of a higher local forecasts 2019 terminal TNSUs baseline than the STATFOR February 2019 forecast. Actually based on STATFOR October 2019 forecast, one could argue that it should be lower but not higher. Regarding the 2010-2024 growth trends, both CZs are in line with the STATFOR February 2019 forecast.

Determined costs (terminal)

✓ Is inflation in PP in line with IMF (April 2019 forecast)?	Yes
--	-----

Cost elements - DSNA (terminal)

- ✓ Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



Overall, terminal costs (both TCZ1 and TCZ2) reflect about 16% of the total gate-to-gate determined costs. The share of investments (14%) and pension costs (17%) is consistent with this allocation.

Terminal WACC and its parameters are equal to the ones of en route.

DSNA RP3 costs foreseen for RP3 slightly increase at terminal level (+0.3% or 0.7M€2017 between 2019 forecast and 2024). Significant higher depreciation costs over the RP3 period (+32.6% or +7.5 and costs of capital 32.8% or +2.7M€2017) are mostly compensated by a decrease in the staff costs (-5.9% or -9.1M€2017). From the performance plan, there is no explanation or justification regarding the terminal staff costs reduction, over the RP3 period, while for en route as we have seen, is the opposite.

Finally, it is noted that the MET provider is expected to decrease their costs by -5.1%, although their impact is minor when compared to the main ANSP.

4.5.4 PRB Key Points ✗

- The Terminal RP3 DUC trend is -1.6% for TCZ1 and -1.4% for TCZ2, better and similar, respectively, to the en-route RP3 DUC trend of -1.4%
- The Terminal RP3 DUC trend is -1.6% for TCZ1, better than the Terminal RP2 DUC trend of -1.4%. The Terminal RP3 DUC trend is -1.4% for TCZ2, worse than the Terminal RP2 DUC trend of -2.6%.
- Paris Charles-de-Gaulle and Paris Orly, the main airports (included in TCZ2), had a DUC lower (-45.3% and -14.0%) than the average of their comparator group over RP2. The differences are expected to be -46.0% and -16.2%, respectively, over RP3. The airports included in TCZ1 ranged from a DUC 76.65% lower to 899.6% higher over RP2. The differences are expected to range from 76.7% lower to 1277.0% higher over RP3.
- France used a custom traffic forecast for terminal traffic. The baseline of this forecast is higher (+1.89% for TCZ1 and +2.18% for TCZ2) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs slightly increase over the period, mainly due to an increase in depreciation, coupled with a decrease in staff costs.

PRB Assessment

GERMANY

Draft Performance Plan

Context and scope

Germany

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21.11.2019
 Documents no: 1760, 1761, 1736, 1755, 1754, 1695, 1435, 1467, 1464, 1443, 1421, 1438, 1466

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 8.2%
 % Costs V. SES 9.1%

Scope

FAB: FABEC

ANSPs: DFS
 MUAC
 Deutscher Wetterdienst (DWD)

ATM
 ATM
 MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): German Federal Supervisory Authority for Air Navigation Services

Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Germany	n/a	No	No	No	<p>ER 84% TRM 16%</p>
Terminal	Germany - TCZ	16	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group A Other States in the comparator group: France
 Italy
 Spain
 United Kingdom

Currency: € Exchange rate: 1.00000

1. Safety ✖

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
DFS	Safety policy and objectives					C
	Safety risk management					D
	Safety assurance					C
	Safety promotion					C
	Safety culture					C

PRB Assessment

The PRB concludes that the safety targets proposed by Germany should not be approved.

- Germany did not provide the EoSM targets for 2020-2023.
- Germany did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- Germany did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment ✖

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	3.24%	3.24%	3.24%	3.10%	2.95%

PRB Assessment

The PRB concludes that the DFS contributions to FABEC targets proposed by Germany should not be approved.

- DFS's horizontal flight efficiency contributions are not in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✖

Capacity performance plan targets

	2020	2021	2022	2023	2024
Breakdown value for en route ATFM delay per flight (min)	2.73	4.14	4.24	1.48	1.28
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.66	0.66	0.65	0.65	0.64

PRB Assessment

The PRB concludes that the breakdown values proposed by Germany should not be approved.

- The capacity breakdown values are not reaching the reference values each year of the RP3. Proposed breakdown values are above the forecasted delay for 2021 and 2022. There is no adequate justification in setting the capacity breakdown values above the existing capacity delay forecasts.
- There is an inconsistency between measures provided in the performance plan, the ANSP breakdown values proposed, and the planned capacity profiles in the NOP.
- The measures provided in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency ✖

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	68.80	70.88	67.57	66.31	65.20	-2.0%	-0.8%
Target for determined unit cost (DUC) (€2017) - Terminal	125.83	130.60	124.85	135.85	144.20	n/a	-6.0%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Germany should not be approved.

- Germany is not meeting any of the cost-efficiency criteria.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

PRB Recommendations

SAFETY

- Germany should define the EoS safety targets for each year of the reference period.
- Germany should define measures for the management objectives to achieve the RP3 safety targets levels.
- Germany should describe how the independencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

ENVIRONMENT

- Germany should revise its approach to addressing capacity and staffing issues expected until 2023.
- Germany should strongly consider its capacity plans and ensure it matches the anticipated demand in an optimal manner (given the performance plan does not aim to achieve the 2019 NOP reference values for any year of RP3 despite it also states that capacity issues may impact environmental performance).
- Germany should address inconsistencies among statements in the FABEC performance plan, which claims that DFS will strengthen the targets in 2023 and 2024 in order to contribute to the FABEC 2024 target, while Germany's 2020-2023 targets are higher than the achieved performance in 2018.
- Germany should ensure that the application of the FUA concept is homogenised to ensure continuous data flows concerning the environmental performance indicators and to minimise the impact on civil airspace users.
- Germany should revise its environment targets in order to achieve consistency with its national reference values in line with the above recommendations.

CAPACITY

- Germany should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay breakdown values to achieve consistency with Union-wide targets.
- Germany should ensure that capacity profile plans, capacity enhancement measures and proposed capacity breakdown values are aligned.
- Germany should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.
- Germany should justify the terminal RP3 capacity targets with respect to RP2 actual performance or should revise terminal RP3 capacity targets downwards.

COST-EFFICIENCY

- Germany should abandon the bottom-up approach used for the cost computations and to consequently adjust the RP3 cost items.
- Germany should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Germany should take into account the amounts already charged to the users during RP2 (e.g. iCAS projects).
- Germany should include the correct cost items (e.g. pension costs) in the 2019 cost baseline.
- Germany should remove from the performance plan the cost of the drone detection investment.
- Germany should justify the terminal RP3 cost-efficiency targets with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

GERMANY

Safety KPA

1.1.1 Target for EoSM for ANSPs

The targets for the Safety KPA is not complete, i.e. the targets are missing for 2020-2023 for DFS.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3. Additionally, it is considered that the measures are not sufficiently described in the performance plan.

1.1.3 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-offs with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.1.4 Change Management

Detailed change management processes and transition plans are described. The described processes provide assurances that any new implementation will be conducted in a manner that minimises any negative impact on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by Germany should not be approved.

- Germany did not provide the EoSM targets for 2020-2023.
- Germany did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- Germany did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
DFS	Safety policy and objectives	✗	✗	✗	✗	C	✓	
	Safety risk management	✗	✗	✗	✗	D	✓	
	Safety assurance	✗	✗	✗	✗	C	✓	
	Safety promotion	✗	✗	✗	✗	C	✓	
	Safety culture	✗	✗	✗	✗	C	✓	

The interim EoSM targets have not been defined for 2020-2023 for DFS. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any specific measures but explains that "Regular exchange amongst experts in the FABEC Safety Performance and Risk Coordination (SPRC) TF three times a year as permanent agenda item. Furthermore, within the yearly FABEC Performance Monitoring Reporting (Report) EoSM results of the previous year are gathered and monitored. Weaknesses / major discrepancies will be spotted and counteracted by the responsible six NSAs."

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3. Additionally, it is considered that the measures are not sufficiently described in the performance plan.

1.3.1 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-offs with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.3.2 Change Management Practices

The implementation of major airspace changes as well as new or revised ATM systems is accompanied by a dedicated change management process. One of the aims of the process is the identification of the of potential impacts on operational traffic, even during the transition phase of the change.

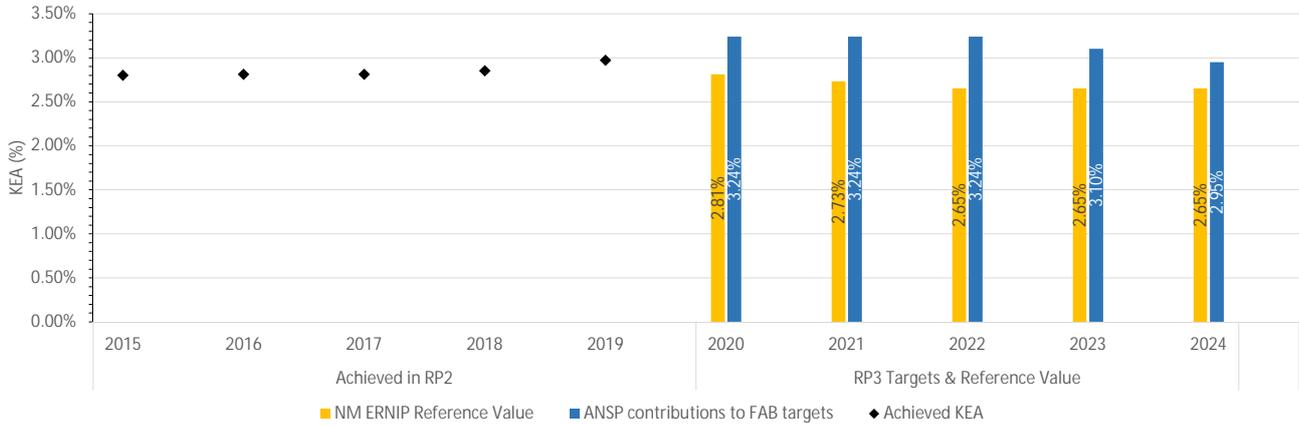
The process, that is under the approval of German NSA, provides assurance that the new implementation will be conducted in a manner at minimising any negative impact on the network performance.

GERMANY

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Draft FABEC targets	3.25%	3.25%	3.25%	3.15%	3.00%
ANSP reference values	2.81%	2.73%	2.65%	2.65%	2.65%
ANSP contributions to FAB targets	3.24%	3.24%	3.24%	3.10%	2.95%
Comparison of ANSP contributions with ANSP reference values	▲0.43%	▲0.51%	▲0.59%	▲0.45%	▲0.30%
Consistency with ANSP reference values	✗	✗	✗	✗	✗



2.1.2 PRB Conclusions ✗

The PRB concludes that the DFS contributions to FABEC targets proposed by Germany should not be approved.
 - DFS's horizontal flight efficiency contributions are not in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
The implementation of FRA, in terms of DCT routing options is considered complete by Germany. Germany plans a stepped implementation of FRA with a view to complete by 2021.			3.2.1(a)	Page 165
Major ERNIP Recommended Measures:		5	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(a)	Page 130
Implementation of FRAM2 - Phase 3		✓	Implemented	Page 102
Cross-border FRA Maastricht UAC, Karlsruhe UAC & DK/SW FAB		✓	Implemented	Page 97
Implementation of FRA Germany - Step 2a		✓	Implemented	Page 147
Implementation of FRA Germany - Step 2b		✓	3.2.1(a)	Page 165
Implementation of FRA Germany - Step 2c		✓		
FUA Implementation according to latest LLSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Germany achieved a KEA of 2.97% in 2019. The indicative target is not valid for Germany since the difference in KEA on a national and ANSP level is very different due to the impact of MUAC. The ERNIP reference values were provided at an ANSP level for RP3 and, therefore, do not allow for a fair comparison since KEA is measured on a national level.

Germany's component of the draft FABEC performance plan explained the actions implemented in 2019 will have an impact on the environmental performance during RP3. The actions in 2019 consist of preparations for FRA in Germany. Provided these are delivered, Germany will have fulfilled all major ERNIP projects, including step 2C of FRA implementation.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Germany plan for an environmental incentive scheme?	✗
Germany does not plan to apply an optional incentive scheme for the environment KPA.	

GERMANY

Capacity KPA

3.1 Summary of capacity key data and assessment results

Germany

3.1.1 En route ATFM delay

ANSP breakdown values defined in the performance plan are not consistent with the ANSP reference values during the whole RP3. The proposed ANSP breakdown values are higher than the NOP 2019-2024 (edition June 2019) forecasted delay for 2021 and 2022.

Analysis of the current capacity plans indicate that Langen and Karlsruhe ACC would face a capacity gap during the whole RP3 regardless which preferred route airspace users would use (current or shortest route option). Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	2.21	3.64	3.87	1.23	1.05
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	!	!

Trend of capacity targets shows a gradual convergence towards the reference values? **No**

Capacity target in the year 2024 is less than or equal to the 2024 reference value? **No**

3.1.2 Arrival ATFM Delay

The targets for RP3 continue the same trend as the targets for RP2, with a small gradual improvement (0.05 minutes delay reduction each year). Nevertheless, these targets (0.66 to 0.635 minutes delay per arrival) are still well above the observed past performance in 2015-2018 (average 0.42 minutes delay per arrival).

3.1.3 Incentives

En route capacity: Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for DFS.

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than the FAB dead band. Bonus could be paid out at approximately five times but delay targets are required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: Germany has modulated the pivot values to cover only CRSTMP targets, but these values are well above observed past performance. The low risk of penalty and the result (maximum penalty only 0.5%) does not seem to incentivise to improve or maintain the current performance.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

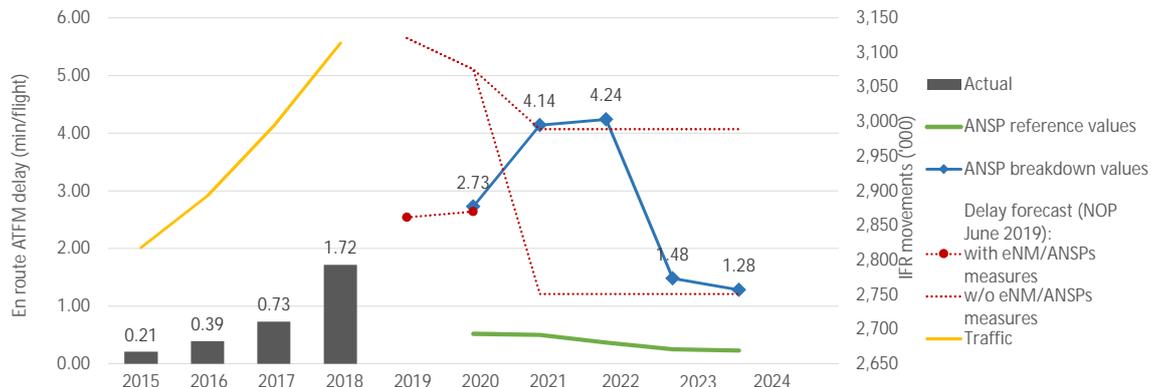
3.1.4 Investments

- Germany included an investment regarding the detection of drones in the performance plan.
- One third of the RP3 new major investments are related to iCAS project, which was already present during RP2 showing the biggest underspend of DFS's RP2 program.
- Germany included a correction in the performance plan defined as "experience-based correction by DFS management to show reduced depreciation figures" that reduces the amount of the total new and existing investments in 171.71M€ over the period.
- The capacity increase in RP3 will be mostly linked to the other new end existing investments (not to the major investments).
- Most of the capacity relevant major investment project are planned to enter the service only at the end of RP3 or later.
- The impact of the major investments and their necessity is difficult to assess on the provided information.

3.1.5 PRB conclusions

- The PRB concludes that the breakdown values proposed by Germany should not be approved.
- The capacity breakdown values are not reaching the reference values each year of the RP3. Proposed breakdown values are above the forecasted delay for 2021 and 2022. There is no adequate justification in setting the capacity breakdown values above the existing capacity delay forecasts.
- There is an inconsistency between measures provided in the performance plan, the ANSP breakdown values proposed, and the planned capacity profiles in the NOP.
- The measures provided in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight ✖



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual ATFM delay per flight	0.21	0.39	0.73	1.72						
ANSP reference values						0.52	0.50	0.37	0.25	0.23
ANSP breakdown values						2.73	4.14	4.24	1.48	1.28
Forecast with eNM/ANSPs measures*					2.54	2.64				
Forecast w/o eNM/ANSPs measures*					5.65	5.11		1.21-4.07		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✖	✖	✖	✖	✖
Deviation target v. reference value (minutes per flight)	2.21	3.64	3.87	1.23	1.05
2. NOP delay forecast is lower or equal to the PP capacity target	✔	✔	✔	⚠	⚠

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✖

Description of capacity enhancement measures

The performance plan mentions "extensive capacity initiative with more than 90 measures in the areas of capacity, staffing, network and framework conditions". In parallel, the performance plan refers to eNM/S19 initiative measures, additional recruitment and training of ATCOs and implementation of the ATM system iCAS.

The performance plan, however, does not contain detailed elaboration of measures, as described in the NOP 2019-2024 (June 2019 edition), which would allow to identify the link between the proposed targets and capacity enhancement measures.

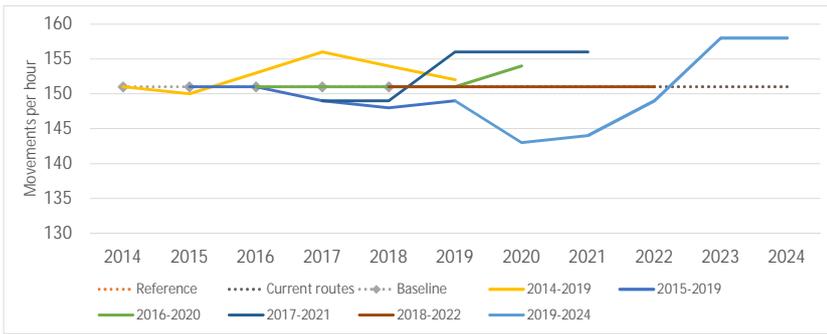
ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Total - DFS (en route)	Additional ATCOs in OPS to start working in the OPS room	n/a						
	ATCOs in OPS to stop working in the OPS room	n/a						
	ATCOs in OPS to be operational at year-end	n/a						

2024 (end) - 2020 (beg.)	
n/a	



Bremen ACC (EDWW)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						151	151	151	151	151	151
Current routes						151	151	151	151	151	151
Baseline	151	151	151	151	151						
2014-2019	151	150	153	156	154	152					
2015-2019		151	151	149	148	149					
2016-2020			151	151	151	151	154				
2017-2021				149	149	156	156	156			
2018-2022					151	151	151	151	151		
2019-2024						149	143	144	149	158	158

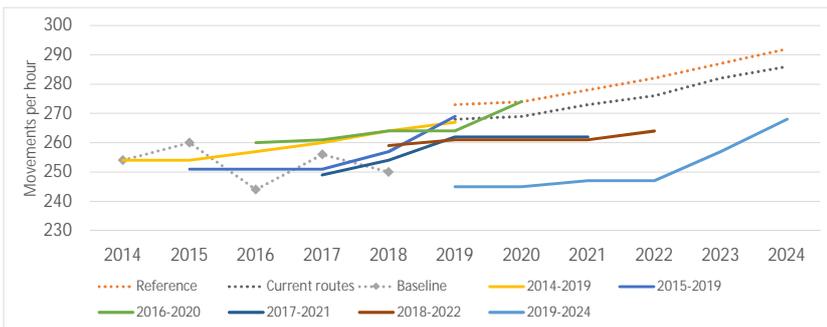
- Historical data shows that capacity plans were mainly followed and that the baseline value remained flat at 151 capacity profiles during the observed period.

- The latest capacity plans show annual decrease of capacity profiles for 2020 by 4%, between 2021 and 2023 annual increase between 0.7% and 6%, while for the last year of RP3 capacity profiles remain at the same level as in 2023.

- Planned capacity profiles are below both the current and reference route scenario for the first three years of RP3 while for the last two years they are above by 4.6%. It is expected that in the first three years of RP3, Bremen ACC may be expected.

- The NOP 2019-2024 (June 2019 edition) indicates that due to the implementation of projects and staff shortages, the performance of the ACC will be impacted and ATFM delays may occur in the timeframe 2020-2022. The capacity gap should be resolved in 2023 and 2024.

Langen ACC (EDGG)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						273	274	278	282	287	292
Current routes						268	269	273	276	282	286
Baseline	254	260	244	256	250						
2014-2019	254	254	257	260	264	267					
2015-2019		251	251	251	257	269					
2016-2020			260	261	264	264	274				
2017-2021				249	254	262	262	262			
2018-2022					259	261	261	261	264		
2019-2024						245	245	247	247	257	268

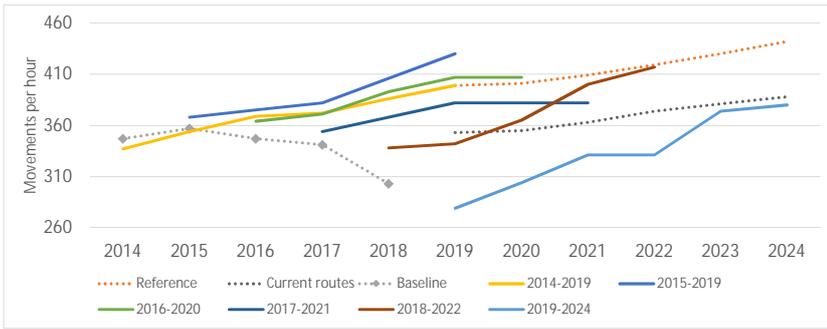
- Historical data shows that the baseline value increased all the years of the observed period with only exception in 2016 where the baseline value was decreased by 6.5%.

- The latest capacity plan show no or minor capacity increase first three years of RP3 with higher annual capacity increases expected for 2023 and 2024 (around 4% increase).

- The latest capacity plan shows significant deficit of planned capacity profiles versus both the current and reference route scenario. During RP3 annual capacity gap between planned capacity and current scenario amounts between -6.3% and -10.5%. At the same time annual capacity gap between planned capacity and reference scenario amounts between -8.2% and -12.4%.

- The NOP 2019-2024 (June 2019 edition) notes that due to the planned implementation of airspace projects and the new ATM System iCAS as well as staff shortages, a capacity gap is expected throughout the RP3.

Karlsruhe UAC (EDUU)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						399	401	409	419	430	442
Current routes						353	355	363	374	381	388
Baseline	347	357	347	341	303						
2014-2019	337	354	369	372	386	399					
2015-2019		368	375	382	406	430					
2016-2020			364	371	393	407	407				
2017-2021				354	368	382	382	382			
2018-2022					338	342	365	400	417		
2019-2024						279	304	331	331	374	380

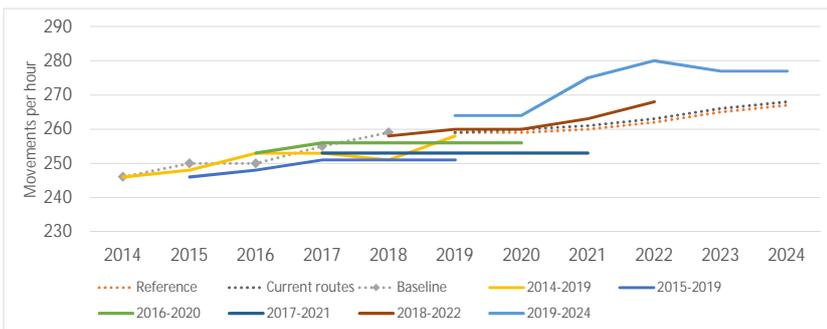
- Historical data shows that the baseline value significantly decreased between 2015 and 2018 and that the recent capacity were not followed.

- The latest capacity plan show planned annual capacity profile increases throughout the RP3 with exception of 2022 (whereas there is no growth expected). Significant annual capacity increase is foreseen in 2020 and 2021 (around 9%) and in 2023, by 13%.

- The latest capacity plan shows significant deficit of planned capacity profiles versus both the current and reference route scenario. During RP3 annual capacity gap between planned capacity and current scenario amounts between -1.8% and -14.4%. At the same time annual capacity gap between planned capacity and reference scenario amounts between -13% and -24.2%.

- The NOP 2019-2024 (June 2019 edition) notes that due to the staffing situation and capacity bottlenecks, high en-route ATFM delays per flight are expected throughout the RP3. From 2020 onwards, new licensed ATCOs shall allow for a gradual increase in capacity.

Munich ACC (EDMM)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						259	259	260	262	265	267
Current routes						259	260	261	263	266	268
Baseline	246	250	250	255	259						
2014-2019	246	248	253	253	251	258					
2015-2019		246	248	251	251	251					
2016-2020			253	256	256	256	256				
2017-2021				253	253	253	253	253			
2018-2022					258	260	260	263	268		
2019-2024						264	264	275	280	277	277

- Historical data shows baseline value increase during the observed period with only exception in 2016 whereas no baseline growth was achieved.

- Latest capacity plans show capacity profiles increase between 2020 and 2022. For 2023 there is expected decrease of capacity profiles by -1.1%, while for 2024 the planned capacity profiles remain at the same level as for 2023.

- The latest capacity plans show that planned capacity profiles are both above the current and reference route scenario, indicating that there is enough capacity in Munich ACC.

- The NOP 2019-2024 (June 2019 edition) indicates that no capacity bottlenecks are expected in Munich ACC within the RP3.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

Review of the special events leading to higher delays in some years of RP3

n/a

Review of the capacity enhancement measures related to special events

n/a

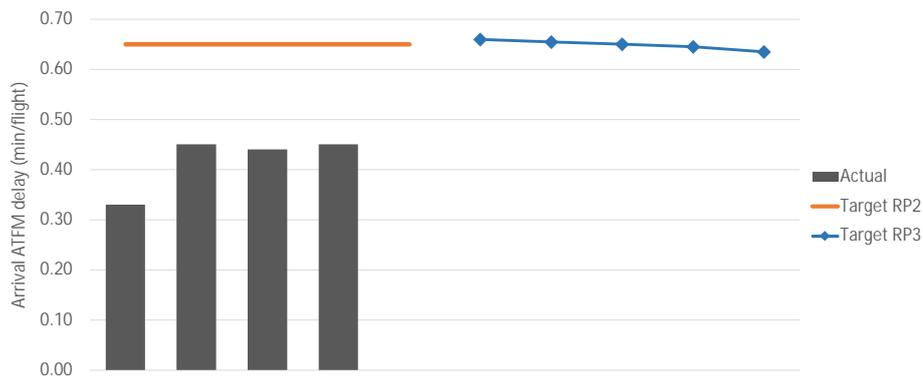
3.2.5 Review of the measures to increase capacity and address capacity gaps ✘

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure ✘
With low level of detail on capacity enhancement measures, it is difficult to make the link with proposed capacity targets.
- b) Measures proposed by the NM are implemented in the Performance Plan ⓘ
The performance plan does not contain the abovementioned information.
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM ⓘ
The performance plan does not contain the abovementioned information.
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values ⓘ
The performance plan does not contain the abovementioned information.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements) ⓘ
The performance plan does not contain the abovementioned information.
- f) Flexible use of operational staff is planned and ensured ⓘ
The performance plan does not contain the abovementioned information.
- g) Limitations of ATM system/infrastructure is mitigated ✔
The new ATM system is to be implemented during the RP3.

3.2.6 PRB Key Points ✘

- ANSP breakdown values are not consistent with the ANSP reference values and are above the forecasted delay for the years 2021 and 2022.
- Capacity plans indicate that DFS will face a capacity gap during the RP3.
- There is inconsistency in the performance plan regarding capacity enhancement measures and proposed targets. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

3.3.1 Overview of arrival ATFM delay per flight



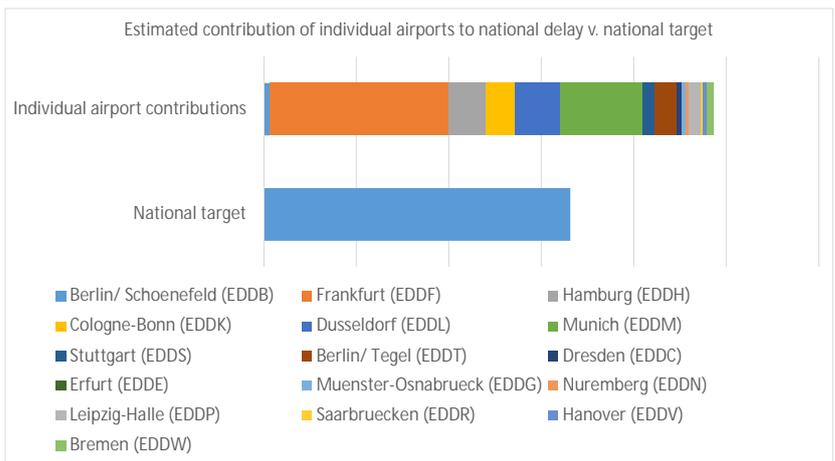
	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.33	0.45	0.44	0.45	-	0.66	0.66	0.65	0.645	0.635
Berlin/ Schoenefeld (EDDB)	0.00	0.05	0.04	0.01	-	0.28	0.28	0.28	0.28	0.28
Frankfurt (EDDF)	0.67	0.86	0.84	0.87	-	1.79	1.78	1.51	1.53	1.48
Hamburg (EDDH)	0.57	0.39	0.26	0.55	-	1.06	1.06	1.05	1.07	1.03
Cologne-Bonn (EDDK)	0.02	0.08	0.39	0.47	-	0.94	0.94	0.93	0.95	0.92
Dusseldorf (EDDL)	0.34	0.54	0.73	0.45	-	0.91	0.91	0.90	0.92	0.89
Munich (EDDM)	0.33	0.49	0.35	0.44	-	0.90	0.89	0.89	0.90	0.87
Stuttgart (EDDS)	0.09	0.08	0.13	0.14	-	0.46	0.46	0.46	0.46	0.45
Berlin/ Tegel (EDDT)	0.20	0.53	0.39	0.18	-	0.53	0.53	0.53	0.53	0.52
Dresden (EDDC)	0.00	0.01	0.00	0.00	-	0.92	0.92	0.91	0.91	0.90
Erfurt (EDDE)	0.00	0.00	0.00	0.01	-	0.27	0.27	0.27	0.27	0.27
Muenster-Osnabrueck (EDDG)	0.00	0.00	0.00	0.00	-	0.92	0.92	0.91	0.91	0.90
Nuremberg (EDDN)	0.00	0.00	0.01	0.00	-	0.26	0.26	0.26	0.26	0.26
Leipzig-Halle (EDDP)	0.00	0.18	0.12	0.35	-	0.76	0.76	0.76	0.77	0.74
Saarbruecken (EDDR)	0.00	0.00	0.00	0.00	-	0.92	0.92	0.91	0.91	0.90
Hanover (EDDV)	0.00	0.00	0.00	0.03	-	0.31	0.31	0.31	0.31	0.31
Bremen (EDDW)	0.00	0.03	0.01	0.41	-	0.86	0.86	0.85	0.87	0.84

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

The national targets are built based on the CRSTMP targets used as pivot values for the incentive scheme, and then a constant buffer for non-CRSTMP delay of 0.56 minutes has been added (no further details on this buffer are provided). This results in targets that are almost the same as the targets for RP2, but still around 50% higher than the observed performance in 2015-2018. This methodology is unclear and not duly justified.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min./flight)
Berlin/ Schoenefeld (EDDB)	0.28
Frankfurt (EDDF)	1.62
Hamburg (EDDH)	1.05
Cologne-Bonn (EDDK)	0.94
Dusseldorf (EDDL)	0.91
Munich (EDDM)	0.89
Stuttgart (EDDS)	0.46
Berlin/ Tegel (EDDT)	0.53
Dresden (EDDC)	0.91
Erfurt (EDDE)	0.27
Muenster-Osnabrueck (EDDG)	0.91
Nuremberg (EDDN)	0.26
Leipzig-Halle (EDDP)	0.76
Saarbruecken (EDDR)	0.91
Hanover (EDDV)	0.31
Bremen (EDDW)	0.85
National Target	0.65



Frankfurt is the main contributor in terms of delay (as it is in terms of IFR movements) followed by Munich, but the breakdown of the targets per airport does not correspond with the national target, assuming the same traffic share. That is, the potential delay associated to the target of the individual airports, 30% higher than the delay associated to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Berlin/ Schoenefeld (EDDB)	GROUP III	0.25	0.03	-0.22	0.28	+0.03
Frankfurt (EDDF)	GROUP I	0.87	0.81	-0.06	1.62	+0.74
Hamburg (EDDH)	GROUP III	0.25	0.44	+0.19	1.05	+0.81
Cologne-Bonn (EDDK)	GROUP III	0.25	0.25	+0.00	0.94	+0.69
Dusseldorf (EDDL)	GROUP III	0.25	0.52	+0.27	0.91	+0.66
Munich (EDDM)	GROUP I	0.87	0.40	-0.47	0.89	+0.02
Stuttgart (EDDS)	GROUP III	0.25	0.11	-0.14	0.46	+0.21
Berlin/ Tegel (EDDT)	GROUP III	0.25	0.33	+0.08	0.53	+0.28
Dresden (EDDC)	GROUP IV	0.01	0.00	-0.00	0.91	+0.80
Erfurt (EDDE)	GROUP IV	0.01	0.00	-0.00	0.27	+0.24
Muenster-Osnabrueck (EDDG)	GROUP IV	0.01	0.00	-0.01	0.91	+0.80
Nuremberg (EDDN)	GROUP IV	0.01	0.00	-0.00	0.26	+0.24
Leipzig-Halle (EDDP)	GROUP IV	0.01	0.17	+0.16	0.76	+0.55
Saarbruecken (EDDR)	GROUP IV	0.01	0.00	-0.01	0.91	+0.80
Hanover (EDDV)	GROUP IV	0.01	0.01	+0.0%	0.31	+3.0%
Bremen (EDDW)	GROUP IV	0.01	0.11	+1.0%	0.85	+8.0%

* GROUP I - Avg. mvts. in 2016-2018 $\geq 225,000$; GROUP II - Avg. mvts. in 2016-2018 $\geq 80,000$ and $< 225,000$ and seasonal; GROUP III - Avg. mvts. in 2016-2018 $\geq 80,000$ and $< 225,000$ and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 $< 80,000$

The two main airports in Germany showed better performance during RP2 than similar airports. On the other hand, five other airports performed worse than similar ones. The targets for RP3 represent a worsening with respect to the performance during RP2 and also a further worsening with respect to similar airports in each case.

3.3.5 PRB Key Points

The targets for RP3 continue the same trend as the targets for RP2, with a small gradual improvement (0.05 minutes delay reduction each year). Nevertheless, these targets (0.66 to 0.635 minutes delay per arrival) are still well above the observed past performance in 2015-2018 (average 0.42 minutes delay per arrival).

The targets have been developed based on a methodology which is unclear and not duly justified.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±2.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.52	0.50	0.37	0.25	0.23
Alert threshold (Δ Ref. value in fraction of min)	±0.066	±0.065	±0.059	±0.053	±0.052
Performance Plan targets	2.73	4.14	4.24	1.48	1.28
Pivot values for RP3	1.80	2.73	2.80	0.98	0.84

Threshold review

Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for DFS.

Modulation review

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Review of financial advantages/disadvantages

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than the FAB dead band; penalty only applicable if total FAB performance is worse than the FAB dead band. Bonus could be paid out at approximately five times delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±25.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.050	±0.048	±0.045	±0.043	±0.038
Performance Plan targets	0.66	0.66	0.65	0.65	0.64
Pivot values for RP3	0.10	0.10	0.09	0.09	0.08

Threshold review

The terminal incentive scheme includes a dead band of ±25% that allows for small variations in the arrival ATFM delay with no resulting bonuses or penalties.

Modulation review

Germany has chosen to modulate the pivot values according to CRSTMP causes. The performance plan explains that the value has been set on the basis of the RP2 performance and a buffer has been added, based on expected staffing issues and risk of delays due to the introduction of new technologies and the new Berlin airport.

The proposed pivot value starts at 0.10 minutes delay per arrival for 2020, and then decreases by 0.05 minutes per year for the rest of RP3. However, this pivot value is almost ten times the average performance in 2015-2018 (0.012 minutes delay per arrival).

Review of financial advantages/disadvantages

The scheme is symmetric, with maximum bonus/penalty of 0.5%. The low risk of penalty (given the fact that past CRSTMP delays are well below the target) and the result (only 0.5% penalty) does not seem to incentivise to improve or maintain the current performance.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✘

- En route capacity: Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for DFS.
- Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.
- Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. Bonus could be paid out at approximately five times delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

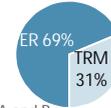
Germany has modulated the pivot values to cover only CRSTMP targets, but these values are well above observed past performance. The low risk of penalty and the result (maximum penalty only 0.5%) does not seem to incentivise to improve or maintain the current performance.

- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of	M€ (nominal)	90.0	95.1	101.8	114.9	136.5	538.4
	En route	66.1	67.7	71.3	76.9	88.0	369.9
	Terminal	24.0	27.4	30.6	38.0	48.5	168.5

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State. The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	iCAS architecture project	The new iCAS Architecture and peripheral systems will provide a more cost efficient and flexible mode of operation on Data Center Plattformen, i.e. IaaS, CaaS cloud service models. It is in line with the EATM Masterplan. More details can be found in section 2.3 of the performance plan.	71.9	No	Yes	4.5	0.0
2	iCAS Flight Object IOP	The iCAS Systemproject iCAS Flight Object IOP will implement the necessary functionality in the iCAS ATM system to prepare the deployment of Flight Object interoperability as part of iSWIM in the DFS and LVNL control centers. More details can be found in section 2.3 of the performance plan.	65.8	Yes	Yes	12.7	0.0
3	Data Center	Platform to support cost efficient operation modes for ATS Systems, i.e. IaaS, CaaS. More details can be found in section 2.3 of the performance plan.	37.9	No	Yes	17.5	4.4
4	New construction of an office building at the DFS Campus in Munich	Due to legal requirements, the existing old ACC building would need to be extensively renovated. A CBA comparing the cost for option 1 (the demolition of that building with the construction of a new office building for only administrative functions) with option 2 (renovation of the old ACC building) proved option 1 being the less expensive one.	13.5	No	No	2.7	0.7
5	Drone Detection System	In July DFS got the order by the Ministry of transport to establish at all 16 international airports a system to seek, recognize and identify all flight objects flying in the TMA illegally. More details can be found in section 2.3 of the performance plan.	272.0	No	No	0.0	30.4
6	Renovation of the Tower at the Munich airport	The project is set up to ensure full ATC provision up to and during the period of refurbishment. The project includes installation of full coverage ATC alternative facilities and contingency as well as partnership with the Airport for all activities required to successfully complete the project. More details can be found in section 2.3 of the performance plan.	61.2	No	No	0.0	2.0
7	PIPE2 – IP enhancement phase 2	The aim is to use an integrated network design to connect the applications of the communication, navigation and surveillance domains in a uniform and future-proof manner with an All-IP network. More details can be found in section 2.3 of the performance plan.	32.2	No	No	6.6	1.6
Total:						43.9	39.1

Airspace user feedback regarding major investments

The airspace users expressed their concerns about the lower than planned level of investments during RP2, the lack of a cost benefit analysis for full quantitative and qualitative effects of the investments and the lack of detailed information regarding the investments.

The airspace users also commented in the investment in Drone Detection System, arguing that it is against the EU legislation and on the fact that DFS has to pay for the renovation of the tower at the Munich airport.

Review of investments

Major new investments represent 12% of the total determined costs of investments over RP3. Investments #1 and #2 are related to the investment "iCAS programme", that represented DFS' major investment in RP2 by far and experienced the biggest underspend of DFS's RP2 program. In line with this, 2015-2018 actual CAPEX delivery reaches 66% of the planned values for the same period and the amount underspent is 196.06M€. It is uncertain if this amount will be reimbursed to the airspace users.

Germany included a correction in the performance plan defined as "experience-based correction by DFS management to show reduced depreciation figures" that reduces the amount of the total new and existing investments in 171.71€M over the period. More details regarding the correction can be found in section 2.3 of the performance plan.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	iCAS architecture project	Network, Local	Cost-efficiency	Data Center capability of DFS Center ATS System, Cloud Readiness for the ATS System iCAS.
3	Data Center	Local	Cost-efficiency	High scalable state of the art IT infrastructure, Redundant Data Centers, Wide Area Networks to operate ATS/COM systems operations by efficient state of the art maintenance concepts.
4	New construction of an office building at the DFS Campus in Munich	Local	Cost-efficiency	By replacing a too large oldbuilding with a smaller modernbuilding in Munich, management and operating costs are saved.
5	Drone Detection System	None	Safety, Capacity, Cost-efficiency	Required by the German Ministry of Transport.
6	Renovation of the Tower at the Munich airport	None	None	The facilities, used to provide ATC services for Munich airport require extensive refurbishing.
7	PIPE2 – IP enhancement phase 2	Local	Safety, Capacity, Cost-efficiency	Use an integrated network design to connect the applications of the communication, navigation and surveillance domains in a uniform and future-proof manner with an All-IP network.

Additional information

"The iCAS architecture and Data Centre will contribute to cost-efficiency by achieving the following objectives:

- Efficient implementations of future ATS functionalities with less effort and time
 - Flexibility and scalability of ATS/COM systems and services through standardized IT infrastructure
 - Optimisation of human resources utilisation in the whole system lifecycle by new processes and methods, as well as reduction of technology hosting sites
 - Cost efficient delivery of ATS Services
 - Improvement of Service Continuity by new Fallback / Contingency concepts
 - System architectures with a high degree of transversal functionalities leading to a high degree of reuse
- More details regarding the investments have been provided by the ANSP in the stakeholder consultations."

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	19.2	19.2	0.4	0.9	1.3	1.6	2.1	6.2
Existing investments			108.3	115.7	123.5	132.7	140.8	621.0

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 1% of the total determined costs of investments over RP3, while existing investments represent 87%. In terms of existing investments, DFS is engaged in a total of up to 31 combined and separate deployment projects/ initiatives. The Top Deployment Projects by investment volume are:</p> <ul style="list-style-type: none"> - iCAS System; - Deploying New Radar Technologies (MaRS): Implementation of SES by Improving Performance, Interoperability and Modernizing ATM in Germany; - Deploying a terrestrial European back-up for GNSS (incl. GALILEO) in-line with the European ATM Master Plan; - Deploying Remote Tower (RTC): Implementation of SES by Improving Performance and Modernizing ATM for Tower Service Provision in Germany; - Deployment of next Generation and VoIP Capable Centre Voice Communication System; and - TANGe (project start in RP2). <p>Those investments have been described in detail, including the expected benefits per KPA, in the RP2 Performance Plan, Section 2 (Investments), except for Project S-ATM Robusto, which has been introduced as unplanned investment in the Reporting for 2015.</p>
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand i

In the NOP 2019-2020, Germany has introduced capacity plan with the capacity enhancement measures, which are expected to deliver required capacity only Munich ACC (entire RP3) and Bremen ACC (2023 and 2024). Langen ACC and Karlsruhe ACC will remain with capacity gaps with improving trends towards the end of RP3. Most of the measures are related to airspace, ATFM and airport integration.

Some of the investment measures introduced by the performance plan may contribute to the capacity increase being directly or indirectly linked to the capacity measures provided in the NOP. Most of the capacity relevant major investments are planned to enter the service only at the end of RP3 or later delivering thus the expected benefits outside the RP3. The capacity increase in RP3 will be mostly linked to the other new and existing investments and the operational and airspace measures provided in the NOP and RP2 performance plan. Those investments namely include new ATM system (iCAS) supported partly by MaRS (new radar technology), VoIP and other. Detailed information on those projects was not available at the time of the RP3 performance plan assessment.

Investment #1 (2025), Investment #2 (2024) and Investment #3 (2021 and 2025) are going to support the new ATM system iCAS (which is to be deployed individually per ACC between 2020-2023). The level of interdependency between the ATM system and the major investments #1 - #3 could not be judged from the investments' description, therefore the level of the contribution to the capacity measures' contribution is difficult to assess.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan i

The information is not directly provided by the performance plan, making the assessment difficult. The capacity plan provides even lower capacity (same as France) than in the previous NOP edition. The capacity measures are mainly focused on the procedural, ATFM, airport integration and airspace improvements which could be supported by the new ATM system which is part of the existing investments (RP2).

The capacity benefits from the major capacity relevant investments may materialise only outside RP3. Regarding the necessity of the investment, the capacity improvements are going to be supported mainly by the RP2 project that extends into RP3 (iCAS). The impact of the major investments and their necessity is difficult to assess on the provided information. The investments into the major projects will start before their entry into service.

Without additional information, it is not known whether the major projects could deliver some benefits already between start of investing and putting them into service and how the new ATM system (iCAS) depends performance-wise on those investments. (Note: this may mean that the necessity of investments has been considered well before).

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ✓

The capacity increase in RP3 could be linked mostly to the other new and existing investments initiated in the RP2 which may support other capacity enhancement measures. Based on the comparison made between the capacity plan and the investment plan, it seems that capital expenditure and time for projects' implementation have been dully considered to timely support the capacity enhancement measures for the RP3.

The investments into the major projects will start before their entry into service. The impact of the major investments and their necessity is difficult to assess with the provided information.

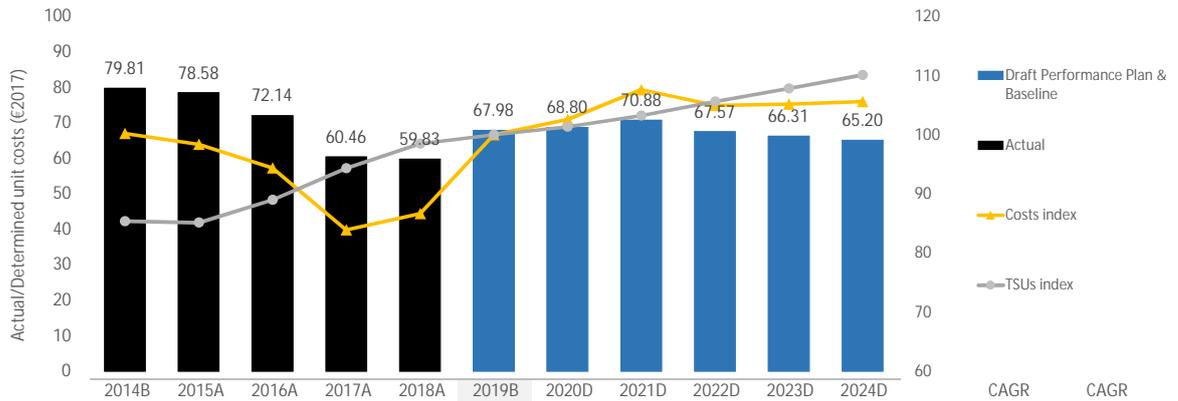
3.5.4 PRB Key Points ✗

- Germany included an investment regarding the detection of drones in the performance plan.
- One third of the RP3 new major investments are related to iCAS project, which was already present during RP2 showing the biggest underspend of DFS's RP2 program.
- Germany included a correction in the performance plan defined as "experience-based correction by DFS management to show reduced depreciation figures" that reduces the amount of the total new and existing investments in 171.71M€ over the period.
- The capacity increase in RP3 will be mostly linked to the other new end existing investments (not to the major investments).
- Most of the capacity relevant major investment project are planned to enter the service only at the end of RP3 or later.
- The impact of the major investments and their necessity is difficult to assess on the provided information.

GERMANY

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	1,016	998	961	865	906	-	1,101	1,171	1,161	1,183	1,209	-	+1.8%
Total costs	M€ (2017)	1,033	1,014	973	865	893	1,031	1,057	1,109	1,082	1,084	1,089	+1.1%	+0.5%
TSU	'000	12,941	12,906	13,490	14,374	14,989	15,159	15,367	15,653	16,016	16,346	16,697	+2.0%	+2.6%
AUC/DUC	€ (2017)	79.81	78.58	72.14	60.46	59.83	67.98	68.80	70.88	67.57	66.31	65.20		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	79.81	78.58	72.14	60.46	59.83	67.98	68.80	70.88	67.57	66.31	65.20		
Annual change	%		-1.5%	-8.2%	-16.2%	-1.0%	+13.6%	+1.2%	+3.0%	-4.7%	-1.9%	-1.7%	-0.8%	-2.0%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	67.98 €2017	✗
--	-------------	---

The 2019 baseline DUC value amounts to 67.98€ and it is +5.5% higher than the 2019 forecast DUC.

The proposed baseline value for en-route costs is +3.9% (+39.1M€2017) higher than the 2019 forecast value (which is in turn +11.0% or +98.1M€2017 higher than the 2018 actual). The 2019 baseline cost value reflect the latest available forecast for 2019, increased to consider the expected pension cost increase during RP3. As such, it is questionable whether these costs should be part of the 2019 baseline costs, since they will materialise only as from 2020 thus leading to an artificial improvement of the DUC trends.

The TSUs forecast selected for the computation of en-route 2019 baseline are -2.5% lower than the TSUs foreseen for 2019 by STATFOR February 2019 base scenario. This deviation is explained by the use of the latest, October STATFOR base forecast.

4.1.3 Summary of cost-efficiency assessment results

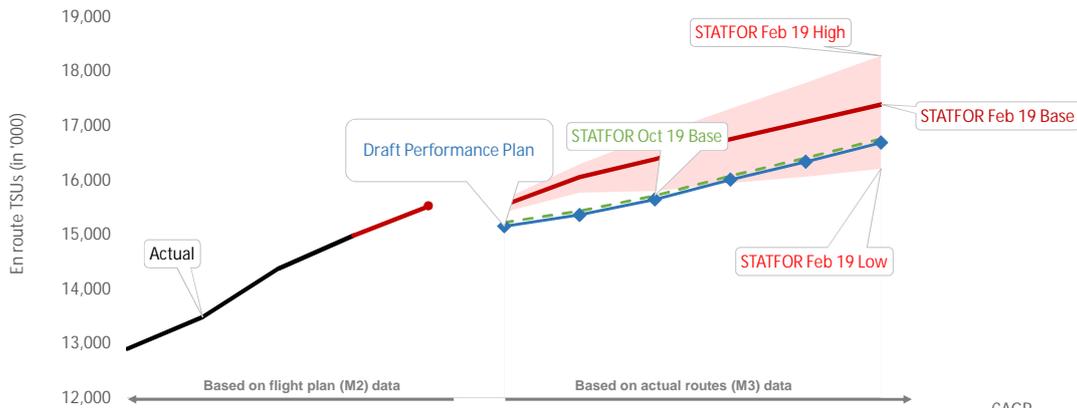
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-0.8%	✗
Germany proposes a -0.8% CAGR decreasing DUC trend over the RP3 period. The proposed trend deviates by about +1.1 p.p. from the Union-wide RP3 DUC trend target. No specific justification is provided in the draft performance plan to justify this deviation.		
The use of a lower 2019 baseline value (i.e. excluding the expected pension effect) would result in a significant deterioration of the RP3 DUC trend.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-2.0%	✗
The long-term DUC trend (2014-2024), included in the draft performance plan, follows a -2.0% CAGR dynamic. This is +0.7 p.p. higher than the required trend at Union-wide level (-2.7% CAGR).		
c) DUC level (2019 baseline) lower than the average of comparator group (A) average (60.84 €2017)?	+11.7%	✗
The 2019 baseline DUC level for Germany amounts to 67.98€, +11.7% above the average DUC of the comparator group (60.84€2017). It is noted that Germany presents the highest DUC within its comparator group, and the third highest at European level, in 2019 and for the whole RP3.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Germany should not be approved.

- Germany is not meeting any of the cost-efficiency criteria.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	12,906	13,490	14,374	14,989								
Annual change	%		+4.5%	+6.6%	+4.3%								
STATFOR Feb 19 Base	'000 TSUs					15,530	15,548	16,063	16,388	16,758	17,077	17,399	+2.3%
Annual change	%					+3.6%	+3.7%	+3.3%	+2.0%	+2.3%	+1.9%	+1.9%	
STATFOR Oct 19 Base	'000 TSUs					-	15,229	15,437	15,723	16,086	16,416	16,767	+1.9%
Annual change	%					-	+1.6%	+1.4%	+1.8%	+2.3%	+2.1%	+2.1%	
Performance Plan	'000 TSUs						15,159	15,367	15,653	16,016	16,346	16,697	+2.0%
Annual change	%						+1.1%	+1.4%	+1.9%	+2.3%	+2.1%	+2.1%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient		Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
		3 months	12 months		L	B	H	
2019B (PP baseline, M3)	15,159			2019B (PP baseline, M3)	15,159			
2019F (as in the Reporting tables, M2)	15,387			2019F (STATFOR Feb 19, M3)	L 15,419	B 15,548	H 15,663	-2.50%
2019B/ 2019F	-1.48%	+0.12%	+0.15%	2019F (STATFOR Oct 19, M3)	L 15,192	B 15,229	H 15,261	-0.46%

The traffic forecast selected for the 2019 forecast reflects the STATFOR May 2019 intermediate 2-year forecast for 2019 (minus 70,000 OAT flights).

The traffic forecast selected for the computation of the 2019 en route baseline (15,159,000 TSUs) reflects the STATFOR October 2019 base forecast (i.e. 15,229,000), after the deduction of 70,000 OAT traffic units. The value is -2.5% lower than the STATFOR February 2019 base forecast for 2019.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast
 Germany deviates from the STATFOR February 2019 base forecast and adopts a traffic forecast based on STATFOR October 2019 base forecast.

Germany decided to use the latest available forecast rather than relying on the February one, as initially included in the draft performance plan (before the update made in view of the completeness verification). However, no additional information is provided in the draft performance plan to justify this choice.

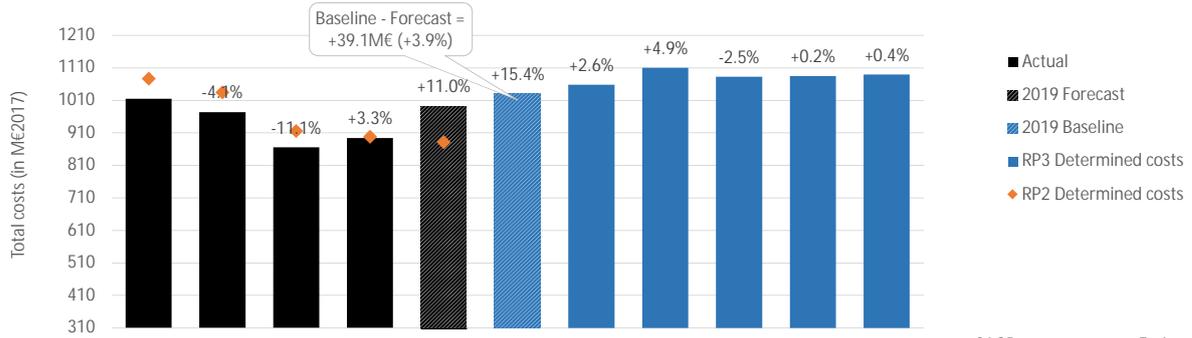
Review of the PP traffic forecast

The STATFOR October forecast revised downward the TSUs expectations for the 2020-2024 period as compared to the February forecast. In fact, based on February data, TSUs for Germany were expected to follow a +2.3% CAGR dynamic between 2019 and 2024. Differently, the October forecast project a +1.9% CAGR TSUs growth over the same period.

4.2.4 PRB Key Points

- Germany updated the traffic forecast during the completeness verification phase. The update was not foreseen nor required.

4.3.1 Overview of en route costs in RP2 and RP3



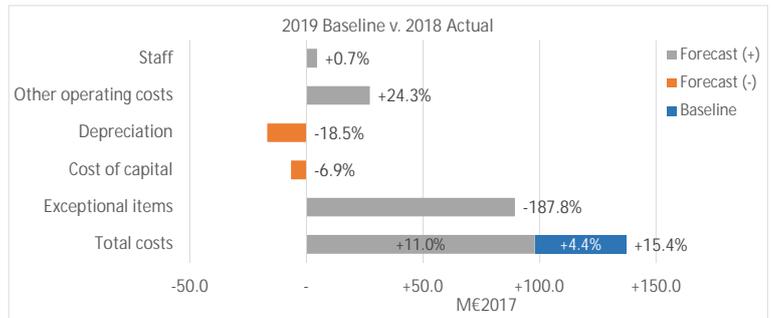
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	998	961	865	906	1,017	-	1,101	1,171	1,161	1,183	1,209	-	€:€
Annual change	%	-	-3.7%	-10.0%	+4.8%	+12.2%	-	-	+6.4%	-0.9%	+1.9%	+2.2%	+2.1%	1.00000
Inflation index	2017 = 100	97.9	98.3	100.0	101.9	103.3	103.3	105.0	107.0	109.4	111.8	114.3	-	-
Total costs	M€ (2017)	1,014	973	865	893	991	1,031	1,057	1,109	1,082	1,084	1,089	+1.1%	-
Annual change	%	-	-4.1%	-11.1%	+3.3%	+11.0%	+15.4%	+2.6%	+4.9%	-2.5%	+0.2%	+0.4%	+1.1%	-
Total costs	M€ (2017)	1,014	973	865	893	991	1,031	1,057	1,109	1,082	1,084	1,089	+1.1%	-

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+98.1	+11.0%
2019F v. 2019 RP2 DC	+110.3	+12.5%
2019F v. average 2015-2018	+55.1	+5.9%

2019 baseline analysis	M€2017	%
2019B v. 2019F	39.1	+3.9%



2019 forecast analysis

The 2019 forecast en route costs are +11.0% higher than the 2018 actual costs (+98.1M€2017) and significantly higher than the RP2 determined cost for 2019 (+12.5%, or +110.3M€2017). The main contributor to the deviation is DFS. The increase in 2019 forecasted ANSP's costs, as compared to 2018 actual costs, mainly reflects the removal of the State subsidies, which DFS reported in its 2015-2018 actual data, but were not included in the 2019 forecasted figures. It should be noted that, if these subsidies were removed also from 2018 actual DFS costs, the difference between 2018 actuals and 2019 forecasted costs would amount only to +10.4M€2017, rather than +98.1M€2017. As a result of this removal, the exceptional costs for 2019 reflect the IFRS conversion effects charged to users on a pro-rata basis between 2007 and 2021 included.

No specific information has been provided in the draft performance plan to justify the 2019 forecasted costs.

2019 baseline analysis

The proposed en route baseline costs value amounts to 1,031M€2017, which is +3.9% (or +39.1M€2017) higher than the 2019 forecasted costs. Germany computed the 2019 baseline on the basis of the latest 2019 costs forecast. According to the information provided in the draft performance plan, the higher 2019 baseline value, as compared to 2019 forecasts, reflects the expected increase in pension costs (from 2020 onwards) resulting from the lower interest rate. No additional information is provided in the draft performance plan to justify the increase noted in the 2019 baseline value as compared to 2019 forecasts.

In the light of the fact that the expected increase in pension costs will materialise only in 2020, a lower baseline cost value (in line with the 2019 forecasts after removal of the increase in pension costs) should be considered. The use of a lower baseline value would result in a -0.1% CAGR trend over RP3 (in contrast with the current -0.8% CAGR trend).

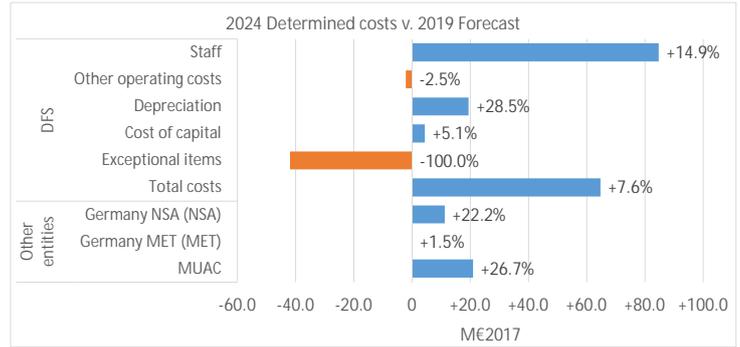
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✘ Investments (see details in 3.5)
- ✘ Cost of capital (see details in 4.3.1)
- ⓘ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



As far as the RP3 determined costs are concerned, these are expected to increase by about +1.1% CAGR between 2019 baseline and 2024 (+58.1M€2017). Since the 2019 baseline is above the 2019 forecasted costs, 2024 determined costs are about +97.2M€2017 (+9.8%) higher than the 2019 forecasts.

The main contributor to this increase is DFS, the costs of which are expected to increase by +7.6% (+64.8M€2017) between 2019 and 2024. Higher costs are mainly explained by a significant increase in staff costs (+14.9%, or +84.8M€2017). According to the additional information, this increase results from the combined effect of salary increases and additional recruitment, especially of ATCOs. According to the information provided by Germany, the increase in pension costs stemming from the use of a lower interest rate is expected to negatively impact the total staff costs starting from 2020. However, it is noted that this effect is already captured in the 2019 baseline and therefore should not be considered as a driver to explain the observed costs increase.

It is also noted that the exceptional items will decrease by -41.9M€2017 as a result of the termination of the IFRS conversion effects in 2021.

Additionally, it is noteworthy that with the objective of maintaining its unit rate stable over the RP3, Germany is using its cost of capital as "adjusting parameter" (bottom-up planning approach). Nevertheless, this cost of capital computation seems inconsistent with the provisions of the Regulation. Moreover, this 'bottom-up' planning approach may result in a change in cost allocation between en route and terminal (negative cost of capital in terminal).

Finally, it is noted that also the NSA and the other ANSP, MUAC, are expected to contribute to this cost increase (+11.3M€2017 for the NSA and +21.0M€2017 for MUAC). For MUAC, it is noted that the costs increase mainly reflects higher staff costs stemming from the progressive impact of taxation on pension (not included in MUAC cost base during RP2 because it was financed through the general Eurocontrol budget) and the recruitment and training of additional ATCOs.

Following a mistake in the reporting of the 2019 forecasted inflation rate, it is noted that the real en route determined costs series included in the updated draft Performance Plan differs from the costs presented in Annex A (en route reporting tables) for the years 2020-2024. The analysis provided in this document reflects the data included in Annex A, which are considered as the correct ones.

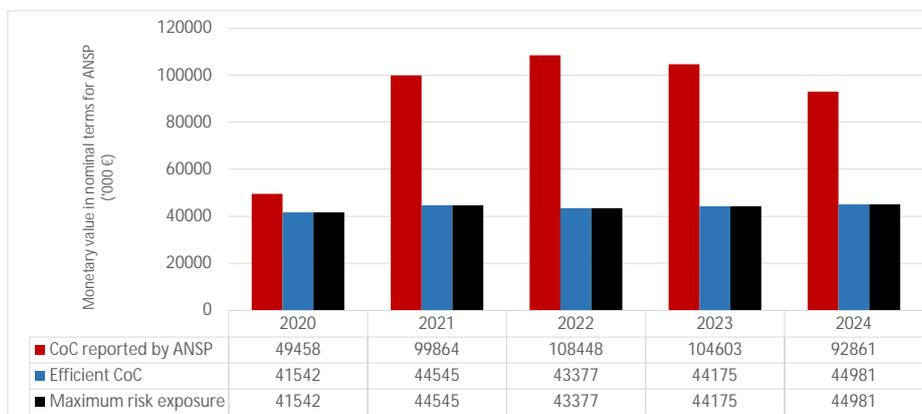
4.3.4 PRB Key Points

- The 2019 forecast en route costs are +11.0% higher than the 2018 actual costs (+98.1M€2017) and significantly higher than the RP2 determined cost for 2019 (+12.5%, or +110.3M€2017). The increase mainly reflects the removal of State subsidies.
- The proposed en route baseline costs value amounts to 1,031M€2017, which is +3.9% (+39.1M€2017) higher than the 2019 forecasted costs. However, the pension cost change should not be included in the baseline since they only materialise from 2020.
- The costs over the period increase mainly driven by higher staff costs reflecting ATCOs recruitment and general salary increase. This increase in costs is partially compensated by the termination of the IFRS conversion effect in 2021.
- The cost of capital is artificially computed (bottom-up planning approach).
- MUAC RP3 determined costs are expected to increase as a result of the application of taxation on pension and large ATCOs recruitment.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	944,147	1,012,378	985,846	1,003,980	1,022,285
Monetary value of Return on Equity	n/a	n/a	n/a	n/a	n/a
Ratio RoE/DC (%)	n/a	n/a	n/a	n/a	n/a

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	7915	55319	65071	60428	47880

Total 2020-2024	236,614
-----------------	---------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	2.4%	n/a	6.8%	n/a	7.2%	n/a	6.5%	n/a	5.5%	n/a
Interest on debts	2.2%	n/a	3.1%	n/a	3.1%	n/a	3.0%	n/a	3.1%	n/a
Capital structure (% debt)	40.1%	n/a	34.7%	n/a	31.4%	n/a	27.6%	n/a	24.6%	n/a
WACC	2.7%	2.2%	5.5%	2.4%	5.9%	2.4%	5.6%	2.4%	4.9%	2.4%

Is the interest on debts in line with the market? Yes

- DFS has two loans from 2020 to 2023 at an average interest rate of 4.40% in 2020, and 2.31% in 2021-2023. However, DFS has considered for the calculation of the cost of debt the interest costs of the pension scheme and from the general interest expense. The capital structure results from the carry on of the determined unit rate under consideration of the planned costs. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate for both real and reported interest rates is duly justified and in line with competitive market practices.

- DFS has calculated the cost of capital to reflect the difference between determined costs and planned costs due to the bottom-up planning of DFS because of the decision to carry on the determined unit rate from the year 2019 (RP2) over the whole RP3. In consequence, the return on equity is not explicitly defined.

- The efficient cost of capital is computed in line with the maximum risk exposure.

- Over the period 2020-2024 the reported cost of capital is 236.61M€ above the efficient cost of capital. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provides notional parameters for the WACC.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	527,954	542,430	553,560	569,391	567,194
Net current assets	528,206	580,347	663,761	739,025	822,550
Adjustments total assets	806,199	698,690	612,628	556,378	501,495
Total asset base	1,862,359	1,821,467	1,829,949	1,864,794	1,891,239

- The fixed asset base increases over the period. This is broadly in line with the investments described in section 3.5 of this document.

- The net current assets seem excessive compared to the expected cash-flow.

- The adjustments to the RAB are due to outstanding receivables from the conversion of the external reporting from HGB to IFRS and outstanding receivables for the difference between the obligation and plan assets of the pension scheme.

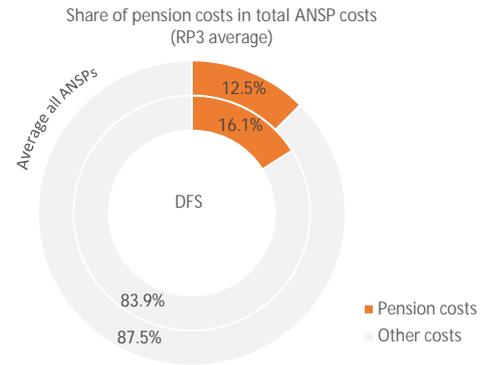
- The total asset base slightly increases over the period.

4.3.A.5 PRB Key Points

- DFS has calculated the cost of capital to reflect the difference between determined costs and planned costs due to the bottom-up planning approach.

- The reported cost of capital is 236.61M€ above the efficient cost of capital over the period 2020-2024. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provides notional parameters for the WACC.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	151.6	150.2	148.5	147.3	146.1
Year on year variation	% change		-0.9%	-1.1%	-0.8%	-0.8%
Share in total ANSP costs	%	16.8%	15.7%	16.2%	16.1%	15.9%
Year on year variation	p.p.		-1.1p.p.	0.5p.p.	-0.1p.p.	-0.1p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Slight decrease**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Higher**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **Yes**

The IFRS conversion effects, resulting from the change of the accounting system to IFRS, is included in the exceptional items cost category. This conversion effect is charged to airlines on a pro-rata basis and spread proportionally from 2007 till 2021.

Additionally, it is understood that the cost of capital is also including some pension costs since the asset base is adjusted to account for outstanding receivables arising from the conversion to IFRS. On average, over RP3, this adjustment corresponds to about one third of the total asset base (see analysis developed in section 4.3 of this document).

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

No changes are expected in RP3.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

During RP3 the assumptions related to this pension scheme are not planned to change. However, the discount rate and the expected return on planned assets are expected to decrease in 2020 as compared to the RP2 hypothesis.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Germany states that "controlling the risk is difficult. Above data has been prepared under the support of a national actuary providing an opinion on the expected interest rates on plan assets in the years 2020-2024".

Additionally, it is noted that in 2005, in order to reduce the risk associate with pension costs, DFS's employees that joined this pension scheme after 2005 received a pension based on their average salary, rather than on their final one.

4.3.B.4 PRB Key Points

- Pension costs are higher than the European average.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

Germany did not mention changing the cost allocation methodology with respect to RP2.

The allocation of costs is done according to the cost objects, type of costs by nature and type of costs by service. These costs are divided into staff costs, other operating costs, project costs and depreciation, then they are allocated to en route or terminal according to the location where they incurred.

The allocation of costs is based on the division in which they originally accrue. Costs of the divisions Centre and Tower can be assigned directly to the cost units. The costs of the support divisions are charged according to the services to each division. The overhead costs are distributed according to the share of the cost units in the direct costs.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

n/a

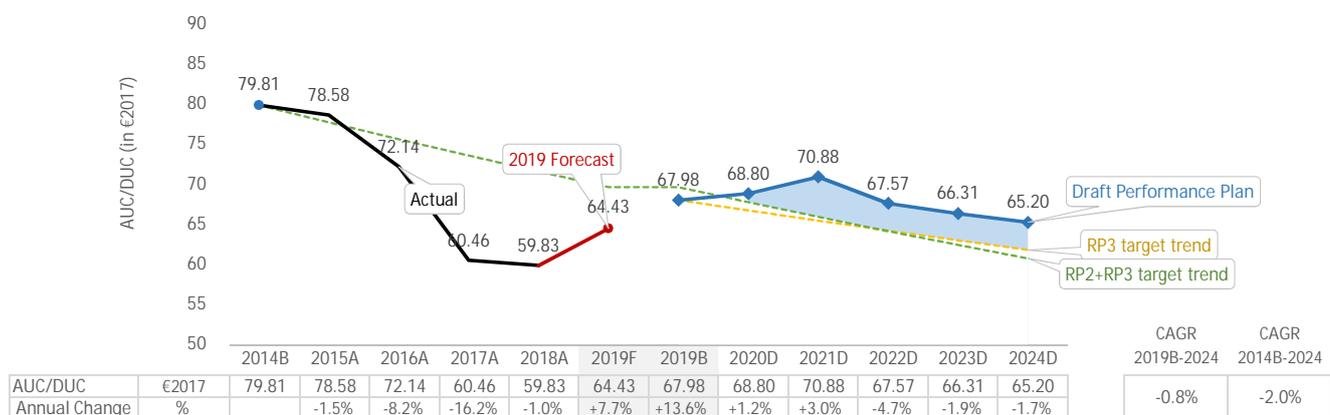
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points !

- Germany did not mention a change in the cost allocation methodology with respect to RP2.
- The PRB notes that the 'bottom-up' for the calculation of the unit cost approach applied by Germany results in negative cost of capital in terminal and a disproportionate increase in cost of capital in en route, which may practically result in a cost allocation change.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-0.8%	Union-wide trend	-1.9%	Difference	+1.1p.p.
PP trend	-2.0%	Union-wide trend	-2.7%	Difference	+0.7p.p.
PP 2019 baseline	67.98	Average comp. group	60.84	Difference	+11.7%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Germany proposes a -0.8% CAGR decreasing DUC trend over the RP3 period. The proposed trend deviates by about +1.1 p.p. from the Union-wide RP3 DUC trend target.

It is estimated that if Germany had removed the effect of changes in pension assumptions from the 2019 baseline and applied it only from 2020 onwards, the resulting DUC trend would present a significantly worse dynamic (-0.1% CAGR) as compared to the current -0.8% CAGR.

As far as it concerns the RP2 and RP3 long-term trend, Germany presents a -2.0% decreasing DUC trend between 2014 and 2024. This is +0.7 p.p. higher than the required Union-wide trend (i.e. -2.7% CAGR).

As far as it concerns the consistency of the 2019 DUC level with the average DUC of the comparator group, the 2019 DUC for Germany (67.98€) is +11.7% above the average DUC of the comparator group (60.84€). It is noted that Germany presents the highest DUC within its comparator group, and the third highest at European level, in 2019 and for the whole of RP3.

Cost deviations from cost-efficiency trends are not analysed since the capacity targets are not consistent (more details in section 3.2 of this document). Moreover, no specific justifications are provided in the draft performance plan to explain the deviation; similarly a description of the measures put in place to achieve the DUC target is not provided neither in the body of the performance plan nor in separate Annexes.

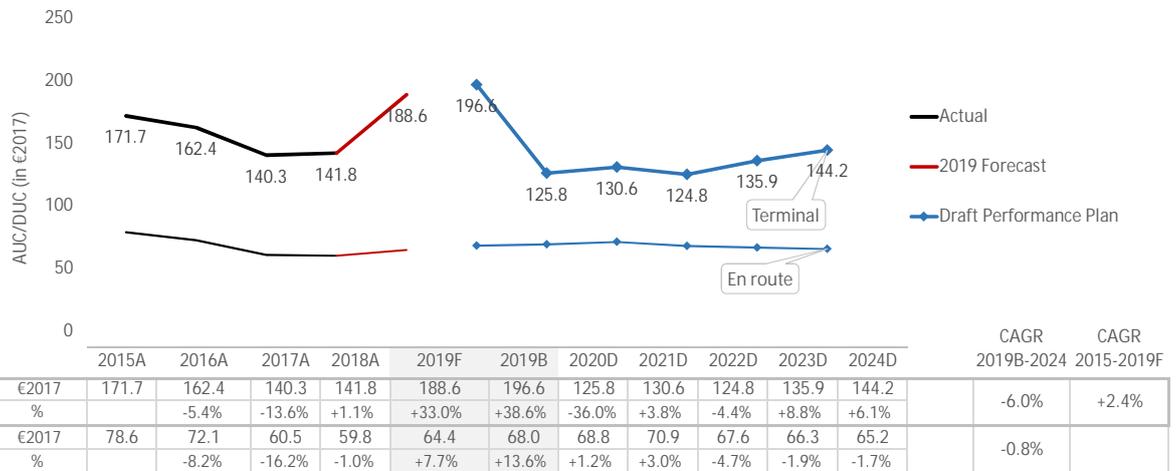
4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- Germany is not meeting any of the cost-efficiency criteria.
- Germany presents one of the highest DUC at European level.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Frankfurt (EDDF)	GROUP I	139.5	79.0	-44.4%	130.5	32.6	-75.0%
Hamburg (EDDH)	GROUP III	171.3	165.3	-3.5%	167.4	153.4	-10.4%
Cologne-Bonn (EDDK)	GROUP III	171.3	164.7	-3.8%	167.4	116.2	-33.6%
Dusseldorf (EDDL)	GROUP III	171.3	131.4	-23.3%	167.4	89.5	-46.5%
Munich (EDDM)	GROUP I	139.5	86.1	-38.3%	130.5	40.9	-68.7%
Stuttgart (EDDS)	GROUP III	171.3	202.5	+18.2%	167.4	203.3	+21.4%
Berlin/ Tegel (EDDT)	GROUP III	171.3	134.2	-21.7%	167.4	-	-
Berlin/ Schoenefeld (EDDB)	GROUP III	171.3	295.5	+72.4%	167.4	-	-
Dresden (EDDC)	GROUP IV	673.8	724.3	+7.5%	647.6	-	-
Erfurt (EDDE)	GROUP IV	673.8	2865.1	+322.2%	647.6	-	-
Muenster-Osnabrueck (EDDG)	GROUP IV	673.8	1186.1	+76.0%	647.6	-	-
Nuremberg (EDDN)	GROUP IV	673.8	440.1	-34.7%	647.6	-	-
Leipzig-Halle (EDDP)	GROUP IV	673.8	200.0	-70.3%	647.6	-	-
Saarbruecken (EDDR)	GROUP IV	673.8	1994.8	+194.0%	647.6	-	-
Hanover (EDDV)	GROUP IV	673.8	324.4	-51.9%	647.6	-	-
Bremen (EDDW)	GROUP IV	673.8	451.2	-33.0%	647.6	-	-

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

At terminal level, it is noted that the average DUC over the RP3 period for five airports included in Germany TCZ is well below the median DUC of similar airports. Only for Stuttgart airport the average DUC is above the median DUC of similar airports. For the others airports included in the German TCZ, the required data are not provided.

The DUC evolution for Germany TCZ follows a -6.0% CAGR decreasing DUC trend between 2019 baseline and 2024, which is better than the trend presented for en route, and mainly driven by the reporting of a negative cost of capital (see analysis below for details).

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	1,471.2			
2019F (STATFOR Feb 19)	L 1,490.4	B 1,516.7	H 1,536.3	-3.00%
2019F (STATFOR Oct 19)	L 1,465.6	B 1,471.2	H 1,476.3	=B

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+68.4	+32.7%
2019 Forecast v. Avg. 2015-2018 Actual	+60.9	+28.1%
2019 Baseline v. 2019 Forecast	11.7	+4.2%

As far it concerns the 2019 baseline value at terminal level, Germany TCZ presents a higher 2019 baseline costs value than 2019 forecast (+11.7M€2017, or +4.2%). It is noted that the 2019 forecast is itself significantly higher than the 2018 actual costs for TCZ (+32.7%, or +68.4M€2017), and in general higher than the 2015-2018 average actual costs. As for en route, the 2019 baseline value for terminal was estimated on the basis of the latest forecast for 2019 (including the expected increase in pension costs over RP3).

As far it concerns the 2019 baseline TNSUs, these are based on the STATFOR October 2019 base forecast. As a result, the TNSUs included in the draft performance plan are -3.0% lower than the TNSUs foreseen by STATFOR February base forecast.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Terminal TNSUs for Germany TCZ are based on the STATFOR October base forecast for the entire RP3 period. No specific justification is provided in the draft performance plan to support this choice, except the fact that Germany decide to follow the latest available forecast.

Review of the PP traffic forecast

Traffic evolution for Germany TCZ is below the one presented by the February forecast. While in 2019 baseline the TNSUs selected in the draft performance plan are -3.0% lower than STATFOR February base forecast, in 2024 this difference is expected to reach -4.2%.

Determined costs (terminal)

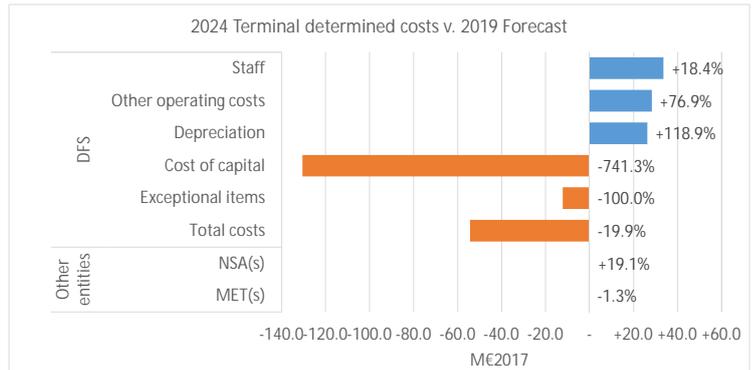
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - DFS (terminal)

- 📌 Investments (see details in 3.5)
- ✗ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- 📌 Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



The share of terminal investment costs (31%) is higher than the share of terminal total costs (17%).

Terminal determined costs are expected to decrease by -54.2M€2017 between 2019 forecast and 2024. The main contributor to this costs decrease is DFS (-19.9%, or -54.3M€2017), for which this cost reduction reflects the reporting of a negative cost of capital, triggered by the application of a negative WACC at terminal level. As for en route, Germany explains that the cost of capital is treated as an adjustment factor to maintaining a stable DUR from 2019 onwards. However, this is not foreseen in the Regulation as it might result in a situation of cross-subsidies between en route and terminal charging zones.

With regards to en route, the exceptional items, included in 2019 baseline, are planned to reduce by -12.2M€2017 as a result of the termination of the IFRS conversion effects in 2021.

On the contrary, all the other cost categories are expected to increase between 2019 forecast and 2024.

4.5.4 PRB Key Points

- The Terminal RP3 DUC is -6.0%, which is better than the en route RP3 DUC trend of -0.8%.
- The Terminal RP3 DUC is -6.0%, which is better than the Terminal RP2 DUC trend of +2.4%.
- Frankfurt and Munich, the main airports, had a DUC lower with 43.4% and 38.3%, respectively, than the average of their comparator group over RP2. The difference is expected to be -75.0% and -68.7%, respectively, over RP3. There is no information regarding the RP3 DUC for ten airports included in the performance plan. Muenster-Osnabrueck and Saarbruecken airports had a DUC significantly higher than the average of their comparator groups over RP2.
- Germany used the STATFOR October 2019 base forecast for terminal traffic. The baseline of this forecast is lower (-3.0%) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs decrease over the period, due to a significant decrease in cost of capital. More explanation on this significant change can be found in section 4.3.A of this document.
- Germany TCZ presents a higher 2019 baseline costs value than 2019 forecast (+11.7M€2017, or +4.2%), and higher than the 2018 actual costs (+32.7%, or +68.4M€2017).

PRB Assessment

LUXEMBOURG

Draft Performance Plan

Context and scope

Luxembourg

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21.11.2019
 Documents no: 1760, 1761, 1691, 1692, 1427, 1415, 1445, 1476, 1476, 1452, 1425, 1439, 1457, 1429, 1432, 1461, 1462, 1466

Relative weight compared to the SES area (2018):

% Flight-hours v. SES n/a
 % Costs V. SES n/a

Scope

FAB: FABEC

ANSPs: ANA LUX

ATM, MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Luxembourg Civil Aviation Authority

Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	n/a	n/a	No	No	n/a	
Terminal	Luxembourg - TCZ	1	No	No	Yes	
Changes in the CZs from RP2	No					

Comparator group: Group n/a Other States in the comparator group: n/a

Currency: € Exchange rate: 1.00000

1. Safety n/a

2. Environment n/a

3. Capacity

Capacity PP targets

	2020	2021	2022	2023	2024
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.12	0.12	0.12	0.12	0.12

PRB Assessment

The PRB notes the following issues as regards terminal capacity performance targets:

- Past performance indicates that more ambitious performance targets may be set for Arrival ATFM delay targets.
- The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency n/a

PRB Recommendations

CAPACITY

- Luxembourg should revise the incentive scheme so that it has a material impact on the revenues and motivates the ANSP to improve its performance.
- Luxembourg should justify the terminal RP3 capacity targets with respect to RP2 actual performance and with respect to similar airports, or should revise terminal RP3 capacity targets downwards

LUXEMBOURG

Capacity KPA

3.1.1	En route ATFM delay	n/a
-------	---------------------	-----

3.1.2	Arrival ATFM delay	
-------	--------------------	--

Luxembourg has proposed a constant target for RP3 of 0.12 minutes per arrival delay, which is slightly above past performance and also the performance of similar airports, but still an important improvement with respect to the RP2 target.

3.1.3	Incentives	
-------	------------	--

Terminal incentives:

Luxembourg has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is 0.05 minutes per arrival, which is five times the average CRSTMP delay during RP2, combined with very low maximum bonus/penalty (0.25%).

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4	Investments	
-------	-------------	--

- The performance plan does not provide details regarding other new and existing investments.
- The 2015-2018 actual CAPEX delivery reached 89% of the planned for the same period and the underspend amounts to 1.7M€.
- It is uncertain if this amount will be returned to the airspace users in RP3 or if ANA LUX will materialise all the investments by the end of RP2 or in RP3.
- The major investment projects does not seem to be capacity related (unless more information is provided).
- No information on the other new and existing investments is available.
- The contribution of the investment projects to the capacity levels both en route and terminal cannot be assessed.

3.1.5	PRB conclusions	✘
-------	-----------------	---

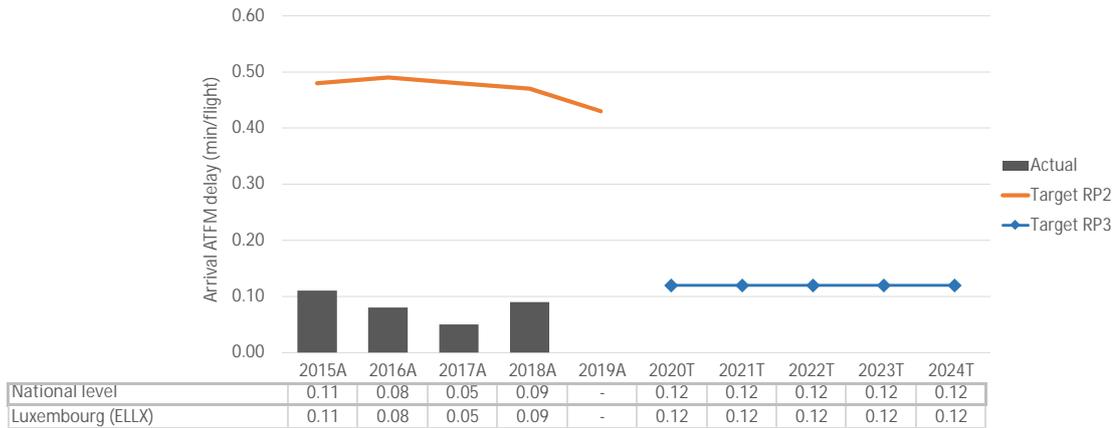
The PRB notes the following issues as regards terminal capacity performance targets:

- Past performance indicates that more ambitious performance targets may be set for Arrival ATFM delay targets.
- The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

3.2 En-route ATFM delay per flight (not applicable)

Luxembourg - ANA LUX

3.3.1 Overview of arrival ATFM delay per flight

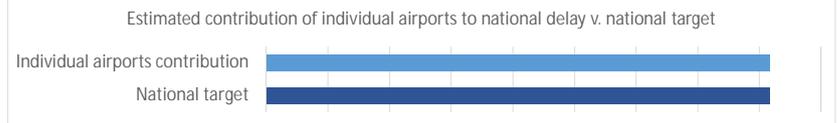


3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Luxembourg has proposed a constant target for arrival ATFM delay during RP3 (0.12 minutes delay per arrival). This target is a reduction of almost 75% compared with the targets during RP2, but still slightly higher than observed performance in 2015-2018.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Luxembourg (ELLX)	0.12
National Target	0.12



As Luxembourg is the only airport included in the performance plan, the national target coincides with the airport target and the potential delay contribution is only associated to this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Luxembourg (ELLX)	GROUP IV	0.01	0.08	+0.08	0.12	+0.11

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The performance of Luxembourg in the past reference period is slightly worse than the median of similar airports (+0.08 minutes delay per arrival). The target set for RP3 represents a slight further worsening with respect to the actual performance of similar airports (+0.11 minutes more delay per arrival).

3.3.5 PRB Key Facts

- Luxembourg has proposed a constant target for RP3 of 0.12 minutes delay per arrival, which is slightly above past performance and also the performance of similar airports, but still an important improvement with respect to the RP2 target.

3.4.1 En route capacity incentive scheme n/a

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±30.0%	0.250%	0.250%
	✔	⚠

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.025	±0.025	±0.025	±0.025	±0.025
Performance Plan targets	0.12	0.12	0.12	0.12	0.12
Pivot values for RP3	0.05	0.05	0.05	0.05	0.05

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

Threshold review

The terminal incentive scheme includes a dead band of ±30% that allows for small variations in the arrival ATFM delay with no resulting bonuses or penalties.

Modulation review

Luxembourg has chosen to modulate the pivot values according to CRSTMP causes. The performance plan argues that the pivot value chosen (0.05 minutes delay per arrival) has been calculated to be as close as present values as possible taking into account the evolution of the airport during RP3, although in fact the average CRSTMP delay per arrival during RP2 (2015-2018) was only 0.01 minutes delay per arrival. The reasons for this difference with past performance argued in the performance plan's consultation material are an upcoming runway rebuild and to create a solid dead band. The upcoming runway rebuild should not be included in the CRSTMP delays, as it would generate regulations under code G-Aerodrome capacity, out of CRSTMP causes; and the dead band is already guaranteed by the ±30% included as defined dead band, so no extra buffer for this should be built in the pivot value.

Review of financial advantages/disadvantages

The terminal incentive scheme is symmetric. The low level of bonus/penalty (only 0.25%) together with the low risk of not meeting the pivot value (given the fact that past delays are well below such pivot values) does not seem to incentivise to improve or maintain the current performance.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Facts ✘

Terminal incentives:

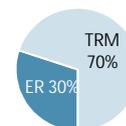
- Luxembourg has chosen to modulate the pivot values according to CRSTMP causes.
- The pivot value chosen is 0.05 minutes delay per arrival, which is five times the average CRSTMP delay during RP2 and is combined with very low maximum bonus/penalty (0.25%).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	3.0	3.0	3.5	3.7	4.0	17.1
En route	M€ (nominal)	0.9	0.9	1.0	1.1	1.3	5.1
Terminal	M€ (nominal)	2.1	2.1	2.4	2.6	2.7	12.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Radar / SUR: A-SMGCS Level 2 and updates	A-SMGCS Level 1 (monitoring) is already installed and operational on ELLX. Level 2 installation ensures the tracking and monitoring of aircraft and transponder equipped vehicles on the airport as a safety tool.	2.7	Yes	No	0.0	0.0
2	Communication systems: VCS/VCR, emergency radio; ADD and AMHS	Installation of a new voice communication system (HW replacement, 8.33 kHz capable) and voice recording system for ATC. Upgrade of emergency radio to a telephone based system, replacement of ATC Data Display (ADD) and ATC Message Handling System (upgrade) for SUR, Flight Data, weather(current & forecast) as an important safety tool.	3.1	Yes	No	0.0	0.0
3	Navigation systems: ILS24 and PDME, DME-DIK	Implementation of a new Instrument Landing System (ILS) and distance metering equipment (DME) at RW24 and DME -DIK	1.5	Yes	No	0.0	0.0
4	Aeronautical Systems: AIS/AIM, eTOD and MET	Implementation of modern AIM / AIS aeronautical, digital production and management systems including digital NOTAM in line with future requirements. Installation of electronic terrain and obstacle data (eTOD) and data management system for all areas as required.	4.0	Yes	No	0.0	0.0
Total:						0.0	0.0

Airspace user feedback regarding major investments

n/a

Review of investments

Major new investments represent 15% of the total determined costs over RP3.

The 2015-2018 actual CAPEX reaches 89% of the planned for the same period and the underspend amounts to 1.7M€. It is uncertain if this amount will be returned to the airspace users in RP3 or if ANA LUX will materialise all the investments by the end of RP2 or in RP3.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	15.7	7.4	0.3	0.6	0.7	1.0	1.0	3.6
Existing investments			2.6	2.1	2.2	2.0	1.9	10.8

Description and justification of other new and existing investments in fixed assets planned over RP3

Other new investments represent 21% of the total determined costs of investments over RP3, while existing investments represent the 63%. The performance plan does not provide details regarding other new and existing investments.

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

ANA LUX provides ATM service only in the terminal area of the Luxembourg airport. Some of the investment projects could be linked to the terminal capacity measures listed in the performance plan but not to the capacity enhancement measures introduced in the capacity plan in the NOP. It is difficult to assess the projects' contribution level to the terminal capacity and the impact on the arrival delays due to limited information on the major investment projects. The Annex E of the performance plan was not available during the assessment as well. The en route airspace over Luxembourg is controlled by the ANSP Belgium (skeyes). The contribution of the measures provided by the ANA LUX to the BEL-LUX en route airspace capacity increase cannot be assessed on the details provided by the performance plan.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

The investment projects are focused mainly on the continuity of service and replacement of old systems. Runway/taxiway capacity study is ongoing and the performance plan does not seem to reflect the NM's recommendations yet. From the information provided in the performance plan, it cannot be concluded whether the ANA LUX has or has not considered the necessity of capacity improvements.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

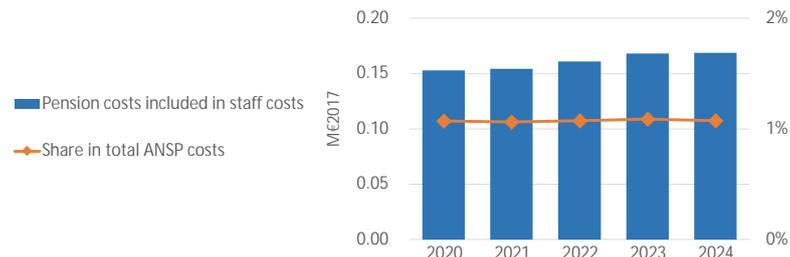
The major investment projects do not seem to be capacity related (unless more information is provided). No information on the other new and existing investments is available.

- The performance plan does not provide details regarding other new and existing investments.
- The 2015-2018 actual CAPEX delivery reached 89% of the planned for the same period and the underspend amounts to 1.7M€.
- It is uncertain if this amount will be returned to the airspace users in RP3 or if ANA LUX will materialise all the investments by the end of RP2 or in RP3.
- The major investment projects does not seem to be capacity related (unless more information is provided).
- No information on the other new and existing investments is available.
- The contribution of the investment projects to the capacity levels both en-route and terminal cannot be assessed.

LUXEMBOURG

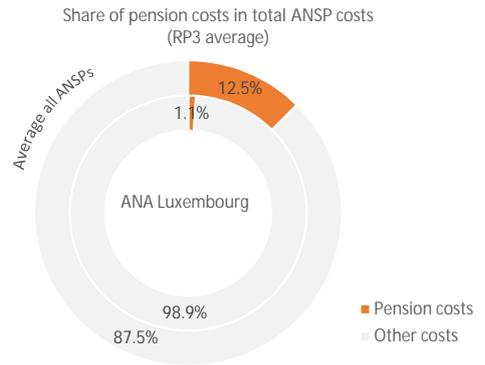
Cost-efficiency KPA

4.5.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	M€2017	0.153	0.154	0.161	0.168	0.169
Year on year variation	% change		+1.0%	+4.2%	+4.5%	+0.3%
Share in total ANSP costs	%	1.1%	1.1%	1.1%	1.1%	1.1%
Year on year variation	p.p.		0.0p.p.	0.0p.p.	0.0p.p.	0.0p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Stable**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.5.B.2 Reporting exceptions and planned changes in assumptions

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

4.5.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

"The pension costs depend on the status of the person. For a public servant there is no employer's share, whereby for a salaried employee an employer's share of 8 % exists. Regarding this regulation there are no changes expected for RP3. The calculation is based on the assumption that one third of our staff are salaried employees, whereby the other two third are public servants. (as in 2018)"

4.5.B.4 PRB Key Points

- No major issues identified.

4.5.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

"The total costs are allocated to the different cost centers (en route, terminal, aerodrome, other), based on the applicable RP3 cost allocation key. The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres. The criteria for the allocation of costs between en route and terminal ANS are similar to RP2, based on the actual efforts and costs for service provision observed in RP2. Within the controlled airspace of Luxembourg, a limit of 20 km around the ELLX Airport has been considered, in order to split the costs between en route and terminal services provided. Regarding the arrivals, the transfers of the aircraft are performed from approximately 60NM inbound of Luxembourg Airport. For the departing flights, transfers from TWR to APP are performed just after the aircraft is airborne according to the Standard Instrument Departure (SID). The APP ATCO's ensure the climbing and the separation of traffic before handing over to the neighbouring ACCs. In addition to these climbing and descending flights, the approach controls a considerable number of overflights above the Luxembourg territory and inside the area of responsibility of ANA. For the APP ATCO's, services provided outside of the 20 km cylinder represent an important part of their workload. According to the operational practices used in many European countries, Luxembourg has assigned the costs of the workload produced by those approach flights outside the 20 km cylinder to the en route cost base."

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.5.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

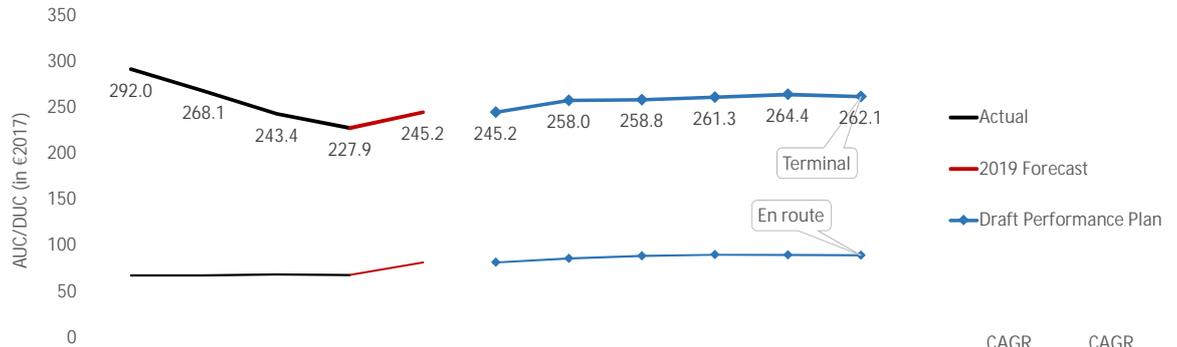
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.5.C.3 PRB Key Points ✓

- Luxembourg does not mention change of the cost allocation methodology with respect to RP2.
- No major issues identified in the cost allocation methodology.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2024
AUC/DUC - Terminal	€ (2017) 292.0	268.1	243.4	227.9	245.2	245.2	258.0	258.8	261.3	264.4	262.1	+1.3%	-4.3%
Annual Change	%	-8.2%	-9.2%	-6.4%	+7.6%	+7.6%	+5.2%	+0.3%	+1.0%	+1.2%	-0.9%		
AUC/DUC - En route*	€ (2017) 67.6	67.8	68.8	68.1	81.8	81.8	86.0	88.8	90.1	90.0	89.5	+1.8%	
Annual Change	%	+0.2%	+1.5%	-1.0%	+20.2%	+20.2%	+5.1%	+3.3%	+1.5%	-0.2%	-0.5%		

* Luxembourg is included in Belgium's En route charging zone

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Luxembourg (ELLX)	GROUP IV	673.82	257.0	-61.9%	647.6	260.9	-59.7%

GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The unit cost for Luxembourg (ELLX) was significantly lower than the median of their comparator group during RP2 (-61.9%) and the difference with respect to the median of the comparator group stays lower during RP3 (-59.7%).

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	55.4			
2019F (STATFOR Feb 19)	L 54.5	B 55.4	H 56.2	=B
2019F (STATFOR Oct 19)	L 55.0	B 55.2	H 55.5	+0.36%

Costs

2019 forecast & baseline review	ME 2017	%
2019 Forecast v. 2018 Actual	+1.2	+9.7%
2019 Forecast v. Avg. 2015-2018 Actual	+1.3	+10.9%
2019 Baseline v. 2019 Forecast	0.0	+0%

TNSU baseline:

- For terminal, Luxembourg uses the STATFOR February 2019 base forecast, which is +0.36% higher than the October 2019 base forecast.

Terminal cost baseline:

- As far it concerns the 2019 baseline at terminal level present the same baseline costs than the 2019 forecast costs.

- The 2019 forecast is +1.2ME2017 (+9.7%) higher than the 2018 actual costs, +10.9% above the average of the 2015-2018 actual costs.

"The baseline value for determined costs has been estimated by taking into account the actual 2018 costs, the budget for 2019 and the latest available information for 2019. The increase of costs is due to an increase of the operating costs, mainly due to the training costs of the ab initio's and to an increase of the depreciation costs due to a catch-up in the investments planning and the activation of main investments in 2019. The depreciation costs are fully borne by the State and have no impact on the unit rate."

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Review of the PP traffic forecast

-The Terminal Navigation Service Unit forecast is in line with STATFOR February 2019 base case TNSU forecast over all years of RP3.

Determined costs (terminal)

Is inflation in PP in line with IMF (April 2019 forecast)?

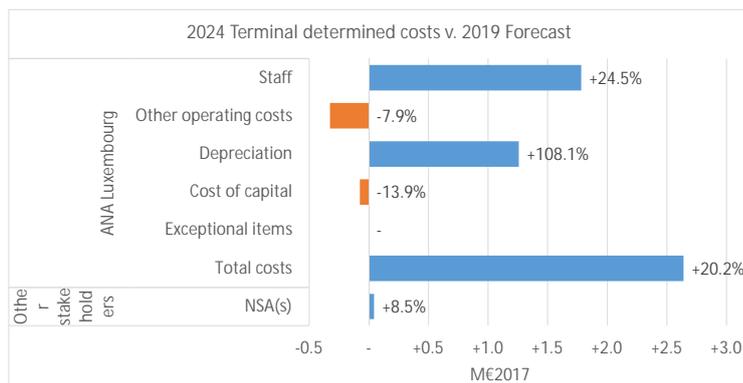
Deviation from index < 1p.p. in 2024

Cost elements - ANA Luxembourg (terminal)

- Investments (see details in 3.5)
- n/a Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.25%
Maximum penalty (% of determined costs)	0.25%
Additional incentives?	No



- Terminal WACC and its parameters are equal to the ones for en route.
- The terminal DUC trend over RP3 planned for Luxembourg TCZ (+1.3%) is lower than that the planned for en route (+1.8%).
- Over RP3, the ANA terminal costs are planned to increase by some +20.2% (+2.6M€2017). The driver behind this planned increase is the staff costs (+24.5% or +1.8M€2017) and the depreciation costs (+108.1%, or +1.3M€2017).

The additional information to the Reporting Tables provide some level of justification for the staff costs increase:

- Indexation: according to Luxembourg state principles (career shifts, mobile scale);
- Additional staff in ATC: third position in TWR and APP, anticipation of retirements of ATCOs (to increase capacity);
- Additional staff in AIS: due to actual understaffing and additional tasks which will be financed by the state;
- Additional staff in CNS: need to catch-up (significant number of projects to be finished and realised during RP3)."

Regarding the depreciation costs, this are justified by:

- The historical cost accounting method is used, with a linear depreciation.
- Significant amount of ongoing projects to be operational during RP3 (>13 M€).
- New investment/projects amounting to 27M€ planned for RP3.

Please note: depreciation will continue to be carried by the State of Luxembourg throughout RP3. These costs are excluded of the chargeable unit rate via the "other revenues – national public funding" section."

4.5.4 PRB Key Points

- The terminal RP3 DUC trend is +1.3%, better than the en route RP3 DUC trend of +1.8%. The en route charging zone mentioned in this analysis is the Belgium-Luxembourg en route charging zone.
- The terminal RP3 DUC trend is +1.3%, worse than the Terminal RP2 DUC trend of -4.3%.
- Luxembourg, the only airport included in the performance plan, had a DUC 61.9% lower than the average of its comparator group over RP2. The difference is expected to be -59.7% over RP3.
- Luxembourg used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to an increase in staff costs.

PRB Assessment

MUAC

Draft Performance Plan

Context and scope

MUAC

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21-11-2019

Relative weight compared to the SES area (2018):	
% Flight-hours v. SES	n/a
% Costs V. SES	n/a

Scope

FAB: FABEC

ANSPs: MUAC

ATM

Other entities (as per Article 1(2) last para. of Regulation 2019/317): n/a

n/a

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges
En route	n/a	n/a	n/a	n/a	n/a
Terminal	n/a	n/a	n/a	n/a	n/a

Comparator group: n/a Other States in the comparator group: n/a

Currency: € Exchange rate: 1.00000

1. Safety ✘

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
MUAC	Safety policy and objectives	✘	✘	✘	✘	C
	Safety risk management	✘	✘	✘	✘	D
	Safety assurance	✘	✘	✘	✘	C
	Safety promotion	✘	✘	✘	✘	C
	Safety culture	✘	✘	✘	✘	C

PRB Assessment

The PRB concludes that the safety targets proposed by MUAC should not be approved.
 -MUAC did not provide the EoS targets for 2020-2023.
 -MUAC did not provide relevant and sufficient measures to achieve the RP3 safety target levels.
 -MUAC did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment n/a

Environment performance plan targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	2.29%	2.29%	2.29%	2.20%	2.15%

PRB Conclusions

- The PRB concludes that the environment targets proposed by MUAC should not be approved.
 - MUAC's horizontal flight efficiency targets are not in line with its ANSP reference values published in the June 2019 ERNIP.

3. Capacity ✘

Capacity performance plan targets

	2020	2021	2022	2023	2024
Breakdown value for <u>en route</u> ATFM delay per flight (min)	0.95	0.90	0.80	0.65	0.40
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	n/a	n/a	n/a	n/a	n/a

PRB Assessment

The PRB concludes, that the capacity breakdown values proposed by FABEC Member States for MUAC should not be approved.
 - Breakdown values proposed for MUAC are not meeting the reference values in any calendar year of the third reference period.
 - The performance plan does not provide sufficient information on the re-sectorisation of the airspace controlled by MUAC and the surrounding ACCs.
 - The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency n/a

PRB Recommendations

SAFETY

- MUAC should provide targets for all years of RP3
- MUAC should propose sufficient measures to achieve the planned targets in 2024

ENVIRONMENT

- FABEC Member States should revise the performance plan to achieve consistency with the FAB ANSPs reference values

CAPACITY

- FABEC Member States should revise the performance plan, introduce additional measures and set more ambitious en route ATFM delay breakdown values for MUAC to achieve consistency with Union-wide targets.
- FABEC Member States should provide more information on the re-sectorisation of the airspace controlled by MUAC and the surrounding ACCs.
- FABEC Member States should revise the incentive scheme for MUAC, so that it has a material impact on the revenues and motivates the ANSP to improve its performance.

MUAC

Safety KPA

1.1.1 Target for EoSM for ANSPs

The performance plan with regards to the safety KPA is incomplete, i.e. the targets are missing for 2020-2023 for MUAC.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes in the ATM functional system on interdependencies and trade-off with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.1.4 Change Management

Detailed change management processes and transition plans are described for MUAC.

The described processes ensure that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by MUAC should not be approved.

-MUAC did not provide the EoSM targets for 2020-2023.

-MUAC did not provide relevant and sufficient measures to achieve the RP3 safety target levels.

-MUAC did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
MUAC	Safety policy and objectives	✗	✗	✗	✗	C	✓	
	Safety risk management	✗	✗	✗	✗	D	✓	
	Safety assurance	✗	✗	✗	✗	C	✓	
	Safety promotion	✗	✗	✗	✗	C	✓	
	Safety culture	✗	✗	✗	✗	C	✓	

The interim EoSM targets have not been defined for 2020-2023 for MUAC. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any specific measures but explains that: "Regular exchange amongst experts in the FABEC Safety Performance and Risk Coordination (SPRC) Task Force three times a year as permanent agenda item. Furthermore, within the yearly FABEC Performance Monitoring Reporting (Report) EoSM results of the previous year are gathered and monitored. Weaknesses / major discrepancies will be spotted and counteracted by the responsible six NSAs."

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3.

Additionally, it is considered that the measures are not sufficiently described in the draft performance plan.

1.3.1 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-offs with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.3.2 Change Management Practices

In MUAC, the PRINCE process is applied for change management, tailored to the needs of the ATM environment. The change management process is reviewed for consistency with MUAC Work Plan.

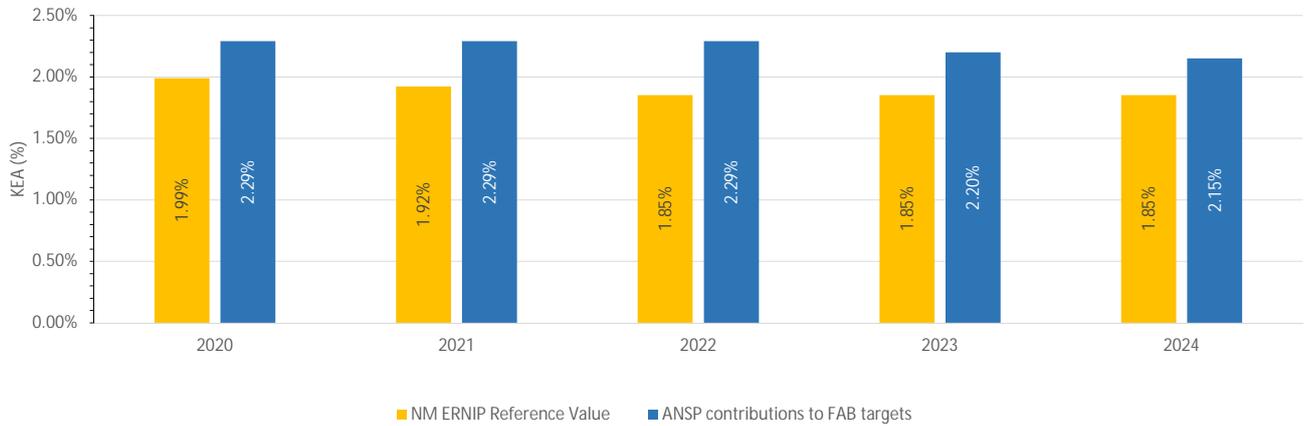
None of the described change management procedures referred directly to the current regulation. However, the approaches presented by the ANSPs provide assurance that any new implementation will be conducted in a manner that minimises any negative impact on the network performance.

MUAC

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Draft FABEC targets	3.25%	3.25%	3.25%	3.15%	3.00%
ANSP reference values	1.99%	1.92%	1.85%	1.85%	1.85%
ANSP contributions to FAB targets	2.29%	2.29%	2.29%	2.20%	2.15%
Comparison of ANSP contributions with ANSP reference values	▲0.30%	▲0.37%	▲0.44%	▲0.35%	▲0.30%
Consistency with ANSP reference values	✗	✗	✗	✗	✗



2.1.2 PRB Conclusions ✗

The PRB concludes that the environment targets proposed by MUAC should not be approved.
 - MUAC's horizontal flight efficiency targets are not in line with its ANSP reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓		
FRA is offered above FL245.			
Major ERNIP Recommended Measures:	1		
Measure included within performance plan?		Reference in PP Implemented	Reference in ERNIP Page 130
FRAM2 - Phase 3	✓		

MUAC submitted draft environment targets that are inconsistent with its reference values. MUAC committed to implementing FRAM2 to achieve consistency with the pilot common project, specifically free route airspace.

MUAC controls the upper airspace in The Netherlands, Belgium, Luxembourg and parts of Germany. The MUAC section of the draft performance plan identified improved FUA in Belgium, The Netherlands and Germany as a measure to achieve the targets.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does MUAC plan for an environmental incentive scheme?	✗
An optional incentive scheme for the environment KPA is not applied for MUAC.	

MUAC

Capacity KPA

3.1.1 En route ATFM delay

MUAC breakdown target values are higher than the reference breakdown values, however, they are lower than NOP delay forecast values for all years of RP3.
 The capacity gap for MUAC will remain for all years of RP3, based on current capacity plans.
 There is a positive trend in the ANSP breakdown values, effectively decreasing the targeted delay values by more than 57% over RP3.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	0.59	0.55	0.57	0.47	0.22
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.1.2 Arrival ATFM delay n/a

3.1.3 Incentives

En route capacity: Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed breakdown values for MUAC.

Several modulation processes are in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Maximum of 0.5% bonus and penalty. Bonus is only triggered if total FABEC performance is better than FAB dead band; penalty is only applicable if total FAB performance is worse than FAB dead band. Bonus could be paid out at approximately twice the delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, in the attribution of cause of delay could impact financial incentive.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Major investments #1 (IOP-G programme) and #2 (New ATCO Consoles) could be linked to the capacity improvement concepts and may support some of the capacity enhancement measures agreed by the NOP 2019 - 2024, however, are not expected to deliver required capacity.

The FABEC Performance plan does not provide information on individual projects' dependencies and coordination (expected in ERNIP 2020-2025).

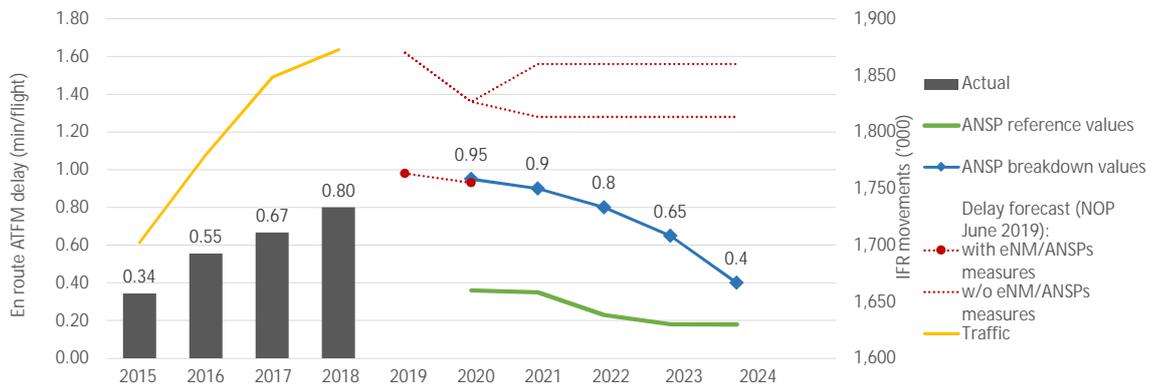
The actual CAPEX for 2015-2018 reaches 34% of the planned values for the same period and the amount underspent is 41M€.

MUAC intends to continue some of its investments that started in RP2.

3.1.5 PRB conclusions ✗

- The PRB concludes, that the capacity breakdown values proposed by FABEC Member States for MUAC should not be approved.
- Breakdown values proposed for MUAC are not meeting the reference values in any calendar year of the third reference period.
 - The performance plan does not provide sufficient information on the re-sectorisation of the airspace controlled by MUAC and the surrounding ACCs.
 - The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight ✘



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual ATFM delay per flight	0.34	0.55	0.67	0.80						
ANSP reference values						0.36	0.35	0.23	0.18	0.18
ANSP breakdown values						0.95	0.90	0.80	0.65	0.40
Forecast with eNM/ANSPs measures*					0.98	0.93				
Forecast w/o eNM/ANSPs measures*					1.62	1.36		1.28-1.56		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✘	✘	✘	✘
Deviation target v. reference value (minutes per flight)	0.59	0.55	0.57	0.47	0.22
2. NOP delay forecast is lower or equal to the PP capacity target	✔	✘	✘	✘	✘

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP ⓘ

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- Training and cross-training additional controllers;
- Scrutinising the use of operational staff in developments;
- New social agreement;
- Study on reducing the number of sectors during the night;
- Addition of a third layer in the DECO sector group;
- UK-interface;
- A set of airspace management related initiatives.

The measures outlined in the performance plan are in line with the latest NOP. The performance plan also gives reference to NOP measures.

ATCO Planning (FTEs)

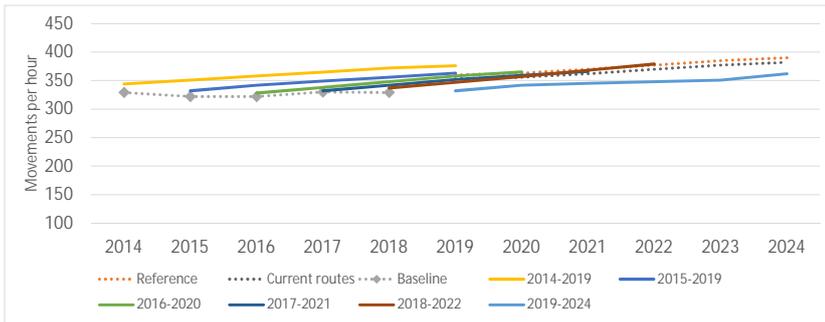
		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Total - MUAC (en route)	Additional ATCOs in OPS to start working in the OPS room	n/a						
	ATCOs in OPS to stop working in the OPS room	n/a						
	ATCOs in OPS to be operational at year-end	n/a						

2024 (end) - 2020 (beg.)

n/a

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ❌

Maastricht ACC (EDYY)



- Historical data shows that following an increase in 2015, baseline values returned to the baseline of 2014 by 2018, resulting in an overall average 0% change. Capacity plans during the same period were consistently higher than baseline values.

- Latest planned capacity profiles show an average annual increase of 1.75% over RP3. Most of this increase is planned for 2020 and 2024 (3% and 3.1% of increase) and 0.9% in all other years.

- When compared against the reference profiles, planned capacity profiles show a capacity gap ranging from -6.1% to -9.7%, gradually increasing until 2023, followed by a decrease in 2024, arriving at -7.7%. When compared against current routes profiles, the tendency remains the same, with capacity gaps ranging from -4.1% to -7.4%, finally arriving to -5.5% in 2024.

- Capacity plans show that MUAC will face a capacity gap over all years of RP3.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						360	363	370	377	385	390
Current routes						353	356	362	370	377	382
Baseline	329	322	322	330	329						
2014-2019	344	351	358	365	372	376					
2015-2019		332	342	349	356	363					
2016-2020			328	338	348	358	365				
2017-2021				332	342	352	359	366			
2018-2022					337	347	357	368	379		
2019-2024						332	342	345	348	351	362

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps ⓘ

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure ✔
The performance plan contains additional measures compared to those included already in the latest NOP. These are seen as effective in closing part of the capacity gap, however not sufficient.
- b) Measures proposed by the NM are implemented in the Performance Plan ✔
The performance plan refers to the measures defined in the NOP.
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM ✔
All measure are implemented.
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values ❌
There is no information in the performance plan regarding measures proposed by the NSA.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements) ⓘ
The performance plan contains measures regarding ATCO recruitment, training and cross-training, although information on planned number of ATCOs is not provided. According to capacity plans, staffing plans are not sufficient to close the gap.
- f) Flexible use of operational staff is planned and ensured ⓘ
The performance plan contains measures aimed the flexible use of operational staff. There is also a reference regarding a new agreement with social partners focusing on mitigating capacity issues, however this is still regarded as provisional.
- g) Limitations of ATM system/infrastructure is mitigated ⓘ
The performance plan contains no information on ATM system/infrastructure limitations, however, there are no limitations identified as causes of the capacity gap.

3.2.6 PRB Key Points ❌

- MUAC breakdown target values are higher than reference breakdown values, however, they are lower than NOP delay forecast values for all years of RP3.
- The capacity gap for MUAC will remain for all years of RP3, based on current capacity plans.
- There is a positive trend in the breakdown target values, effectively decreasing the targeted delay values by more than 57% over RP3.
- The performance plan does not provide sufficient information on the re-sectorisation of the airspace controlled by MUAC and the surrounding ACCs.

3.3. Arrival ATFM delay per flight (not applicable)

MUAC

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.05 min	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.36	0.35	0.23	0.18	0.18
Alert threshold (Δ Ref. value in fraction of min)	±0.058	±0.058	±0.052	±0.050	±0.050
Performance Plan targets	0.95	0.90	0.80	0.65	0.40
Pivot values for RP3	0.63	0.59	0.53	0.43	0.26

Threshold review

Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed MUAC targets.

Modulation review

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Review of financial advantages/disadvantages

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. Bonus could be paid out at approximately twice the delay required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme n/a

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ⚠

- Maximum bonus and penalty are set at 0.5% of revenue.
- Pivot values are modulated for CRSTMP and also for the 'trend' of the reference values.
- Pivot values are linked to breakdown targets proposed by MUAC, thus bonuses could be realised with delay values which are approximately twice as high as the breakdown reference values.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	11.0	9.4	9.0	9.0	10.1	48.4
En route	M€ (nominal)	11.0	9.4	9.0	9.0	10.1	48.4
Terminal	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	IOP-G Programme (IOPG)	MUAC is preparing the implementation of the Flight Object (FO), supported by the Blue SWIM Profile. The IOPG Programme comprises additional validations to complement the validations under SESAR1 & SESAR2020, the development and integration of the SWIM Node and Flight Object Manager (common project with ITEC) and the modifications to the legacy systems.	19.9	Yes	Yes	0.0	0.0
2	New ATCO Consoles (NCON)	The objective of this project is to provide the Next Generation Consoles for the ATCOs in the OPS-room and Test and Training room (TTR), flexibly locatable in a brighter OPS Room.	18.1	No	Yes	1.0	0.0
3	Renovation Building (RENV)	Continuous replacement of obsolete technical and electrical installations including the large renovation N-building, replacement access control system, replacement UPS N-building, replacement main power supply S-building, replacement UPS M-building, replacement chillers and dry coolers N-building, replacement chillers and dry coolers S-building, replacement terrain and fence lighting, replacement outside sewerage.	18.8	No	No	5.1	0.0
4	Data Centre Modernisation (DCMO)	The data Centre Modernisation project aims at the upgrade of the equipment rooms and their installations and facilities to the Uptime Institute TIER III level. Besides that, the project will deliver processes and tooling to efficiently plan the rack-space and administer the assets and their physical (network) interconnections.	7.5	No	No	3.8	0.0
5	Back up Voice Communication System	This project's aim is to replace the current Back-up Voice Communication System (B-VCS).	5.2	No	No	0.4	0.0
Total:						10.3	0.0

Airspace user feedback regarding major investments

The airspace users expressed their concerns regarding the deployment of the investment plan and noted that they believe the investments will not close the capacity gap.

Review of investments

New major investments represent 21% of the total determined costs of investments over RP3. Investments #3 and #5 were also included in the RP2 performance plan and will continue in RP3. Investment #3 is a continuous investment of renovation of the building and replacement of obsolete equipment. Investment #5 was included in the RP2 performance plan, however, the CAPEX planned and realised was zero over the period. In line with this, 2015-2018 actual CAPEX reaches 34% of the planned values for the same period and the amount underspent is 41M€. It is uncertain if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
2	New ATCO Consoles (NCON)	Network, Local	Capacity, Cost efficiency	n/a
3	Renovation Building (RENV)	Non-performance	n/a	n/a
4	Data Centre Modernisation (DCMO)	Non-performance	Environment	n/a
5	Back up Voice Communication System (BVCS)	Non-performance	Safety	Potential cost-savings through partnership in procurement and maintenance; improved reliability and capacity of the B-VCS system.

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	26.5	15.6	1.7	3.0	3.2	3.3	3.6	14.9
Existing investments			8.3	4.3	3.8	3.7	3.1	23.3

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 31% of the total determined costs of investments over RP3, while existing investments represent 48%.</p> <p>The existing investments with the highest significance in terms of operational and financial impact are: new FDPS which will be fully depreciated at the end of 2020 (3.7M€ in 2020), new VCS (3.5M€ of depreciation over RP3), the Radio Direction Finder (1.2M€ over RP3), the MUAC office Cloud operations OBS (1.1M€ over RP3) and the BEEK transmitter station (0.6M€ over RP3). Other new investment projects includes among others Post Analysis and Intelligence (PABI), Radio Direction Finder Extension, ADS-C , ATM Portal, Manpower Planning Suite and System Control Co-location.</p>
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand 1

According to the NOP 2019-2024, the capacity enhancement measures should focus mainly on staffing levels increase, sector opening times improvement and enhanced ASM. It is expected that implementation of all eNM/ANSP agreed measures may improve the capacity although they are not going to deliver required capacity. Given the traffic flows, forecast traffic levels and high demand in the area (especially Brussels sectors) the lack of capacity may result in knock-on effect impacting performance of the neighbouring FIRs down the traffic stream. The capacity gap is expected to widen from -5.8% in 2020 up to -8.8% in 2023. Slight capacity gap reduction down to 7.2% may occur in 2024. The major investments #1 and #2 could be linked to the capacity improvement concepts although the scope of activities included is not completely clear from the descriptions provided to the individual investments. Implementation of those concepts may support the measures introduced in the NOP 2019-2024, although expected date of entry into operations may result in delivering benefits not sooner than in RP4. Due to low level of details provided in the descriptions of the investments, it is difficult to assess whether the investment levels are scaled to the demand.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan 1

There is limited information on the scope of investment projects, which makes the assessment difficult. Given the forecast levels, complexity and volatility of the air traffic, necessary structural changes in the FABEC area and experienced capacity issues between 2017-2019, it is obvious that all FABEC projects must be well synchronised. The performance plan does not provide information on individual projects' dependencies and coordination. It is expected that such information will be provided not sooner than in the new edition of the ERNIP Part 2, which is coordinated by the eNM and due in 2020. The list of other new and existing projects is not available at the time of the PP assessment. It is assumed that the projects initiated in or foreseen by the previous RP2 performance plan will provide benefits in the RP3 as reflected by the NOP 2019-2024 capacity analysis. As mentioned above, the MUAC is not expected to deliver the required capacity during the RP3.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented 1

The information on the planned expenditures is provided by the performance plan. The major capacity related investment projects will materialise not sooner than by the end of RP3 or later. The related expenditures are to start with the planned entry into operations date. Detailed information on the other new and existing investments is not available at the time of the performance plan assessment. Considering the generic list of the projects provided in the 3.5.2.3 above it seems that only few projects are focused on the capacity improvements.

3.5.4 PRB Key Points 1

- The actual CAPEX for 2015-2018 reaches 34% of the planned values for the same period and the amount underspent is 41M€.
- MUAC intends to continue some of its investments that started in RP2.
- Low level of details on the investment projects has been provided in the performance plan.
- Major investments #1 and #2 could be linked to the capacity improvement concepts and may support some of the capacity enhancement measures agreed by the NOP 2019 - 2024; however are not expected to deliver required capacity.
- The FABEC Performance plan does not provide information on individual projects' dependencies and coordination (expected in ERNIP 2020-2025).

PRB Assessment

THE NETHERLANDS

Draft Performance Plan

Context and scope

Netherlands

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21.11.2019
 Documents no: 1760, 1761, 1711, 1712, 1713, 1714, 1476, 1414, 1428, 1418, 1423, 1436, 1469, 1438, 1433, 1458

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.8%
 % Costs V. SES 2.2%

Scope

FAB: FABEC

ANSPs: LVNL
 MUAC
 Royal Netherlands Meteorological Institute (KNMI)

ATM
 ATM
 MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): NSA The Netherlands

Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Netherlands	n/a	No	No	No	<p>ER 74% TRM 26%</p>
Terminal	Netherlands - TCZ	4	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group E Other States in the comparator group: Austria, Belgium, Switzerland

Currency: € Exchange rate: 1.00000

1. Safety ✖

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
LVNL	Safety policy and objectives					C
	Safety risk management					D
	Safety assurance					C
	Safety promotion					C
	Safety culture					C

PRB Assessment

The PRB concludes that the safety targets proposed by the Netherlands should not be approved.

- The Netherlands did not provide the EoS targets for 2020-2023.
- The Netherlands did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- The Netherlands did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes."

2. Environment ✖

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	7.22%	7.22%	7.22%	7.20%	7.18%

PRB Assessment

The PRB concludes that the environment targets proposed by the Netherlands should not be approved.

- LVNL's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✖

Capacity performance plan targets

	2020	2021	2022	2023	2024
Breakdown value for en route ATFM delay per flight (min)	0.13	0.17	0.17	0.21	0.13
National target for terminal and airport ANS ATFM arrival delay per flight (min)	2.00	1.80	1.60	1.40	1.20

PRB Assessment

The PRB concludes that the capacity breakdown values proposed by the Netherlands should not be approved.

- The capacity breakdown values are not reaching the reference values each year of the RP3.
- The capacity plans indicate that LVNL will face a capacity surplus during RP3. There is inconsistency in the performance plan regarding the capacity plans, the capacity enhancement measures and proposed breakdown values. According to the capacity plans, the reference values should be met.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency ✖

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	70.64	69.69	67.54	68.96	68.53	+0.4%	+0.9%
Target for determined unit cost (DUC) (€2017) - Terminal	196.94	194.67	194.22	195.94	195.02	n/a	+0.5%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by the Netherlands should not be approved.

- The Netherlands is only consistent with the DUC level of the average of the comparator group.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
- The Netherlands is deviating from the trends criteria due to restructuring costs. However, the restructuring costs are not showing a net financial benefit to airspace users and the deviations are not exclusively due to restructuring costs.

PRB Recommendations

SAFETY

- The Netherlands should define the EoS safety targets for each year of the reference period.
- The Netherlands should define measures for the management objectives to achieve the RP3 safety targets levels.
- The Netherlands should describe how the independencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

ENVIRONMENT

- The Netherlands should revise its environmental performance targets to achieve consistency with the national reference values.
- The Netherlands should closely monitor the implementation of its airspace redesign programme and the movement of a military training area to ensure that environmental efficiency is not impacted.

CAPACITY

- The Netherlands should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay breakdown values to achieve consistency with Union-wide targets.
- The Netherlands should ensure that capacity profile plans, capacity enhancement measures and proposed capacity breakdown values are aligned.
- The Netherlands should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.
- The Netherlands should justify the terminal RP3 capacity targets with respect to similar airports, or should revise terminal RP3 capacity targets downwards.

COST-EFFICIENCY

- The Netherlands should consider in the cost baseline the correct 2019 pension premium contribution percentage.
- The Netherlands should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- The Netherlands should take into account the amounts charged to the users during RP2 for the "AAA replacement" project.
- The Netherlands should clarify the eligibility of the suggested restructuring costs within the RP3 performance plan context.
- The Netherlands should justify the terminal RP3 cost-efficiency targets with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

THE NETHERLANDS

Safety KPA

1.1.1 Target for EoSM for ANSPs

The targets for the Safety KPA is not complete, i.e. the targets are missing for 2020-2023 both for LVNL.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3.

Additionally, it is considered that the measures are not sufficiently described in the draft performance plan.

1.1.3 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM functional system on interdependencies and trade-offs with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.1.4 Change Management

Detailed change management processes and transition plans are described for LVNL. The described processes provide assurance that the new implementation will be conducted in a manner minimising any negative impact on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by the Netherlands should not be approved.

- The Netherlands did not provide the EoSM targets for 2020-2023.
- The Netherlands did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- The Netherlands did not describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
LVNL	Safety policy and objectives	✗	✗	✗	✗	C	✓	
	Safety risk management	✗	✗	✗	✗	D	✓	
	Safety assurance	✗	✗	✗	✗	C	✓	
	Safety promotion	✗	✗	✗	✗	C	✓	
	Safety culture	✗	✗	✗	✗	C	✓	

The interim EoSM targets have not been defined for 2020-2023 for LVNL. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any specific measures but explains that "Regular exchange amongst experts in the FABEC Safety Performance and Risk Coordination (SPRC) Task Force three times a year as permanent agenda item. Furthermore, within the yearly FABEC Performance Monitoring Reporting (Report) EoSM results of the previous year are gathered and monitored. Weaknesses / major discrepancies will be spotted and counteracted by the responsible six NSAs."

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3. Additionally, it is considered that the measures are not sufficiently described in the draft performance plan.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-offs with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.3.2 Change Management Practices

The LVNL applies the specific change management procedures, adapted to the needs of the change that has to be implemented. The procedure is based on multi-steps validations that is coordinated with all involved stakeholders.

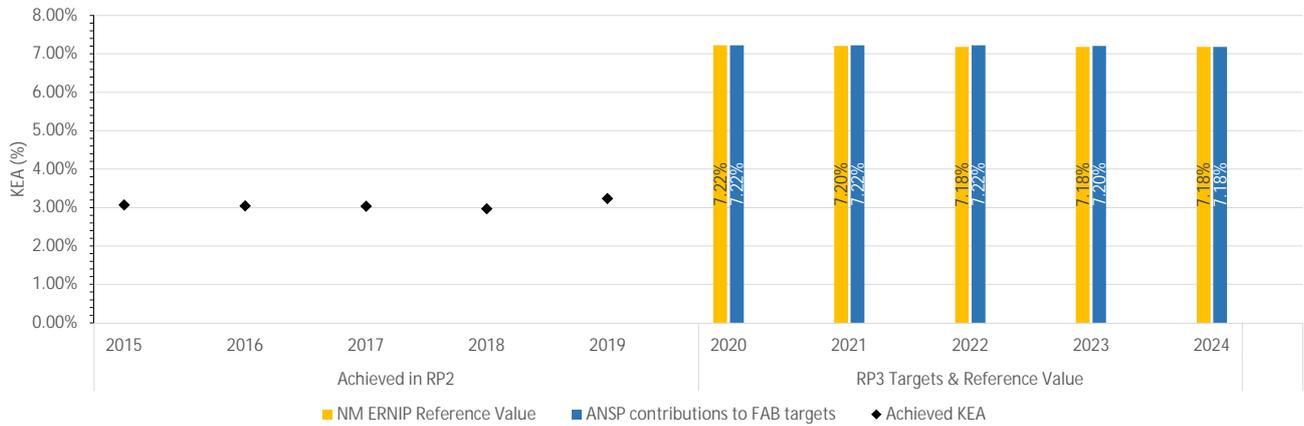
Although, the described procedures do not refer to the current regulation, all described processes provide assurance that the new implementation will be conducted in a manner that it minimises any negative impact on the network performance.

THE NETHERLANDS

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Draft FABEC targets	3.25%	3.25%	3.25%	3.15%	3.00%
ANSP reference values	7.22%	7.20%	7.18%	7.18%	7.18%
ANSP contributions to FAB targets	7.22%	7.22%	7.22%	7.20%	7.18%
Comparison of ANSP contributions with ANSP reference values	▲0.00%	▲0.02%	▲0.04%	▲0.02%	▲0.00%
Consistency with ANSP reference values	✓	✗	✗	✗	✓



2.1.2 PRB Conclusions ✗

The PRB concludes that the environment targets proposed by the Netherlands should not be approved.
 - LVNL's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓
No FRA has been implemented in the Amsterdam FIR below FL245 since it is not required by the PCP. MUAC control upper airspace above FL245.	

Reference in PP	Reference in LSSIP
3.2.1(a)	Page 49

Major ERNIP Recommended Measures:	2
Measure included within performance plan?	
Cross-border FRA Maastricht UAC, Karlsruhe UAC & DK/SW FAB	✓
FRAM2 - Phase 3	✓

Reference in PP	Reference in ERNIP
Implemented	Page 102
3.2.1(a)	Page 130

FUA Implementation according to latest LLSIP	Implementation
1	✓
2	✓
3	✓

The chart in section 2.1.1 shows that Netherlands achieved a KEA of 3.23% in 2019. The indicative target is not valid for Netherlands since the difference in KEA on a national and ANSP level are very different due to the impact of MUAC. The ERNIP reference values were provided on an ANSP level for RP3 and therefore do not allow for a fair comparison.

Improved horizontal and vertical flight efficiency will be achieved through ATS route improvements and an airspace redesign programme for Amsterdam ACC. During RP3, Netherlands expects horizontal flight efficiency to benefit from the potential move of a military training area from the southeast to the north.

Although Amsterdam ACC does not intend to achieve the targets for each year of the reference period, due to airspace re-structuring, it aims to do so by the end of RP3.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Netherlands plan for an environmental incentive scheme?	✗
Netherlands does not plan to apply an optional incentive scheme for the environment KPA.	

THE NETHERLANDS

Capacity KPA

3.1.1 En route ATFM delay

ANSP breakdown values are not following the ANSP reference values, with a peak in 2023 due to the implementation of a new ATM system.

Capacity plans indicate that LVNL will have a capacity surplus in RP3.

There is inconsistency in the performance plan regarding capacity plans and proposed breakdown values. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

1. PP capacity target is consistent with the reference value	✓	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	0.00	0.03	0.05	0.09	0.02
2. NOP delay forecast is lower or equal to the PP capacity target	✓	!	!	!	!

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.1.2 Arrival ATFM Delay

The targets for RP3 start at the same level as the target for RP2, with a gradual improvement (0.2 minutes delay reduction each year). These targets (2.00 to 1.20 minutes delay per arrival) are an improvement with respect to the observed past performance in 2015-2018 (average 2.80 minutes delay per arrival), although Amsterdam's performance would still double the average delay per arrival at similar airports.

3.1.3 Incentives

En route capacity: Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for LVNL.

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: the Netherlands has modulated the pivot values to cover only CRSTMP targets, but these values are well above observed past performance. The low risk of penalty and the result (maximum penalty only 0.5%) does not seem to incentivise to improve or maintain the current performance.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

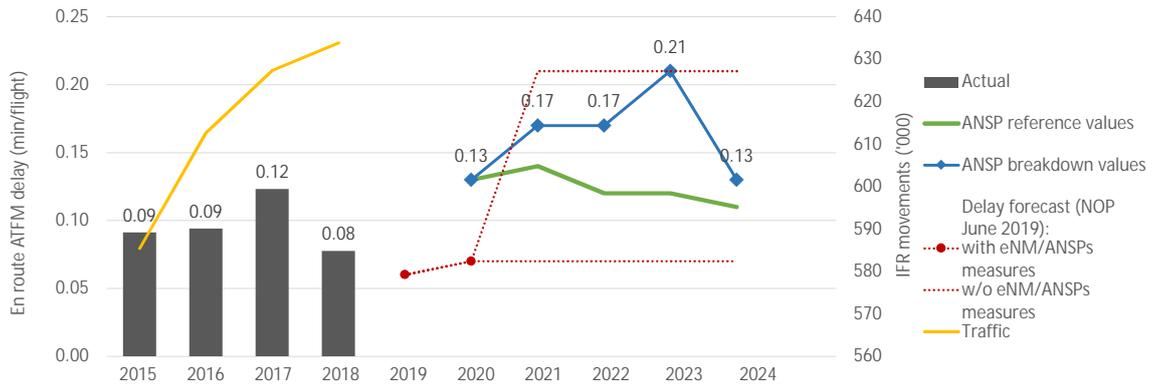
3.1.4 Investments

Some of the investments could be linked to the capacity enhancement measures which are expected to deliver required capacity. Most of the investments are aimed at delivering terminal areas capacity which clearly corresponds to the RP2 capacity issues.

3.1.5 PRB conclusions ✗

- The PRB concludes that the capacity breakdown values proposed by the Netherlands should not be approved.
- The capacity breakdown values are not reaching the reference values each year of the RP3.
 - The capacity plans indicate that LVNL will face a capacity surplus during RP3. There is inconsistency in the performance plan regarding the capacity plans, the capacity enhancement measures and proposed breakdown values. According to the capacity plans, the reference values should be met.
 - The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight ✘



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+3.1%	+4.6%	+2.4%	+1.0%						
Actual ATFM delay per flight	0.09	0.09	0.12	0.08						
ANSP reference values						0.13	0.14	0.12	0.12	0.11
ANSP breakdown values						0.13	0.17	0.17	0.21	0.13
Forecast with eNM/ANSPs measures*					0.06	0.07				
Forecast w/o eNM/ANSPs measures*					0.06	0.07		0.07-0.21		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✘	✘	✘	✘
Deviation target v. reference value (minutes per flight)	0.00	0.03	0.05	0.09	0.02
2. NOP delay forecast is lower or equal to the PP capacity target	✓	⚠	⚠	⚠	⚠

Trend of capacity targets shows a gradual convergence towards the reference values? **No**

Capacity target in the year 2024 is less than or equal to the 2024 reference value? **No**

3.2.2 Review of PP list of capacity enhancement measures vs NOP ⚠

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

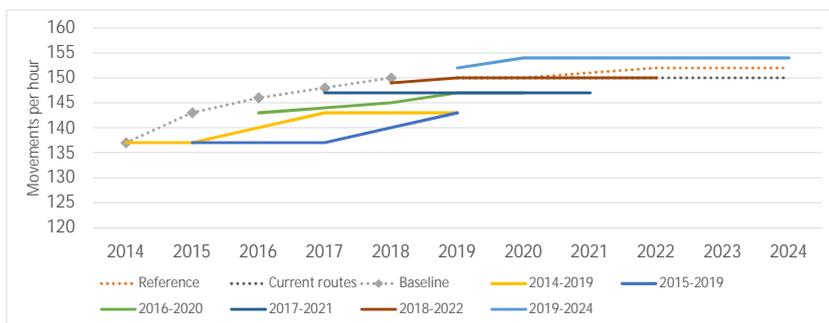
- Large airspace redesign project, to be explored until 2020 and deployed in 2023, main part of the capacity gain expected only in RP4;
- Implementation of new ATM system (ITEC) in cooperation with DFS in 2023, with advanced ATCO tools;
- Overall capacity management programme (mainly aimed at terminal).

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Total - LVNL (en route)	Additional ATCOs in OPS to start working in the OPS room	n/a							
	ATCOs in OPS to stop working in the OPS room	n/a							
	ATCOs in OPS to be operational at year-end	n/a							

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Amsterdam ACC (EHAA)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						150	150	151	152	152	152
Current routes						150	150	150	150	150	150
Baseline	137	143	146	148	150						
2014-2019	137	137	140	143	143	143					
2015-2019		137	137	137	140	143					
2016-2020			143	144	145	147	147				
2017-2021				147	147	147	147	147			
2018-2022					149	150	150	150	150		
2019-2024						152	154	154	154	154	154

- Historical data shows that baseline value in RP2 grew by around 2.3% annually and that ANSP capacity plans were consistently below the baseline values.

- The latest capacity plan for RP3 shows an average growth of 0.3% over the period, which translates into a one-off increase of 1.3% in 2020.

- The latest capacity plan shows no capacity gaps when compared to the reference profiles (current route profiles are not significantly different). A capacity surplus of 1-2% is expected in Amsterdam ACC over RP3.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures !

Review of the special events leading to higher delays in some years of RP3

The performance plan makes reference to the implementation of the new ATM system, as a special event, accounting for an increased amount of delays in 2023.

Review of the capacity enhancement measures related to special events

There are no measures included in the performance plan which address the referred special event. It is to be noted though, that the special event is listed under capacity enhancement measures.

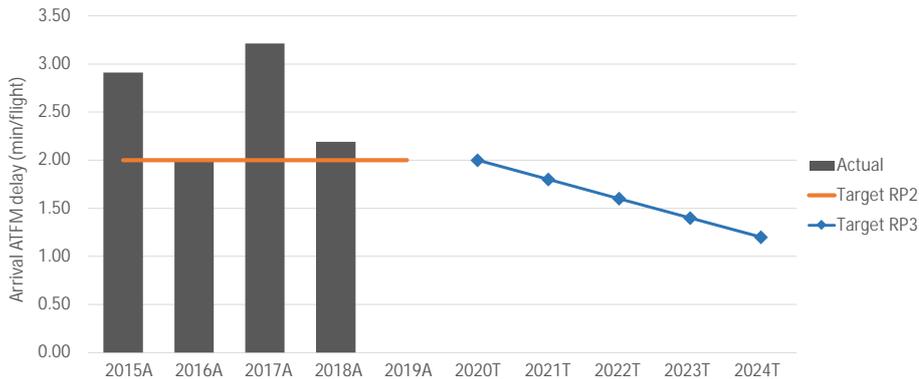
3.2.5 Review of the measures to increase capacity and address capacity gaps !

- | | | |
|----|--|-----|
| a) | Performance plan contains additional capacity enhancement measures planned to address the gap closure
There is no capacity gap foreseen for Amsterdam ACC. | ✓ |
| b) | Measures proposed by the NM are implemented in the Performance Plan
All measures are implemented in the performance plan. | ✓ |
| c) | The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM
All measures are implemented in the performance plan. | n/a |
| d) | The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values
There is no reference in the performance plan regarding measures proposed by the NSA, however a capacity gap is not expected. | ! |
| e) | Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)
There are no plans about staffing or ATCO numbers in the performance plan, however, a capacity gap is not expected. | ✗ |
| f) | Flexible use of operational staff is planned and ensured
No information is given on flexible use of operational staff in the performance plan. | ✗ |
| g) | Limitations of ATM system/infrastructure is mitigated
The performance plan contains reference to the implementation of a new ATM system to overcome current limitations and improve capacity. | ✓ |

3.2.6 PRB Key Points ✗

- ANSP breakdown values are not following the ANSP reference values, with a peak in 2023, due to the new ATM system implementation.
- Capacity plans indicate that the Netherlands will have a capacity surplus in RP3.
- There is inconsistency in the performance plan regarding capacity plans and proposed breakdown values. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

3.3.1 Overview of arrival ATFM delay per flight



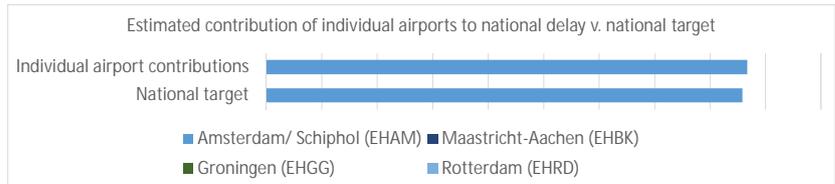
	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	2.91	2.00	3.21	2.19	-	2.00	1.80	1.60	1.40	1.20
Amsterdam/ Schiphol (EHAM)	3.18	2.17	3.47	2.39	-	2.20	1.98	1.76	1.54	1.32
Maastricht-Aachen (EHBK)	0.03	0.00	0.02	0.03	-	0.00	0.00	0.00	0.00	0.00
Groningen (EHGG)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Rotterdam (EHRD)	0.01	0.00	0.01	0.00	-	0.00	0.00	0.00	0.00	0.00

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

The Netherlands includes four airports in the performance plan. The absolute driver of the national performance in terms of movements and arrival ATFM delay is Amsterdam, while the other three airports registered very low delays during RP2 and are not expected to generate any during RP3. Amsterdam on the other hand exceeded the RP2 target and in average was the airport with highest arrival ATFM delay per flight (SES performance scheme) in 2015-2018.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Amsterdam/ Schiphol (EHAM)	1.76
Maastricht-Aachen (EHBK)	0.00
Groningen (EHGG)	0.00
Rotterdam (EHRD)	0.00
National Target	1.60



Amsterdam is the only airport in the Dutch performance plan expected to generate delays, and the breakdown for that airport with the traffic share matches the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Amsterdam/ Schiphol (EHAM)	GROUP I	0.87	2.80	+1.93	1.76	+0.89
Maastricht-Aachen (EHBK)	GROUP IV	0.01	0.02	+0.01	0.00	-0.01
Groningen (EHGG)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Rotterdam (EHRD)	GROUP IV	0.01	0.01	-0.00	0.00	-0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Amsterdam registered the worst ATFM delays in Europe in the period of 2015-2018 with an average value higher than three times the median delays of similar airports. The targets for RP3 represent an important improvement, although are still double that reference value based on past performance for similar airports.

3.3.5 PRB Key Points

- The targets for RP3 start at the same level as the target for RP2, with a gradual improvement (0.2 minutes delay reduction each year). These targets (2.00 to 1.20 minutes per arrival) are an improvement with respect to the observed past performance in 2015-2018 (average 2.80 minutes per arrival), although Amsterdam's performance would still double the average delay per arrival at similar airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.02 min	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.13	0.14	0.12	0.12	0.11
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.13	0.17	0.17	0.21	0.13
Pivot values for RP3	0.09	0.11	0.11	0.14	0.09

Threshold review

Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values.

Modulation review

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Review of financial advantages/disadvantages

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±20.0%	0.500%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.250	±0.215	±0.185	±0.155	±0.125
Performance Plan targets	2.00	1.80	1.60	1.40	1.20
Pivot values for RP3	0.50	0.43	0.37	0.31	0.25

Threshold review

The terminal incentive scheme includes a deadband of ±20% that should allow for small variations in the arrival ATFM delay with no resulting bonuses or penalties.

Modulation review

The Netherlands has chosen to modulate the pivot values according to CRSTMP causes. The performance plan explains that the value has been set starting with the CRSTMP target that was already in place during RP2 (0.5 minutes delay per arrival), and then reducing it progressively until reaching 0.25 minutes delay per arrival. Nevertheless, while the targets (all causes) for arrival ATFM delay for RP3 represent an improvement with respect to past performance, the chosen CRSTMP pivot values are considerably worse than the average CRSTMP delay observed during 2015-2018 (equals to 0.18 minutes delay per arrival).

Review of financial advantages/disadvantages

The scheme is symmetric, with maximum bonus/penalty of 0.5%. The low risk of penalty (given the fact that past CRSTMP delays are well below the pivot values) and the result (only 0.5% penalty) does not seem to incentivise to improve or maintain the current performance.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ⚠

En route capacity:

- Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values for LVNL.
- Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.
- Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

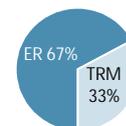
- The Netherlands has modulated the pivot values to cover only CRSTMP targets, but these values are well above observed past performance. The low risk of penalty and the result (maximum penalty only 0.5%) does not seem to incentivise to improve or maintain the current performance.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	20.9	25.1	27.2	37.5	38.2	148.8	
	En route	M€ (nominal)	14.1	17.0	18.0	25.2	25.7	100.0
	Terminal	M€ (nominal)	6.8	8.1	9.2	12.3	12.5	48.9

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Centralized Approach and remote tower Beek and Eelde	The aim of the project is to relocate the provision of the Air Traffic Control Services (ATS) of two airports in the Netherlands, Maastricht Aachen Airport and Groningen Airport Eelde, by creating a Remote Tower Center (RTC) at Schiphol's facilities and deploying Remote Towers in the two relocated airports and centralise approach. The local maintenance organization at the two airports is going to be integrated into the Schiphol maintenance organization. More details can be found in section 2.1 of the performance plan.	12.7	No	Yes	2.1	2.1
2	Common voice communication system (VCS)	The activity aims to deploy a Voice over Internet Protocol (VoIP) based Voice Communication System (VCS) for civil and military Air Traffic Control below flight level 245, in the Netherlands. The activity concerns an extension and upgrade of the current VCS. VoIP will be added to increase interoperability. The common VCS is a shared communication system with LVNL's military partner. It enables LVNL to have a three-lane voice communication system. This means that if the first lane VCS gets disabled, two more independent lanes still exist to handle a full traffic load. It also brings new functionalities. More details can be found in section 2.1 of the performance plan.	18.1	No	Yes	2.4	2.0
3	Expansion facilities/ Polaris	Due to various internal and external developments, amongst others the need for more space for the (migration towards a) new ATC system iCAS, the intended CIV/MIL integration of training and education and the outcome of a Contingency study, the present ATC Centre and its infrastructure need to be expanded. Polaris (the name of the new building) will be delivered just before RP3. During RP3 Polaris will be made ready to house a trainings- and education centre for military and civil usage. More details can be found in section 2.1 of the performance plan.	63.4	No	Yes	5.7	0.6
4	Housing maintenance and sustainability at LVNL	During RP3 LVNL has to invest in renovating the 25 year old office on Schiphol Oost. LVNL has a responsibility as a public service provider to contribute to a better environment and will renovate in a sustainable manner. LVNL will make an effort to reduce its CO2 footprint as an organization by investing in solar panels to generate our own green electricity, make the heath installations more energy efficient, insulate the building, participate in Corporate Biofuel Programme for business flights, waste management, durable office furniture etc.	28.1	No	No	3.8	0.4
5	Maintenance investments	In order to maintain the current level of service provision and to be able to realise beforementioned projects several investments are needed with respect to the ATM system and buildings and infrastructure. These investments are necessary replacements by new systems and overhaul of existing systems and infrastructure.	141.4	No	No	35.6	16.8
6	Replacement of AAA by iCAS and SESAR Deployment of Trajectory Based Operations	The current AAA-system (FDP) is the core of the LVNL support system for operational services, it allows for the processing of flight plan- and radar data, it handles the display of relevant information on the operational workstations and it includes warning- (safety nets) and planning functions. AAA will no longer meet future operational requirements, like 4D trajectory based operations and SWIM, at a cost-efficient level. The iCAS programme objective is to procure and deploy a state-of-the-art, harmonised and interoperable air traffic control system which will be rolled out at all DFS and LVNL control centres. iCAS is an important contribution to LVNL's ability to achieve the implementation of numerous Families of the Deployment Programme of the SESAR Deployment Manager to be deployed for the Pilot Common Project. iCAS features a 4D-trajectory and is designed to provide ATC services within the entire airspace of Germany and the Netherlands including all lower and upper control centre sectors (except in airspace controlled by EUROCONTROL Maastricht UAC).	122.6	Yes	Yes	15.5	0.0
7	System Wide Information Management (SWIM)	Implementation of System Wide Information Management includes IPv6 based data communication networks, Public Key Infrastructure, SWIM technical infrastructure and systems using web services for the exchange of: - Aeronautical information - Meteorological information - Cooperative network information - Flight information. More details can be found in section 2.1 of the performance plan.	12.4	Yes	Yes	3.0	2.6

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
8	Tower system	<p>LVNL will deploy a state-of-the-Art tower system at Schiphol Airport to support the implementation of the European ATM Master Plan and the Pilot-Common-Project (PCP) in accordance with the SESAR deployment plan. Realisation of PCP requirements in the TWR domain consists of:</p> <ul style="list-style-type: none"> - Departure Management Synchronised with Pre-departure sequencing - Departure Management Integrating Surface Management Constraints (A-SMGCS 1 and 2) - Airport Safety Nets - Automated Assistance to Controller for Surface Movement Planning and Routing (A-SMGCS routing and planning function) <p>More details can be found in section 2.1 of the performance plan.</p>	29.0	Yes	Yes	0.0	5.9
Total:						68.2	30.4

Airspace user feedback regarding major investments

Airspace users seek transparency with regards to the link of the RP3 performance plan and RP2 actual CAPEX developments, including which projects are rolled forward to RP3. The current planning was considered too ambitious and lacking sufficient details. Airspace users requested a cost benefit analysis for major investments and a detailed breakdown of the cost of past investments, depreciation, life-cycles used, deployment dates and benefits, in order to ensure the CAPEX planned and financed during RP2, but not deployed until RP3, is not double charged.

Review of investments

New major investments represent 66% of the total determined costs of investments over RP3. Investment #5 - Maintenance investments and #6 - "Replacement of AAA by iCAS and SESAR Deployment of Trajectory Based Operations" were already listed in the RP2 performance plan. For both projects, the 2015-2018 actual CAPEX delivery was lower than planned, especially for Investment #6 (the most significant underspending RP2 to date).

Overall, actual CAPEX delivery reaches 84% of planned over the period of 2015-2018 and the amount underspent is 22.6M€. It is unclear if this amount will be reimbursed to airspace users and/or if the CAPEX planned and financed during RP2, but not deployed until RP3, will be not double charged.

LVNL has planned restructuring costs for several reasons, one of them being the replacement of LVNL's main system, AAA, by the new iCAS system. The replacement process started in RP1 and efforts have increased during RP2 as detailed design and development have started. Replacement is necessary because AAA, which was introduced in 1998, is reaching the end of its life-cycle. In fact, LVNL has been able to operate AAA for longer than planned, saving users the cost of early replacement, but the AAA system is no longer able to handle modern support tools such as those required by the PCP regulation. The justification to consider AAA replacement by iCAS as restructuring costs is, firstly, the size and scope of the system being replaced (especially for an ANSP of LVNL's size) and, secondly, the fact that the current system was fully depreciated and charged to the users more than ten years ago. For LVNL the introduction of iCAS in winter 2022/2023 represents an increase in depreciation costs of 7M€ per year, for the final two years of RP3.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	Centralized Approach and remote tower Beek and Eelde	Local	Cost efficiency	Centralized approach is an enabler for, and will contribute to, the Dutch airspace redesign (it lead to more possibilities to design the Dutch airspace) and the harmonisation, improved cooperation and integration of Dutch civil and military services.
2	Common voice communication system (VCS)	Network	Safety, Capacity, Cost efficiency	Increased sustainability of ATS services, if the first lane VCS gets disabled (in case of a failure of other reason), two more independent lanes (VCS) still exist to handle a full traffic load. This will prevent air traffic control from having to completely reduce air traffic in the Netherlands to zero, thus preventing serious disruption of the operation and delay.
3	Expansion facilities/ Polaris	Network, Local	Capacity, Cost efficiency	Provides improved contingency for ATM services in the Dutch airspace.
4	Housing maintenance and sustainability at LVNL	None	Environment, Cost efficiency	The investment provides reduced environmental impact from business practices and it is expected to reduce energy costs by solar panels by generating green electricity, more energy efficient heat installations and insulation of the buildings.
5	Maintenance investments	None	No impact	It is a replacement investments and overhaul of existing system.

Additional information

The major investments not required by the SES legislation constitute the majority of the new major investments (around 70% of the CAPEX). These investments are serving mainly as enablers for new technologies, providing contingency solutions for the local airports and replacing or modernising existing infrastructure. Investment #5 comprises maintenance projects that occur continuously and are linked to individual system life cycles of different durations, which means that peaks can occur.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	29.8	29.8	0.9	2.3	3.0	4.0	4.6	14.9
Existing investments			9.4	8.2	6.5	6.3	4.9	35.4

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 10% of the total determined costs of investments over RP3, while existing investments represent 24%. Investments falling into these categories, according to Annex R of the performance plan, are the following: "1ATM: civil / military integration", "Performance Based Navigation (PBN)", "Extended Arrival Management (AMAN/XMAN)", "Increasing peak hour capacity and sustainability" and "Capacity Management". These investments mainly aim to support capacity delivery. Additional information regarding both major and other new and existing investments is provided in Annex R of the performance plan.
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

LVNL is responsible for the management of the lower Dutch airspace. The ANSP performed relatively well during RP2, decreasing the capacity gaps, although, not meeting the reference values mainly due to underperformance of MUAC responsible for the upper airspace, as reported by the State. The largest capacity has been identified in the arrival delays. The Netherlands has introduced the capacity plan for RP3 in the NOP 2019-2024. The plan is estimated to deliver required capacity during the whole RP3 with marginal capacity surplus. The capacity enhancement measures introduced by the capacity plan may be partly supported by the investment measures provided in the performance plan. The level of contribution of individual investments cannot be exactly assessed due to low level of details and generic description of the investments. Nevertheless, the following major investments are estimated to provide requested capacity enhancements.

Investment #1 - remote TWR concept, which may partly contribute to the airspace redesign and the civil-military integration measure (neutral or slightly positive impact).

Investment #2 - communication infrastructure, enabler to other projects. It may partly contribute airspace redesign and civil-military integration measure (neutral or slightly positive impact).

Investment #3 - investment into building and infrastructure, some portion may support the new ATM system implementation (#6). More details are needed to distinguish between the capacity part and resilience related part.

Investment #6 - new ATM system with extended functionalities and SESAR solutions.

Investment #7 - SWIM infrastructure, link to specific measures in the NOP is not clear, however, the infrastructure may support capacity enhancing concepts such as trajectory based operations and redesign of the airspace.

Investment #8 - new TWR ATM system. link to specific measures in the NOP is not clear, however, the system will support capacity enhancing solutions such as DMAN and A-SMGCS (to address airport capacity).

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

The need and timing of the investments are described in the Annex R of the performance plan. Based on the links to capacity enhancement measures introduced in the NOP 2019 - 2024, which are expected to deliver required capacity during the entire reference period, it seems that timing of the investments has been considered well. The traffic increase, although according to suggested high capacity profile scenario (STATFOR), is going to be slow and decreasing.

The initial capacity will be ensured mainly via organisational, procedural and airspace measures. Investments #1 RTWR and #2 VoIP (2020/2021) could support some measures for the whole reference period, however, the link to the capacity plan is not clearly visible. Second half of the RP3 will be supported by the technological investments (#3, #6, #7 and #8). Those investments may deliver benefits to airspace users at the end of RP3 or in RP4 and later.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

The performance plan provides required information. The expenditure of all major projects starts with the implementation date. No further assessment could be provided based on the investment projects' description.

3.5.4 PRB Key Points

- Investment #5 - Maintenance investments and #6 - "Replacement of AAA by iCAS and SESAR Deployment of Trajectory Based Operations" were already included in the RP2 performance plan and 2015-2018 actual CAPEX delivery was lower than planned for both of them, especially for investment #6 (the most significant underspend RP2 to date).

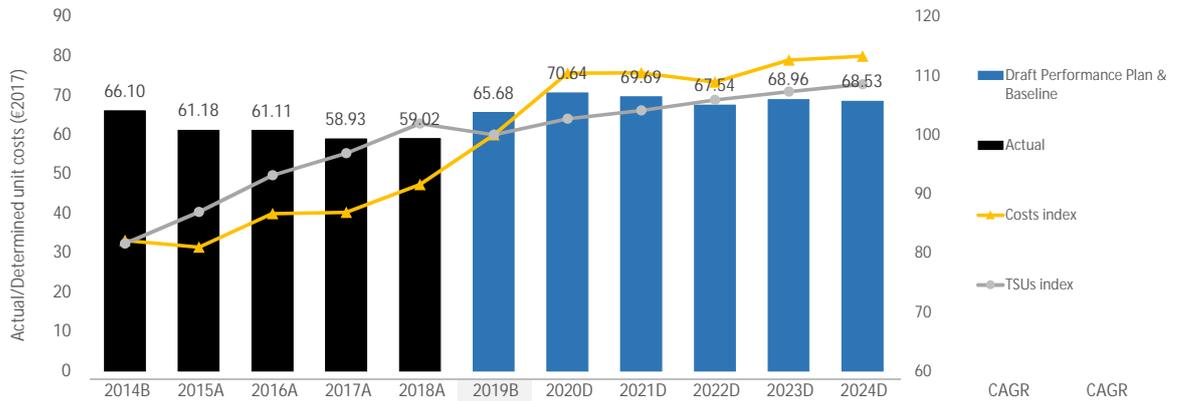
- Some of the investments could be linked to the capacity enhancement measures, which are expected to deliver required capacity.

- Most of the investments are aimed at delivering terminal areas capacity which clearly corresponds to the RP2 capacity issues.

THE NETHERLANDS

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	177	175	187	190	203	-	253	256	257	269	276	-	+4.5%
Total costs	M€ (2017)	179	177	189	190	200	219	241	242	238	246	248	+2.5%	+3.3%
TSU	'000	2,715	2,893	3,100	3,223	3,392	3,328	3,418	3,466	3,525	3,570	3,613	+1.7%	+2.9%
AUC/DUC	€ (2017)	66.10	61.18	61.11	58.93	59.02	65.68	70.64	69.69	67.54	68.96	68.53		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	66.10	61.18	61.11	58.93	59.02	65.68	70.64	69.69	67.54	68.96	68.53		
Annual change	%		-7.5%	-0.1%	-3.6%	+0.2%	+11.3%	+7.6%	-1.3%	-3.1%	+2.1%	-0.6%	+0.9%	+0.4%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	65.68 €2017	✗
Latest available traffic data confirms the Netherlands' local forecast, however, there are no justifications provided regarding the deviation for the years 2022-2024.		
There is not enough evidence in the performance plan to justify a 2019 baseline +9.2% or 18.4 M€2017 higher than the 2018 actual costs, +15.0% higher than the 2019 determined costs and +15.6% above the average of the 2015-2018 actual costs.		

4.1.3 Summary of cost-efficiency assessment results

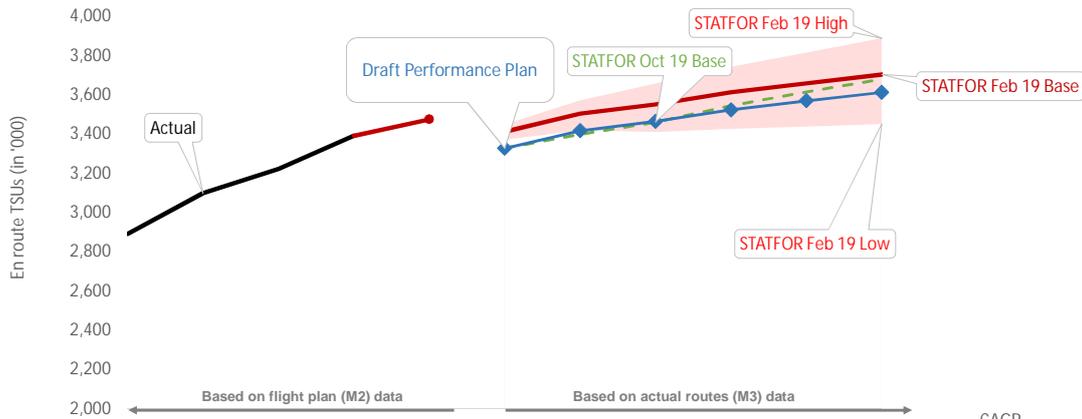
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	0.9%	✗
The Netherlands proposes a +0.9% CAGR, increasing the DUC trend over the RP3 period. The proposed trend deviates by +2.8 p.p. from the Union-wide RP3 DUC trend (-1.9%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	0.4%	✗
The 2014-2024 DUC trend corresponds to a +0.4% CAGR which is +3.1 p.p. higher than the Union-wide trend (-2.7%).		
c) DUC level (2019 baseline) lower than the average of comparator group (E) average (77.55 €2017)?	-15.3%	✓
The 2019 baseline DUC is -15.3% lower than the average of the comparator group (-10.1% lower in 2024).		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		✗
The performance plan does not provide sufficient evidence to justify the costs deviation with respect to the Union-wide trend.		

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by the Netherlands should not be approved.

- The Netherlands is only consistent with the DUC level of the average of the comparator group.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
- The Netherlands is deviating from the trends criteria due to restructuring costs. However, the restructuring costs are not showing a net financial benefit to airspace users and the deviations are not exclusively due to restructuring costs.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	2,893	3,100	3,223	3,392								
Annual change	%		+7.2%	+4.0%	+5.3%								
STATFOR Feb 19 Base	'000 TSUs					3,476	3,413	3,506	3,553	3,614	3,660	3,705	+1.7%
Annual change	%					+2.5%	+0.6%	+2.7%	+1.3%	+1.7%	+1.3%	+1.2%	
STATFOR Oct 19 Base	'000 TSUs					-	3,329	3,400	3,461	3,545	3,615	3,681	+2.0%
Annual change	%					-	-1.9%	+2.1%	+1.8%	+2.4%	+2.0%	+1.8%	
Performance Plan	'000 TSUs					3,328	3,418	3,466	3,525	3,570	3,613		+1.7%
Annual change	%					-1.89%	-1.9%	+2.7%	+1.4%	+1.7%	+1.3%	+1.2%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)		
2019B (PP baseline, M3)	3,328			2019B (PP baseline, M3)	3,328			
2019F (as in the Reporting tables, M2)	3,392			2019F (STATFOR Feb 19, M3)	L 3,371	B 3,413	H 3,450	-2.49%
2019B/ 2019F	-1.89%	-1.81%	-1.97%	2019F (STATFOR Oct 19, M3)	L 3,320	B 3,329	H 3,337	-0.03%

The Netherlands has applied the average CRCO M3/M2 coefficient of February and May for the calculation of the 2019 traffic baseline, leading to a correction of -1.89%.

Based on the latest available actual 2019 traffic, the Netherlands did not use the STATFOR February 2019 base forecast, since they considered it overestimated. The Netherlands assumes a growth rate of 0.0% for 2019. The Netherlands established as baseline 2019 the very same number of service units as they had in 2018 and applied the M3 correction explained above (-1.89%).

The year to date (up to end of November) traffic evolution shows a decrease in traffic of -0.1% compared to the same period of 2018 and the STATFOR October 2019 base forecast (M3) is in line (-0.03%) with the 2019 baseline (M3) included in the performance plan. Both elements may justify the use of a lower local forecast and not the STAFOR February 2019 base forecast as baseline.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

The Netherlands indicates in the performance plan the use of the STATFOR February 2019 base forecast with two corrections: the application of the average CRCO M3/M2 coefficient of February and May (-1.89%) and the assumption of 0.0% growth rate for 2019. The STATFOR February 2019 base forecast annual change is then applied to the baseline.

Review of the PP traffic forecast

Although the Netherlands indicates that the STATFOR February 2019 base forecast is used, this is not fully correct. The starting point for 2019 is changed, assuming a 0.0% growth rate. Even when applying the same growth rate for each year, the forecast for 2020-2024 would be different to the STATFOR February 2019 base.

The STATFOR October 2019 forecast is in line with the Netherlands' local forecast for 2020 and 2021. The local forecast is lower and the gap increases every year.

4.2.4 PRB Key Points

- Latest available traffic data confirms the Netherlands' local forecast assuming a 0.0% growth rate for 2019.
- The Netherlands does not provide full justifications regarding the deviations from STATFOR February 2019 base forecast.

4.3.1 Overview of en route costs in RP2 and RP3



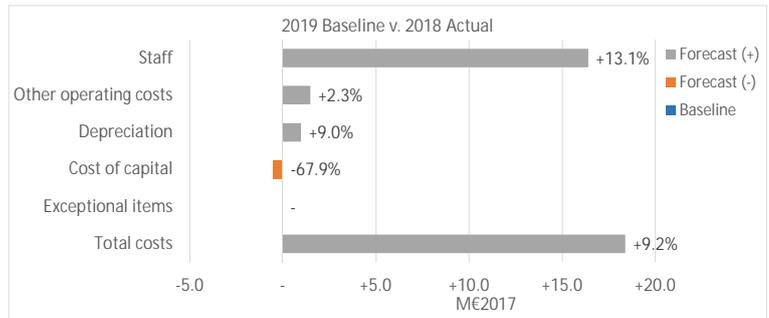
	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017	
Total costs	M€ (nom)	175	187	190	203	226	-	253	256	257	269	276	-	€:€
Annual change	%		+7.1%	+1.4%	+6.8%	+11.4%	-	+1.4%	+0.2%	+4.9%	+2.3%	-	1.00000	
Inflation index	2017 = 100	98.6	98.7	100.0	101.6	103.9	105.6	107.5	109.5	111.6	113.8	+1.8%		
Total costs	M€ (2017)	177	189	190	200	219	219	241	242	238	246	248	+2.5%	
Annual change	%		+7.1%	+0.3%	+5.4%	+9.2%	+9.2%	+10.5%	+0.0%	-1.4%	+3.4%	+0.6%		
Total costs	M€ (2017)	177	189	190	200	219	219	241	242	238	246	248	+2.5%	

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+18.4	+9.2%
2019F v. 2019 RP2 DC	+28.5	+15.0%
2019F v. average 2015-2018	+29.4	+15.6%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast costs amount to 219M€2017, which is +18.4M€2017 (+9.2%) higher than the 2018 actual costs, +15.0% higher than the 2019 determined costs and +15.6% above the average of the 2015-2018 actual costs. The Netherlands indicates that "Baseline values have been based on latest actual cost estimates for all entities". The main driver for the increase compared to the 2018 actual costs are the staff costs (+13.1% or +16.4M€2017).

Annex R of the performance plan provides some level of justification on the 2019 costs increase:

- In RP2, for the first four years, the staff costs were calculated based on a pension premium contribution of 14.735%, while from 2019 and all years of RP3, the staff costs include a pension premium contribution of 20.13%. "Conservatively estimated, the higher premium leads to staff costs that are approximately 5M€/year higher than when using the assumed premium rate for RP2." The information provided does not specify the split of this additional costs between en route a terminal;
- MUAC Sharing key applied for the calculation of the 2019 costs is higher than in RP2, leading to an additional costs of 6.1M€;
- From the performance plan, there is not enough evidence to fully justify a 2019 baseline +9.2% or 18.4M€2017 higher than the 2018 actual costs, +15.0% higher than the 2019 determined costs and +15.6% above the average of the 2015-2018 actual costs.

2019 baseline analysis

The 2019 baseline costs are in line with 2019 forecast costs, in real terms. See box above for detailed analysis.

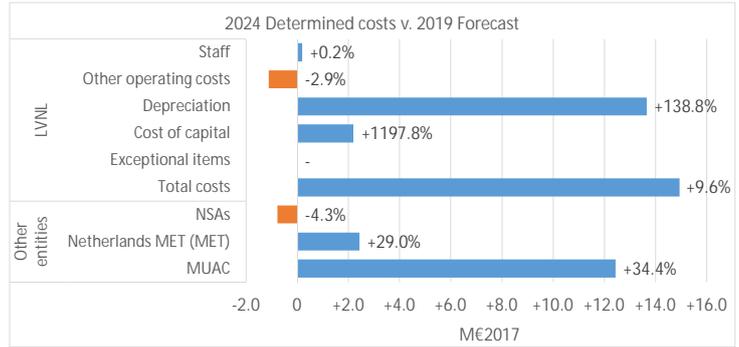
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ⓘ Investments (see details in 3.5)
- ✓ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



RP3 determined costs are expected to increase by +2.5% per year between 2019 and 2024 (+29.1M€2017). The main contributor to this increase is LVNL, where costs are expected to increase by +9.6% (+14.9M€2017) between 2019 and 2024. Higher costs are mainly explained by a significant increase in depreciation costs (+138.8%, or +13.7M€2017) due to the investments (see section 3.5 of this document for details).

The main driver is the increase in depreciation costs: "For LVNL the introduction of ICAS in winter 2022/2023 represents an increase in depreciation costs of 7M€ per year, for the final two years of RP3". The second main driver is MUAC, which costs are expected to increase by +34.4% (+12.4M€2017). MUAC costs increase due to the following elements:

- Several actions in order to solve capacity issues as the new social agreement to increase productivity and new ATCO training;
- The share of the MUAC budget allocated to the Netherlands in RP3; and
- The increase in costs since a number of cost items (tax on pensions and support costs) - which were MUAC-related but, which were previously paid by all Eurocontrol States through the general Eurocontrol budget - would be paid progressively by the four MUAC States through the MUAC budget, this last item means +29.7M€ overall RP3 for the Netherlands.
- The determined costs of KNMI, the MET provider, show a significant increase in 2020 and consolidate for the rest of RP3 period, compared to RP2.

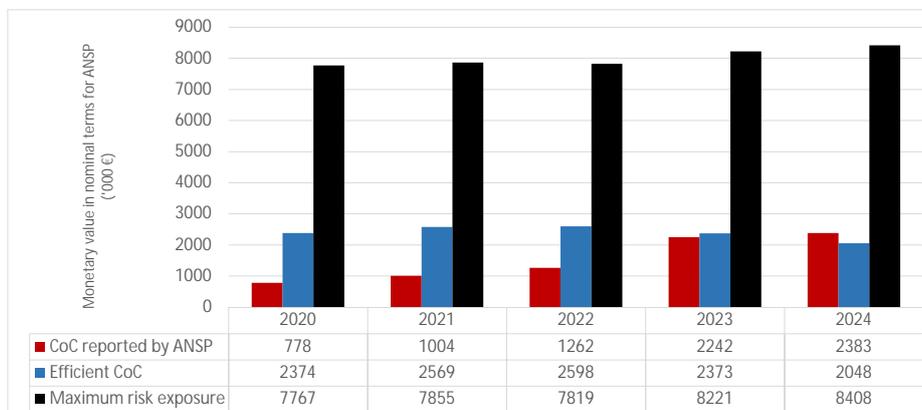
4.3.4 PRB Key Points

- There is not enough evidence in the performance plan to fully justify a 2019 forecast +9.2% or 18.4M€2017 higher than the 2018 actual costs, +15.0% higher than the 2019 determined costs and +15.6% above the average of the 2015-2018 actual costs.
- LVNL costs are expected to increase by +9.6% (+14.9M€2017) between 2019 baseline and 2024. Higher costs are mainly explained by a significant increase in depreciation costs (+138.8%, or +13.7M€2017) due to the investments (see section 3.5 of this documents for details).

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	176,513	178,521	177,696	186,852	191,080
Monetary value of Return on Equity	0	0	0	0	0
Ratio RoE/DC (%)	0%	0%	0%	0%	0%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	0.0%	7.3%	0.0%	7.5%	0.0%	7.7%	0.0%	7.8%	0.0%	7.9%
Interest on debts	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Capital structure (% debt)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
WACC	0.3%	1.0%	0.4%	1.0%	0.5%	1.0%	0.9%	1.0%	1.2%	1.0%

Is the interest on debts in line with the market? **Yes**

- All of LVNL's investments are financed with long term loans with fixed interest rates for the term of the loan concerned. LVNL is entitled to national treasury banking. LVNL reported at least eight loans: the commercial loan in BNG with the fixed rate at 4.6%, five existing treasury banking loans at different fixed rates and at least two new treasury banking loans at 1%. The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.

- The equity capital of LVNL is used to carry the financial consequences of the ANSPs share of traffic and cost risk and not used to finance LVNL's assets.
- The reported WACC is not the result of the combination of the reported parameters: the capital structure based on 100% debt times the interest on debts.
- The efficient cost of capital is computed in line with competitive market practices and with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	215,903	237,442	256,855	259,843	237,263
Net current assets	0	0	0	0	0
Adjustments total assets	21,539	19,413	2,988	-22,581	-32,488
Total asset base	237,442	256,855	259,843	237,263	204,775

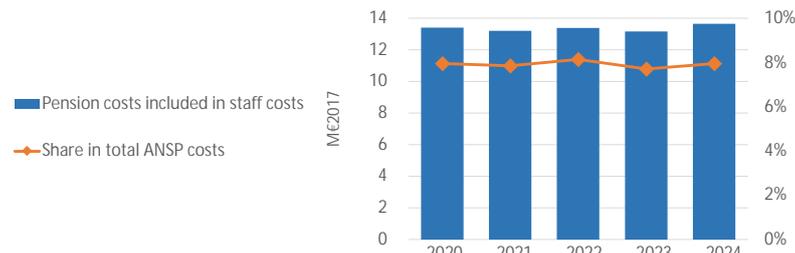
- The fix asset base will increase over the period. This is partially in line with the significant increase of new investments neutralised by the decrease of existing investments described in section 3.5 of this document.

- The RAB does not include net current assets.
- The RAB does include adjustments to the total asset base. The justification is not provided in the additional information of the performance plan.
- The total asset base will decrease over RP3. This is due to the negative adjustments in 2023 and 2024.

4.3.A.5 PRB Key Points

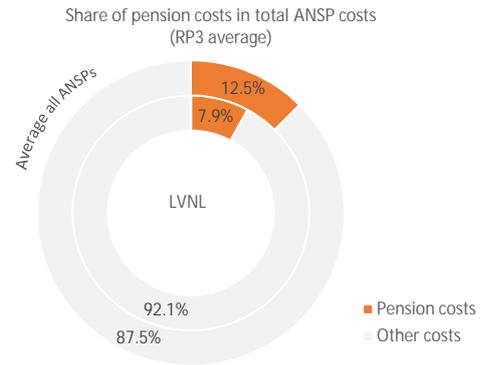
- The cost of capital is in line with the maximum risk exposure and does not present major issues.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	13.4	13.2	13.4	13.2	13.6
Year on year variation	% change		-1.5%	+1.4%	-1.7%	+3.7%
Share in total ANSP costs	%	8.0%	7.9%	8.1%	7.7%	8.0%
Year on year variation	p.p.		-0.1p.p.	0.3p.p.	-0.4p.p.	0.2p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Stable**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

The state AOW pension scheme is a compulsory defined benefit pension insurance plan financed on a pay-as-you-go basis and that the funding comes from income taxes (taxed at a rate of 17.9%).

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

LVNL is obliged by law to participate in "Pensioenfonds ABP". Employees receive a defined benefit, but ABP maintains liability for any shortfalls and LVNL is only liable to make contributions as specified by ABP. The premium has increased in recent years and is currently at 20.13%.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

In RP2, for the first four years the staff costs were calculated based on pension premium contribution of 14.735%, from 2019 and all years of RP3 the staff costs includes a pension premium contribution of 20.13%.

"There is a (cost exempt) risk that structural changes in the pension scheme may occur during RP3 because of the pension discussion currently held in the Netherlands. A new study to the necessary coverage ratio of pension funds in the Netherlands addresses the need for an improved coverage ratio which may lead to increased pension premiums. Besides this study the government and the social partners are negotiating the fundamentals of the current pension scheme. For example new retirement age categories are now discussed upon. This may also lead to changes during RP3."

4.3.B.4 PRB Key Points

-No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- The Netherlands did not change the cost allocation methodology with respect to RP2.
 - LVNL allocates in its cost allocation model the costs of air navigation services to traffic above flight level 30 and outside 18 kilometres from the LVNL controlled airports to the en route charging zone on the basis of the operational requirements. The costs for air navigation services below FL 30 and within 18 kilometres from the LVNL controlled airports are allocated to the terminal charging zone. Costs of ATCOs are directly allocated to the relevant charging zones. Depending on the degree of application of the various production factors in a specific charging zone, sharing keys are used to allocate the other costs proportionally to these charging zones. About 68% of the LVNL costs is related and allocated to the en route charging zone.

1.2. Are the criteria for cost allocation clearly defined and justified? **Yes** If not, what are the issues identified?
 n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? **No** If yes, description and justification of the changes from RP2 to RP3 specified in the PP
 n/a

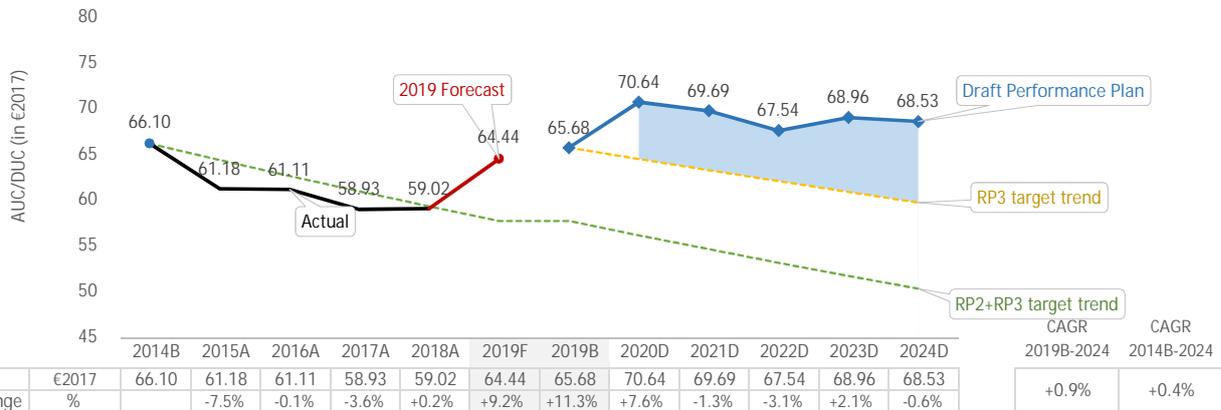
2.2. Are these changes in cost allocation duly described and justified? **n/a** If, not what are the identified issues?
 n/a

2.3. Is there an impact on the determined costs and/or baseline? **n/a** If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
 n/a

4.3.C.3 PRB Key Points ✓

- The Netherlands did not change the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	+0.9%	Union-wide trend	-1.9%	Difference	+2.8p.p.
PP trend	+0.4%	Union-wide trend	-2.7%	Difference	+3.1p.p.
PP 2019 baseline	65.68	Average comp. group	77.55	Difference	-15.3%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	Yes
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	No

The Netherlands proposes a +0.9% CAGR, increasing the DUC trend over the RP3 period. The proposed trend deviates by +2.8 p.p. from the Union-wide RP3 DUC trend target (-1.9%).

The 2014-2024 DUC trend amounts to +0.4% CAGR and deviates by +3.1 p.p.

The DUC level is -15.3% lower than the average of the comparator group for the 2019 baseline and -10.1% lower in 2024.

"For the Netherlands, the issues that are explicitly mentioned in the regulation as potential reasons to deviate from the cost efficiency targets – capacity enhancement and restructuring – are not the only areas that fall outside a ‘business as usual’ framework and that require investment during RP3 to ensure the continued safe and efficient provision of ANS in RP3 and beyond". Based on this understanding, the Netherlands provides in Annex R of the performance plan, a detail list of cost items that they considered to be taken into consideration to justify the Netherlands' DUC RP3 deviation from the Union-wide trend, even though some of them do not fall under the capacity enhancement costs or restructuring costs category. The Netherlands then calculates that the alternative DUC trend over RP3 would be -1.3% without all the "unusual" elements and developments that the Netherlands estimates necessary during RP3. The table provided in Annex R of the performance plan with the full list of items includes some en route and terminal costs which are later split for their alternative simulations.

However, the DUC deviation is not analysed since the capacity targets are not consistent (more details in section 3.2 of this document).

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs



Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +124.3 v. RP2+RP3 trend over the period 2020-2024 +280.7

Restructuring costs from previous periods to be recovered in RP3 (in M€2017)

2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
-	-	-	-	-	-

Restructuring costs planned for RP3 (in M€2017)

	2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
Staff	-	-	-	-	-	0.0
of which, pension costs	-	-	-	-	-	0.0
Other operating costs	-	-	-	-	-	0.0
Depreciation	-	-	-	-	-	0.0
Cost of capital	-	-	-	-	-	0.0
Exceptional items	-	-	-	-	-	0.0
Total restructuring costs	1.2	2.2	1.1	1.0	0.8	6.3

Summary of restructuring measures presented in the PP

"Integration of civil and military service providers: during RP3, the civil and military service providers below FL245, LVNL and CLSK, will be integrated into a single ANSP, with associated restructuring costs. The integration will deliver benefits in terms of both operation (more efficient use of the available airspace) and organisation (increased efficiency as well as the potential integration of functions such as training)."

"Centralisation of approach and tower function: the approach and tower control functions for the airports of Groningen/Eelde (EHGG) and Maastricht/Beek (EHBK) will be centralised at the main LVNL premises at Schiphol Oost, using remote tower technology."

Analysis

With respect to the first measure, the Netherlands indicates that at this stage, they are not able to quantify the possible economic benefit, since there is not yet a detailed definition of the level of integration, distribution of roles and responsibilities, sharing of costs, etc. between both ANSPs.

With respect to the second measure, the Netherlands estimates, once the project is completed "an annual reduction of operating costs of 1.4M€ related to lower overhead costs after closing down local premises and efficiency gains of moving staff to the Schiphol location. With these savings, a break-even point could be realised in around ten year." From the explanations, this seems to be a measure only related to terminal services, although, part of the associated costs are included in the en route restructuring costs claimed.

Neither of the measures fulfil the requirements foreseen in the legislation where a demonstration have to be provided in the performance plan showing that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period.

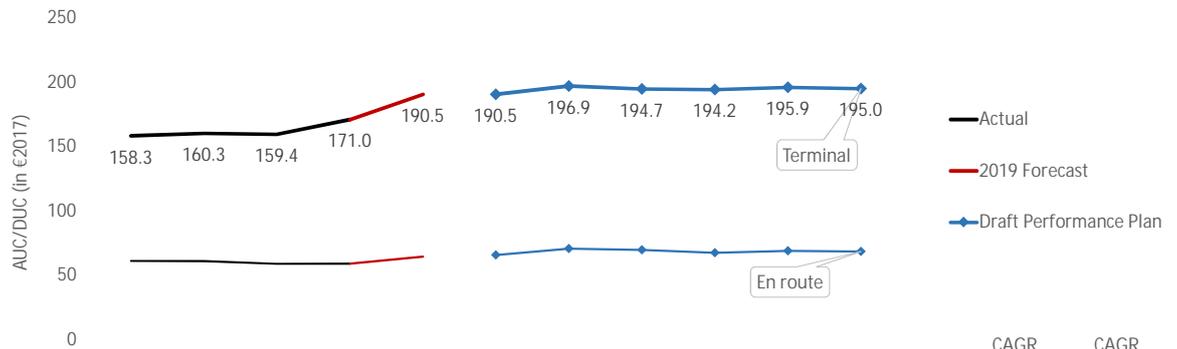
✘ Can it be considered that the deviation is <u>exclusively</u> due to restructuring costs?	No
✘ Is it demonstrated that measures will deliver a net financial benefit to airspace users at the latest in RP4?	No

4.4.5 PRB Key Points



- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group, and one of the lowest Union-wide.
- Capacity targets are not consistent, therefore, the cost deviation from cost-efficiency trends is not analysed.
- The Netherlands is deviating from the trends criteria due to restructuring costs. However, the restructuring costs are not showing a net financial benefit to airspace users and the deviations are not exclusively due to restructuring costs.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F
AUC/DUC - Terminal	€2017 158.3	160.3	159.4	171.0	190.5	190.5	196.9	194.7	194.2	195.9	195.0	+0.5%	+4.7%
Annual Change	%	+1.3%	-0.6%	+7.3%	+11.5%	+11.5%	+3.4%	-1.2%	-0.2%	+0.9%	-0.5%		
AUC/DUC - En route	€2017 61.2	61.1	58.9	59.0	64.4	65.7	70.6	69.7	67.5	69.0	68.5	+0.9%	
Annual Change	%	-0.1%	-3.6%	+0.2%	+9.2%	+11.3%	+7.6%	-1.3%	-3.1%	+2.1%	-0.6%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Amsterdam/ Schiphol (EHAM)	GROUP I	139.5	133.9	-4.0%	130.5	163.8	+25.5%
Maastricht-Aachen (EHBK)	GROUP IV	673.8	545.6	-13.0%	647.6	404.6	-37.5%
Groningen (EHGG)	GROUP IV	673.8	1260.4	+87.0%	647.6	1278.4	+97.4%
Rotterdam (EHRD)	GROUP IV	673.8	748.0	+11.0%	647.6	924.2	+42.7%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

- The unit cost for Amsterdam/Schiphol (EHAM) was slightly lower than the median of their comparator group during RP2 (-4.0%), however, it becomes higher during RP3 (+25.5%).
- It is noticeable that the unit cost for Groningen (EHGG) was significantly higher than the median of their comparator group during RP2 (+87.0%) and it becomes even higher during RP3 (+97.4%).

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs		Δ(B) (%)
2019B (PP baseline)	415.2		
2019F (STATFOR Feb 19)	L 409.7	B 415.2	H 418.7 =B
2019F (STATFOR Oct 19)	L 404.9	B 406.5	H 407.6 +2.14%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+8.5	+12.1%
2019 Forecast v. Avg. 2015-2018 Actual	+15.0	+23.4%
2019 Baseline v. 2019 Forecast	0.0	+0%

TNSU baseline:

-For terminal, the Netherlands uses the STATFOR February 2019 base forecast, which is +2.14 % higher than the October 2019 base forecast.

Terminal cost baseline:

- As far it concerns the 2019 baseline, at terminal level presents the same baseline costs than the 2019 forecast costs.
- The 2019 forecast is +8.5ME2017 (+12.1%) higher than the 2018 actual costs, +23.4% above the average of the 2015-2018 actual costs.
- In Annex R of the performance plan, the Netherlands provides some level of justification on the 2019 costs increase:
 - In RP2 for the first four years, the staff costs were calculated based on a pension premium contribution of 14.735%, from 2019 and all years of RP3, the staff costs includes a pension premium contribution of 20.13%. "Conservatively estimated, the higher premium leads to staff costs that are approximately 5ME/year higher than when using the assumed premium rate for RP2." The information does not specify the split of this additional costs between en route and terminal.
 - There is not enough evidence in the performance plan to justify a 2019 baseline +12.1% or 8.5ME2017 higher than the 2018 actual costs.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Review of the PP traffic forecast

-The Terminal Navigation Service Unit forecast is in line with STATFOR February 2019 base case TNSU forecast over all years of RP3.

Determined costs (terminal)

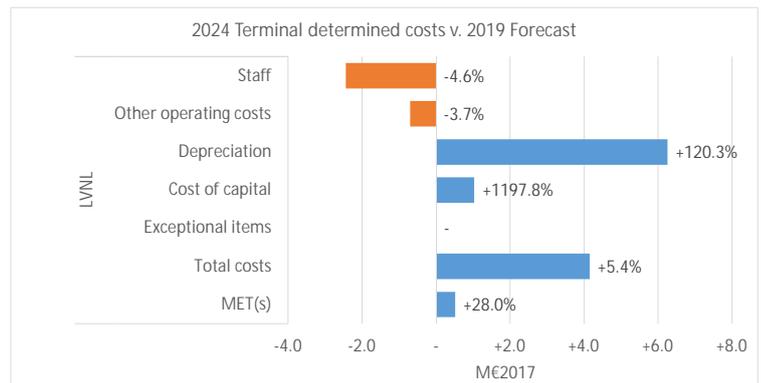
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - LVNL (terminal)

- ✓ Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (33%) is the same than the share of terminal total costs (33%).
- Terminal WACC and its parameters are higher than the ones for en route. This is due to inconsistencies in the calculation of the cost of capital for en route and terminal. The reported WACC is not the result of the combination of the reported parameters. Despite this, the resulting cost of capital is in line with the en route one.
- The terminal DUC trend over RP3 planned for the Netherlands TCZ (+0.5%) is lower than that the planned for en route (+0.9%).
- Over RP3, the LVNL terminal costs are planned to increase by some +5.4% (+4.2M€2017). The driver behind this planned increase is the depreciation costs (+120.3%, or +6.3M€2017).

"For the Netherlands, the issues that are explicitly mentioned in the regulation as potential reasons to deviate from the cost efficiency targets – capacity enhancement and restructuring – are not the only areas that fall outside a 'business as usual' framework and that require investment during RP3 to ensure the continued safe and efficient provision of ANS in RP3 and beyond". Based on this understanding, the Netherlands provides in Annex R of the performance plan, a detail list of costs items that they considered should be taken into consideration to justify the Netherlands DUC RP3 deviation from the union wide trend even if some of them do not fall under the capacity enhancement costs or restructuring costs category. The Netherlands then calculates estimates that the alternative DUC trend over RP3 for terminal would be -0.4% without all the "unusual" elements and developments that the Netherlands estimates necessary during RP3. The table provided in Annex R of the performance plan with the full list of items includes some en route and terminal costs which are later split for their alternative simulations.

4.5.4 PRB Key Points

- The terminal RP3 DUC trend is +0.5%, better than the en route RP3 DUC trend of +0.9%.
- The terminal RP3 DUC trend is +0.5%, better than the Terminal RP2 DUC trend of +4.7%.
- Amsterdam Schiphol Airport, the main airport, had a DUC 4.0% lower than the average of its comparator group over RP2. The difference is expected to be +25.5% over RP3. The other airports included in the performance plan range from a DUC -19.0% lower to 87.0% higher over RP2. The difference is expected to range from 37.5% lower to 97.4% higher over RP3.
- The Netherlands used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to an increase in depreciation.

PRB Assessment

SWITZERLAND

Draft Performance Plan

Context and scope

Switzerland

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21-11-2019
 Documents no: 1760, 1761, 1470, 1472, 1703, 1704, 1456, 1484, 1476, 1421, 1442, 1465, 1434, 1466, 1705, 1762

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.1%
 % Costs V. SES 1.9%

Scope

FAB: FABEC

ANSPs: Skyguide
 Office Fédéral de la Météorologie et de Climatologie

ATM
 MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Federal Office for Civil Aviation (FOCA), Safety Division Infrastructure

Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Switzerland	n/a	No	No	No	
Terminal	Switzerland - TCZ	2	No	No	No	
Changes in the CZs from RP2		No				

Comparator group: Group E Other States in the comparator group: Austria, Belgium, Netherlands

Currency: CHF Exchange rate: 1.11124

1. Safety ✘

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Skyguide	Safety policy and objectives					C
	Safety risk management					D
	Safety assurance					C
	Safety promotion					C
	Safety culture					C

PRB Assessment

The PRB concludes that the safety targets proposed by Switzerland should not be approved.

- Switzerland did not provide the EoSM targets for 2020-2023.
- Switzerland did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- Switzerland did not describe how the independencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment ✘

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	4.78%	4.78%	4.78%	4.65%	4.50%

PRB Assessment

The PRB concludes that the environment targets proposed by Switzerland should not be approved.

- Skyguide's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✘

Capacity performance plan targets

	2020	2021	2022	2023	2024
Breakdown value for <u>en route</u> ATFM delay per flight (min)	0.47	0.64	0.64	0.86	1.36
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	1.94	1.94	1.94	1.94	1.94

PRB Assessment

The PRB concludes that the capacity breakdown values proposed by Switzerland should not be approved.

- The capacity breakdown values are not reaching the reference values each year of the RP3 and show an increasing trend.
- The proposed breakdown values are above the forecasted delay during the whole RP3 and there is no adequate justification in setting the capacity breakdown values above the existing capacity delay forecasts.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency ✘

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	97.42	94.30	89.56	86.12	83.33	-1.8%	-1.3%
Target for determined unit cost (DUC) (€2017) - Terminal	347.17	341.66	335.30	326.34	312.87	n/a	+0.1%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Switzerland should not be approved.

- Switzerland is not meeting neither trends nor the comparator group criteria.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
- Switzerland deviates from the trends due to restructuring measures, however the restructuring costs presented in the performance plan are not compliant with the definition in article 2(18) of the Regulation. No demonstration is provided in the performance plan that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period while. On the contrary, the restructuring shows a negative impact increasing the overall costs for the period (2020-2028).

PRB Recommendations

SAFETY

- Switzerland should define the EoSM safety targets for each year of the reference period.
- Switzerland should define measures for the management objectives to achieve the RP3 safety targets levels.
- Switzerland should describe how the interdependencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

ENVIRONMENT

- Switzerland should address discrepancies between its ambition is to "maintain 2018 performance" while managing traffic growth and NM measures to reduce delays, seeing as the targets do not correspond to actual 2018 performance.
- Switzerland should influence inefficiencies at its interfaces (over which it has little control) by cooperating with its neighbours, initiating cross-border FRA and collaborative airspace design to improve the interfaces.
- Switzerland should address local inefficiency, even when considering the impact of network inefficiency, as local inefficiencies levels are higher than other Member States.
- Switzerland should revise its environment targets in order to achieve consistency with its national reference values in line with the above recommendations.

CAPACITY

- Switzerland should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay breakdown values to achieve consistency with Union-wide targets.
- Switzerland should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.
- Switzerland should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.
- Switzerland should justify the terminal RP3 capacity targets with respect to RP2 actual performance and with respect to similar airports, or should revise terminal RP3 capacity targets downwards.

COST-EFFICIENCY

- Switzerland should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Switzerland should pursue the investment into the new technology. However, the costs should be revised and better considered within the performance plan.
- Switzerland should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

SWITZERLAND

Safety KPA

1.1.1 Target for EoSM for ANSPs

The targets for the Safety KPA are not complete, i.e. the targets are missing for 2020-2023.

The target EoSM levels are planned to be met at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3. Additionally, it is considered that the measures are not sufficiently described in the draft performance plan.

1.1.3 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-off with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.1.4 Change Management

Detailed change management processes and transition plans are described. All described processes, if compliant with the Commission Implementing Regulation (EU) 2017/373, provide assurance that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by Switzerland should not be approved.

- Switzerland did not provide the EoSM targets for 2020-2023.
- Switzerland did not provide relevant and sufficient measures to achieve the RP3 safety targets levels.
- Switzerland did not describe how the independencies with respect to safety will be handled for the implementation of changes into ATM Functional system.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Skyguide	Safety policy and objectives	✗	✗	✗	✗	C	✓	
	Safety risk management	✗	✗	✗	✗	D	✓	
	Safety assurance	✗	✗	✗	✗	C	✓	
	Safety promotion	✗	✗	✗	✗	C	✓	
	Safety culture	✗	✗	✗	✗	C	✓	

The interim EoSM targets have not been defined for 2020-2023. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan does not describe any specific measures but explains that "Regular exchange amongst experts in the FABEC Safety Performance and Risk Coordination (SPRC) TF three times a year as permanent agenda item. Furthermore, within the yearly FABEC Performance Monitoring Reporting (Report) EoSM results of the previous year are gathered and monitored. Weaknesses / major discrepancies will be spotted and counteracted by the responsible six NSAs."

Considering that the draft performance plan does not provide the starting EoSM levels, it cannot be assessed what measures could be considered relevant and sufficient to improve the safety levels over RP3. Additionally, it is considered that the measures are not sufficiently described in the draft performance plan.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The draft performance plan claims that the impact of changes into ATM Functional system on interdependencies and trade-off with safety is not addressed due to lack of guidance addressing this issue in RP2. Therefore, the metrics for monitoring the interdependencies between safety and other KPAs for RP3 are not addressed within the FABEC.

1.3.2 Change Management Practices

During RP3 Skyguide plans to conduct change management programs to introduce major airspace changes and ATM System improvements based on the "Agile" framework introduced for the Virtual Centre program since 2015. In parallel the "Innovation & Change Management" process and the Skyguide Transformation Program (TOM) are applied depending on the type and needs of projects.

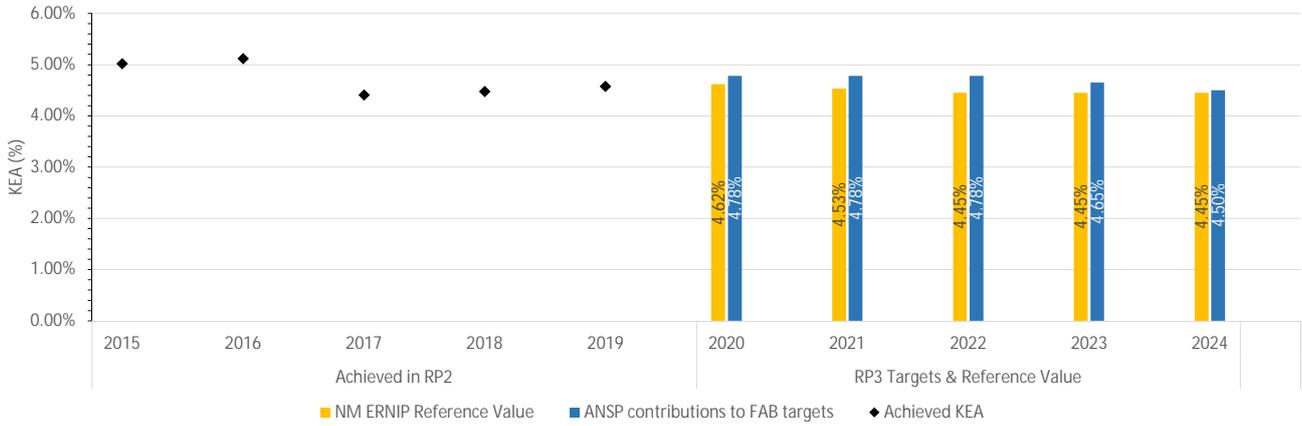
All described processes, if compliant with the Commission Implementing Regulation (EU) 2017/373, provide assurance that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

SWITZERLAND

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Draft FABEC targets	3.25%	3.25%	3.25%	3.15%	3.00%
ANSP reference values	4.62%	4.53%	4.45%	4.45%	4.45%
ANSP contributions to FAB targets	4.78%	4.78%	4.78%	4.65%	4.50%
Comparison of ANSP contributions with ANSP reference values	▲0.16%	▲0.25%	▲0.33%	▲0.20%	▲0.05%
Consistency with ANSP reference values	✗	✗	✗	✗	✗



2.2.2 PRB Conclusions ✗

The PRB concludes that the environment targets proposed by Switzerland should not be approved.
 - Skyguide's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
A Free Route Airspace (FRA) project, which will allow Airspace Users to plan and fly direct routes, is in progress and should become effective in 2021.		3.2.1(a)	Page 49
Major ERNIP Recommended Measures:	1	Reference in PP	Reference in ERNIP
Measure included within performance plan?		3.2.1(a)	Page 165
Implementation of Free Route Airspace Switzerland	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Switzerland achieved a KEA of 4.57% in 2019. The indicative target is not valid for Switzerland since the difference in KEA on a national and ANSP level is very different due to the impact of MUAC. The ERNIP reference values were provided at an ANSP level for RP3 and therefore do not allow for a fair comparison since KEA is measured on a national level.

Switzerland's ambition is to maintain its 2018 performance despite traffic growth and NM measures to reduce delays. Switzerland does not believe that FRA implementation can improve the situation since most of the inefficiencies are at the interfaces. The PRB believes that whilst this is the case, Switzerland does maintain some level of influence over this and can improve the situation by cooperating with its neighbours and initiating cross-border FRA and collaborative airspace design to improve the interfaces. It is not consistent with the objectives of the Single European Sky that Switzerland's ambition should be to "maintain" the status quo.

Measures to improve the performance were implemented during RP2. For instance, an additional set of national and cross-border Direct Routes (DCT) including Long Range Direct Routes were introduced in CH FIR in March and November 2017 that has contributed to a good RP2 performance and made a notable improvement on the KPI.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Switzerland plan for an environmental incentive scheme?	✗
Switzerland does not plan to apply an optional incentive scheme for the environment KPA.	

SWITZERLAND

Capacity KPA

3.1.1 En route ATFM delay

ANSP breakdown values defined in the performance plan are not consistent with the ANSP reference values during the whole RP3. The proposed ANSP breakdown values are higher than the NOP 2019-2024 (edition June 2019) forecasted delay for each year of RP3.

Analysis of the current capacity plans indicate that Geneva ACC may face a capacity gap, if airspace users would use the shortest distance scenario, while for Zurich ACC a capacity gap is expected during RP3, regardless which preferred route airspace users would use (current or shortest route option).

There is inconsistency in the performance plan regarding capacity enhancement measures, proposed breakdown values, and the planned capacity profiles. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✗
Deviation target v. reference value (minutes per flight)	0.14	0.31	0.37	0.66	1.16
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.1.2 Arrival ATFM Delay

Switzerland presents a constant national target for RP3 that, although, being lower than the target for RP2, it is still always above the observed past performance in the period 2016-2018.

The performance at both Zurich and Geneva ACCs during RP2 was slightly worse than the median for similar airports and the proposed targets for RP3 maintain or further deviate from that past performance of similar airports.

3.1.3 Incentives

En route capacity:
Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed national targets.

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band. Full bonus could be paid out at delay level higher than that required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal Incentives:
The Swiss terminal incentive scheme modulates the pivot values according to CRSTMP causes. The dead band seems too small to allow for small variations in performance without resulting penalties or bonuses. The bonus/penalty (only 0.5%) together with the low risk of not meeting the CRSTMP targets (given the fact that past delays were always below the pivot value) does not seem to incentivise to improve or maintain the current performance.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

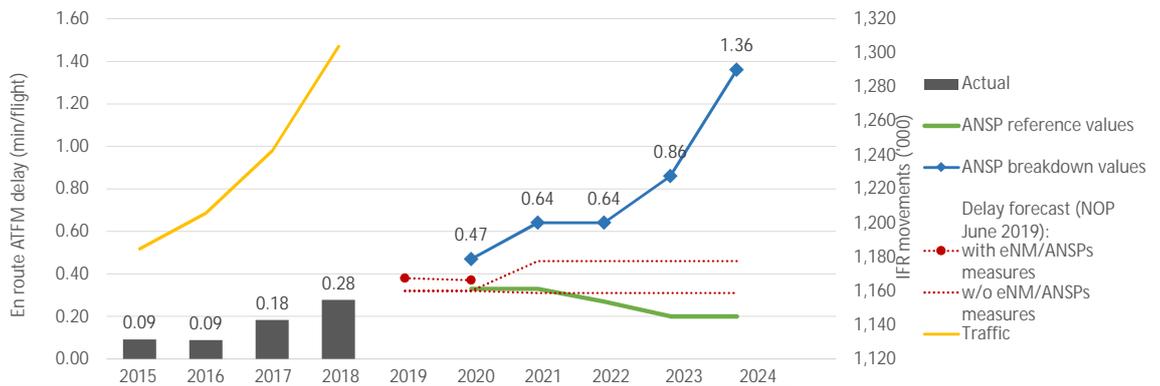
3.1.4 Investments

- Limited information available regarding the investments and missing information on investments planned dates of entry into operations.
- Several investments are in line with or may support the capacity enhancement measures.
- Missing information on investment projects' planned dates of entry into operations although the justification of the national targets' deviation from the reference values describe some projects (virtual centres) and measures (re-sectorisation) as expected to bring capacity benefits not sooner than in RP4."

3.1.5 PRB conclusions ✗

- The PRB concludes that the capacity breakdown values proposed by Switzerland should not be approved.
- The capacity breakdown values are not reaching the reference values each year of the RP3 and show an increasing trend.
- The proposed breakdown values are above the forecasted delay during the whole RP3 and there is no adequate justification in setting the capacity breakdown values above the existing capacity delay forecasts.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight ✘



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+1.7%	+1.8%	+3.1%	+4.9%						
Actual ATFM delay per flight	0.09	0.09	0.18	0.28						
ANSP reference values					0.33	0.33	0.27	0.20	0.20	
ANSP breakdown values					0.47	0.64	0.64	0.86	1.36	
Forecast with eNM/ANSPs measures*					0.38	0.37				
Forecast w/o eNM/ANSPs measures*					0.32	0.32		0.31-0.46		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✘	✘	✘	✘
Deviation target v. reference value (minutes per flight)	0.14	0.31	0.37	0.66	1.16
2. NOP delay forecast is lower or equal to the PP capacity target	✔	✔	✔	✔	✔

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✘

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- Virtual Centre program, aiming at a flexible service-oriented approach (implemented during RP3 but will bring benefit as from RP4 only);
- Airspace re-sectorisation in both Geneva and Zurich (full dynamic sectorisation with one sector defined per flight level in the upper airspace, benefit to be realised as from 2025 only);
- An adaptation of the current sectorisations is planned in both Geneva and Zurich ACCs for 2020;
- Significant ATCO recruitment plan.

When analysing the performance plan information and when taking into account proposed capacity values and capacity enhancement measures, it is visible that proposed measures are not adequate and not fully visible.

ATCO Planning (FTEs)

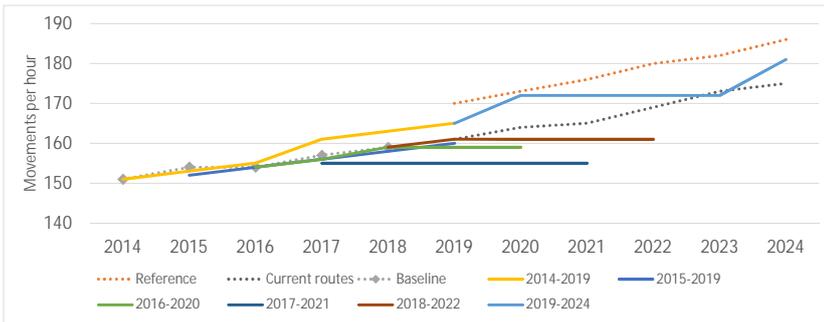
		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Total - skyguide (en route)	Additional ATCOs in OPS to start working in the OPS room	n/a						
	ATCOs in OPS to stop working in the OPS room	n/a						
	ATCOs in OPS to be operational at year-end	n/a						

2024 (end) - 2020 (beg.)

n/a



Geneva ACC (LSAG)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						170	173	176	180	182	186
Current routes						161	164	165	169	173	175
Baseline	151	154	154	157	159						
2014-2019	151	153	155	161	163	165					
2015-2019		152	154	156	158	160					
2016-2020			154	156	159	159	159				
2017-2021				155	155	155	155	155			
2018-2022					159	161	161	161	161		
2019-2024						165	172	172	172	172	181

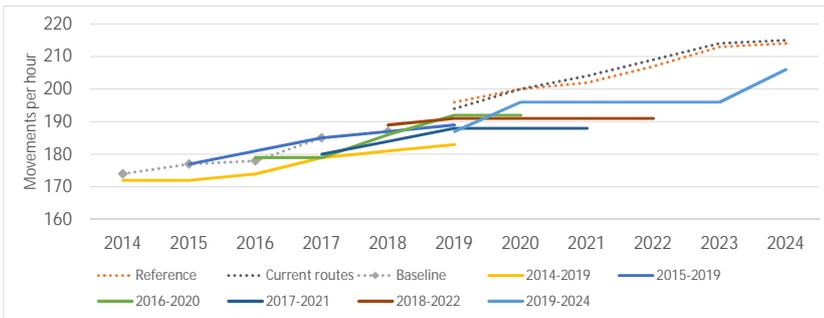
- Historical data shows that baseline value in RP2 grew by around 2% annually and that ANSP capacity plans were slightly lower than the achieved actual baseline value.

- The latest capacity plan for RP3 shows flat values (no growth) between 2021 and 2023, while in 2024 there is expected growth by 5%.

- The latest capacity plan, when taking into account current routes profile, shows adequate capacity levels for all years of RP3, expect for 2023 (less than -0.6%). When comparing the planned capacity profiles against the reference scenario there is identified capacity gap between -0.6% and - 5.5% annually, during the RP3.

- If the shortest routes are systematically flown, the above profile shows a capacity gap within the period, which would not be the case if the airspace users fly current routes.

Zurich ACC (LSAZ)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						196	200	202	207	213	214
Current routes						194	200	204	209	214	215
Baseline	174	177	178	185	187						
2014-2019	172	172	174	179	181	183					
2015-2019		177	181	185	187	189					
2016-2020			179	179	186	192	192				
2017-2021				180	184	188	188	188			
2018-2022					189	191	191	191	191		
2019-2024						187	196	196	196	196	206

- Historical data shows that baseline value in RP2 grew between 1% and 3% annually and that ANSP capacity plans were lower than the achieved actual baseline value.

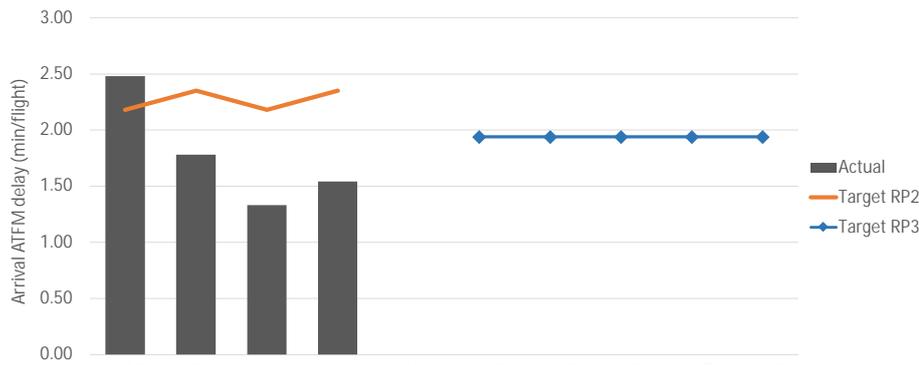
- The latest capacity plan for RP3 shows flat values (no growth) between 2021 and 2023, while in 2024 there is expected growth by 5%.

- The latest capacity plan, when taking into account current routes profile, shows lack of the capacity profiles between -2% and - 8.4% annually during the RP3. When comparing the planned capacity profiles against the reference scenario there is identified capacity gap between -2% and -8% annually during the RP3.

- The current capacity profiles outlook shows that capacity gap may be expected for Zurich ACC.

3.2.4	Significant/special events leading to higher delays in some years of RP3 and related enhancement measures	n/a
3.2.5	Review of the measures to increase capacity and address capacity gaps	✘
a)	Performance plan contains additional capacity enhancement measures planned to address the gap closure The performance plan does not contain additional capacity enhancement measures planned to address the gap closure.	✘
b)	Measures proposed by the NM are implemented in the Performance Plan The performance plan does not contain adequate information to assess the above mentioned statement.	!
c)	The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM n/a	n/a
d)	The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values The performance plan does not contain adequate information to assess the above mentioned statement.	!
e)	Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements) The performance plan contains the information that ATCO recruitment plan is envisaged, with ATCO recruitment numbers during the RP3.	✓
f)	Flexible use of operational staff is planned and ensured The performance plan does not contain adequate information to assess the above mentioned statement.	!
g)	Limitations of ATM system/infrastructure is mitigated New Virtual Center to bring benefits in RP4.	!
3.2.6	PRB Key Points	✘
<ul style="list-style-type: none"> - The ANSP breakdown values are not following the ANSP reference values. - The capacity plans indicate that skyguide might face a capacity gap during the RP3. - There is inconsistency in the performance plan regarding capacity enhancement measures, proposed breakdown values, and the planned capacity profiles. Description of measures in the performance plan and information contained in the latest version of NOP 2019-2024 (June 2019 edition) indicate that more ambitious breakdown values would be realistic. 		

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	2.48	1.78	1.33	1.54	-	1.94	1.94	1.94	1.94	1.94
Geneva (LSGG)	1.85	1.11	0.88	1.14	-	1.37	1.37	1.37	1.37	1.37
Zürich (LSZH)	2.92	2.25	1.65	1.80	-	2.14	2.14	2.14	2.14	2.14

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Switzerland's performance plan for RP3 presents a constant target at national level that represents an improvement with respect to the RP2 targets by 11%. Nevertheless, this target is a deterioration with respect to the national performance observed during 2016-2018. The targets at airport level are also worse than the past observed performance at these airports in the same period.

Switzerland has used the STATFOR base forecast from February 2019. This forecast estimates a CAGR (in IFR movements) at the TCZ of 1.5%. Several measures are planned to improve the delay situation along RP3, the main one being the recruitment of ATCOs, but also AMAN in Geneva, prediction tools for TWR/APP, etc.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Geneva (LSGG)	1.37
Zürich (LSZH)	2.14
National Target	1.94



Zürich is the main contributor to national delays, with higher target and bigger traffic share than Geneva.

Assuming similar traffic and distribution than in RP2, the contribution of both airports according to the local targets is slightly lower than the total corresponding to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Geneva (LSGG)	GROUP III	0.25	1.25	+1.00	1.37	+1.12
Zürich (LSZH)	GROUP I	0.87	2.15	+1.28	2.14	+1.27

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The performance of both Geneva and Zurich in terms of arrival ATFM delay was considerably worse than the performance observed at similar airports. The new targets maintain similar deviation, with airport targets that still represent higher delays than similar airports during RP2.

3.3.5 PRB Key Points ✘

- Switzerland presents a constant national target for RP3 that, although, it is lower than the target for RP2, it is still always above the observed past performance in the period 2016-2018.
- The performance at both Zurich and Geneva during RP2 was slightly worse than the median for similar airports and the proposed targets for RP3 maintain or further deviate from that past performance of similar airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±5.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.33	0.33	0.27	0.20	0.20
Alert threshold (Δ Ref. value in fraction of min)	±0.057	±0.057	±0.054	±0.050	±0.050
Performance Plan targets	0.47	0.64	0.64	0.86	1.36
Pivot values for RP3	0.31	0.42	0.42	0.57	0.90

Threshold review

Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values.

Modulation review

Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.

Review of financial advantages/disadvantages

Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than the FAB dead band; penalty only applicable if total FAB performance is worse than the FAB dead band. Full bonus could be paid out at delay level higher than that required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±5.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.150	±0.150	±0.150	±0.150	±0.150
Performance Plan targets	1.94	1.94	1.94	1.94	1.94
Pivot values for RP3	0.30	0.30	0.30	0.30	0.30

Threshold review

The terminal incentive scheme includes a dead band of 5% of the CRSTMP pivot value (dead band: 0.285 - 0.315 minutes delay per arrival). The 5% dead band might be too small to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Switzerland has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen (0.30 minutes delay per arrival) corresponds to an ADF (attributable delay factor) of 15.4% with respect to the national target all causes, although the observed share of CRSTMP delays in 2015-2018 was only 6.4%. In fact, this pivot value would have resulted in the maximum bonus in 2015, 2016 and 2017 (maximum CRSTMP delays were reached in 2018 with 0.16 minutes delay per arrival, which would also have resulted in a bonus).

Review of financial advantages/disadvantages

The scheme is symmetric. The bonus/penalty (only 0.5%) together with the low risk of not meeting the targets (given the fact that past delays were always below the pivot value) does not seem to incentivise to improve or maintain the current performance.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✘

En route incentives:

- Threshold is symmetrical around pivot values. Pivot values are not based on reference values as published in the NOP but are based on proposed ANSP breakdown values.
- Several modulation processes in place. Pivot value will be updated according to the 'trend' of the reference value (not the reference value) compared to previous year. Pivot value will subsequently be modulated according to (global FABEC) CRSTMP ratio.
- Maximum of 0.5% bonus and penalty. Bonus only triggered if total FABEC performance is better than FAB dead band; penalty only applicable if total FAB performance is worse than FAB dead band.
- Full bonus could be paid out at delay level higher than that required to meet reference value. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

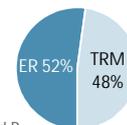
Terminal Incentives:

- The Swiss terminal incentive scheme modulates the pivot values according to CRSTMP causes.
- The dead band seems too small to allow for small variations in performance without resulting penalties or bonuses. The bonus/penalty (only 0.5%) together with the low risk of not meeting the CRSTMP targets (given the fact that past delays were always below the pivot value) does not seem to incentivise to improve or maintain the current performance.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	51.0	46.3	42.4	38.3	35.8	213.8	
	En route	M€ (nominal)	28.4	25.3	21.9	18.9	17.0	111.6
	Terminal	M€ (nominal)	22.6	20.9	20.5	19.4	18.9	102.2

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Virtual Center	Upgrading core ATM systems to use modern flexible technology, allowing the reduction of asset costs, and to improve Air Traffic Controller efficiencies and affordable capacity management against predicted traffic growth. This includes infrastructure improvements such as service orientated software architecture, voice over IP for radios (VCS), as well as sector and tool improvements for the controllers. More details can be found in Annex C of the performance plan.	70.0	No	Yes	38.1	6.7
2	New SIM Generation	Replacement of end of life asset also including new capabilities that reduce the instructor to learner ratio, and should enable faster training, affordably by use of voice recognition.	5.7	No	Yes	1.7	1.5
3	Wide Area Multilateration	Deploy MLAT to replace end of asset life secondary radar. MLAT allows lower running costs and affordably improve coverage in the complicated Swiss mountain geography. More details can be found in Annex C of the performance plan.	6.1	No	No	0.4	0.6
4	Smart Radio	Replaces obsolescent main radio equipment across Switzerland, compliant with EC implementing rule for 8.33 kHz, and VOIP enabled to support the Virtual Centre implementation). This project started in 2013 and is due to complete in 2021 fully.	10.5	No	No	2.0	1.1
Total:						42.1	9.9

Airspace user feedback regarding major investments

The airspace users do not support the Swiss draft performance plan due to the lack of information.

The airspace users noted that much more detailed explanation in the form of risk assessments, cost-benefit analysis and details regarding the projects is needed in order to assess the validity of the investments.

Review of investments

New major investments represent 24% of the total determined costs of investments over RP3. Investments #1 and #4 continue from RP2, where the 2015-2018 actual investments were slightly higher than planned. In line with this, 2015-2018 actual CAPEX delivery reaches 111% of the planned values for the same period and the amount overspent is 17.92M€. Skyguide deducted a total of 65.75M€ over the period in the second submission of the performance plan. The explanation provided by Skyguide is that the previous version of the performance plan indicated total calculated costs of investment. In the new version, only the part that is attributed to en route and terminal is indicated. In addition to that, net costs are indicated since amounts not financed by users of Swiss FIR are deducted from costs as well in the performance plan.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	Virtual Center	Local	Safety, Capacity, Cost-efficiency	Lower costs, enable longer range options to affordably improve capacity and provide business continuity options.
2	New SIM Generation	Local	Safety, Capacity, Cost-efficiency	Lower costs, affordably maintain ATCO capacity.
3	Wide Area Multilateration	Local	Safety, Capacity, Cost-efficiency	Lower costs, safely maintain capacity.
4	Smart Radio	Local	Safety, Capacity, Cost-efficiency	Lower costs, maintain capacity, EC implementing rule compliance, virtual centre enabling.

Additional information

Skyguide has described the Virtual Centre as an investment necessary for:

- Capacity on demand: increase the resilience of the ATM system through horizontal collaboration between ANSPs;
- ATM data service provider - ADSP: promote a new Air traffic Data Service Provider model jointly servicing multiple ANSPs;
- Reward early movers: reward actors that are the first to implement the recommended improvements or that shift towards innovative delivery models.

The investment will be realised in four tranches, each bringing its own share of benefits. Multilateralism will allow for cooperative surveillance systems equivalent to Mode-S radar based on time difference computing and higher performances for future applications. The technological benefits will be:

- Interoperability with Mode-S and ADS-B;
- Optimum coverage in complex environments;
- Performance improvements;
- Scalable and flexible System Architecture;
- Self redundancy.

More details can be found in Annex C of the performance plan.

No additional details have been provided regarding the other investments.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	174.4	151.7	8.6	10.9	12.9	14.2	15.6	62.3
Existing investments			45.4	36.9	30.3	25.0	21.1	158.7

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 29% of the total determined costs over RP3, while existing investments represent 74%. Skyguide does not provide any additional information regarding these investments, other than: "To comply with EU efficiency targets (amortisation reduction contribution), Skyguide will reduce its annual investment amount by 20% over the next 5 years. During the next 2 years (where our detailed plans are possible) there will be few new material investments beyond those mentioned above. Existing investments are to complete projects in progress which aim to either maintain/improve the 4 main KPAs for capacity, efficiency, environment and of course safety, or to keep the business operations running (facilities, back office, etc.); there are up to 70 small projects across the business addressing these topics in any year."
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

Switzerland has introduced several investments, which are in line with or may support the capacity enhancement measures approved within the NOP 2019-2024. Only Investment #1 could be directly linked to measures to achieve the capacity targets being both the concept supported by the Airspace Architecture Study and the capacity enhancement measure listed in the NOP. The rest of investment could contribute to capacity increase as well if implemented properly however they do not seem to be primarily focused on the capacity increase. It is difficult to assess whether the investments are scaled to demand due to limited details provided in the description of the projects.

According to the NOP, Switzerland is not expected to meet the reference values (Zurich is expected to generate higher delays than required, Geneva close to reference values). One of the reasons identified by the NM is stagnation of available capacity for years between 2019-2023 (hence being not scaled to the demand). Skyguide defends their investment strategy as follows "In 2017 and 2018, Zurich ACC witnessed an unforeseen and high increase in traffic because of the regulations due to lack of staff in Karlsruhe, Reims and MUAC. It is hard to foresee what the traffic will look like once these ACCs have restaffed and the eNM/S19 measures are no longer in place. There might be a real downturn in traffic in Zurich ACCs, and in the light of this uncertainty, it does not seem reasonable to heavily invest in order to accommodate a traffic growth that might or might not materialise, especially if we are to reach the cost-efficiency targets. The other capacity gap is caused by availability of ATCOs."

Investment #1 (Virtual Centres) may support the achievement of the capacity. It is indicated already in RP2 performance plan. Implementation date is not provided.

Investment #2 (New SIM Generation) may support capacity improvements by early availability of ATCOs. Implementation date is not provided.

Investment #3 is an investment into surveillance infrastructure. It may contribute to the capacity improvement and support e.g. FRA implementation measure identified in the NOP. More details would be needed to make the proper assessment. Implementation date is not provided.

Investment #4 is an investment into communication infrastructure. It may contribute to the capacity improvement and support e.g. FRA implementation measure identified in the NOP. More details would be needed to make the proper assessment. Implementation date is not provided.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

From the details provided by the performance plan, it is difficult to confirm that Switzerland considered operational aspects of how and when capacity improvements are necessary. For no investment project does the investment plan declare the planned date of entry into operations. The performance plan rather describes the entry dates just as 'stepwise' without additional details.

Switzerland shows concern regarding the uncertainty of traffic levels and of effectiveness of capacity enhancement measures prepared by Karlsruhe, Rhein and MUAC ACCs for the RP3, therefore is not willing to invest into additional capacity measures. More details would be needed to make proper evaluation of Switzerland's approach.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

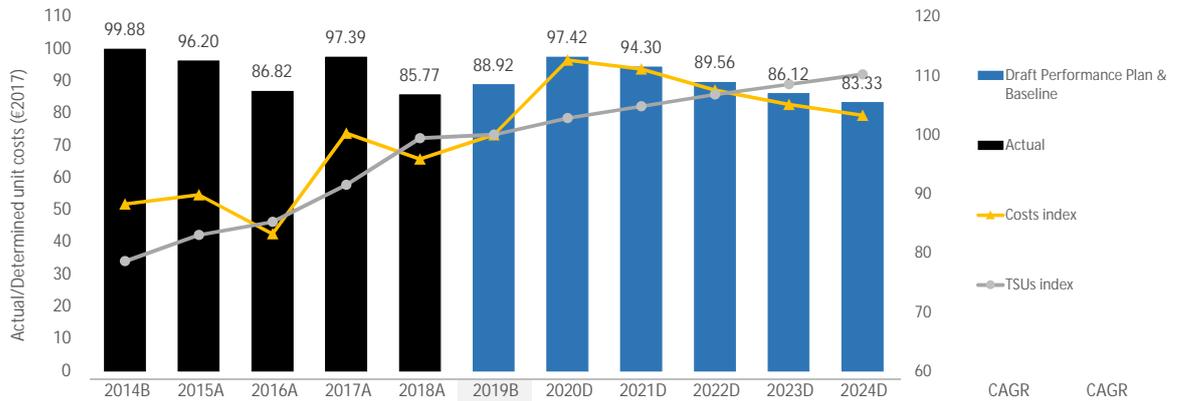
Investments #1 (Virtual Centres) and #4 (Smart Radio) are listed already in the RP2 FABEC performance plan. The planned dates of all projects' entry into operation is not available. At the moment, only the Investments #1 (Virtual Centres) and #3 (New SIM Generation) could be directly linked to the capacity measures. Due to uncertainty of the projects' implementation dates, it is difficult to assess the projects' synchronisation with the measures provided in the capacity plan in the NOP 2019-2024.

- Limited information available regarding the investments and missing information on the planned dates of entry into operations of investments.
- Several investments are in line with or may support the capacity enhancement measures.
- Missing information on planned dates of entry into operations of investment projects although the justification of the deviation of national breakdown values from the reference values describe some projects (virtual centres) and measures (re-sectorisation) as expected to bring capacity benefits not sooner than in RP4.

SWITZERLAND

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MCHF (nom)	153	155	143	174	167	-	199	198	193	191	189	-	+2.1%
Total costs	MCHF (2017)	153	156	144	174	166	173	195	192	186	182	179	+0.7%	+1.6%
TSU	'000	1,377	1,455	1,493	1,604	1,741	1,752	1,801	1,836	1,871	1,901	1,931	+2.0%	+3.4%
AUC/DUC	CHF (2017)	110.99	106.90	96.48	108.22	95.31	98.81	108.26	104.79	99.52	95.70	92.60		
Exchange rate	CHF:€				1.111									
AUC/DUC	€ (2017)	99.88	96.20	86.82	97.39	85.77	88.92	97.42	94.30	89.56	86.12	83.33		
Annual change	%		-3.7%	-9.7%	+12.2%	-11.9%	+3.7%	+9.6%	-3.2%	-5.0%	-3.8%	-3.2%	-1.3%	-1.8%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	88.92 €2017	✘
--	-------------	---

The 2019 baseline traffic is in line with STATFOR February 2019 base forecast.

The 2019 forecast costs are +4.3% above the 2018 actuals (in real terms) and +10.3% higher than the planned RP2 determined costs. The main drivers for the increase compare to the 2018 actuals are the staff costs (+4.1% or +4.2M€2017), the cost of capital (+33.5% or 1.2M€2017) and the depreciation costs (+8.8% or +2.0M€2017). No justification is provided regarding the staff costs increase in 2019 forecasts.

4.1.3 Summary of cost-efficiency assessment results

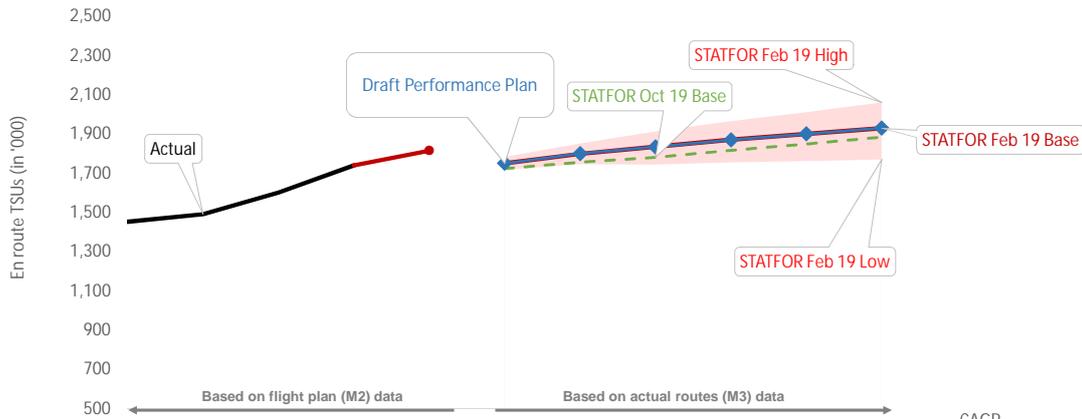
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-1.3%	✘
Switzerland does not meet the Union-wide RP3 trend, with a trend of -1.3%.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-1.8%	✘
Switzerland does not meet the Union-wide long term trend, with an trend of -1.8%.		
c) DUC level (2019 baseline) lower than the average of comparator group (E) average (69.81 €2017)?	+27.4%	✘
The DUC level is +27.4% higher than the average of the comparator group for the 2019 baseline and +16.9% higher in 2024.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		✘
The performance plan restructuring costs are not compliant with the definition in article 2(18) of the Regulation. No demonstration is provided in the performance plan that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period.		

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Switzerland should not be approved.

- Switzerland is not meeting neither trends nor the comparator group criteria.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
- Switzerland deviates from the trends due to restructuring measures, however the restructuring costs presented in the performance plan are not compliant with the definition in article 2(18) of the Regulation. No demonstration is provided in the performance plan that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period while. On the contrary, the restructuring shows a negative impact increasing the overall costs for the period (2020-2028).

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	1,455	1,493	1,604	1,741								
Annual change	%		+2.6%	+7.4%	+8.6%								
STATFOR Feb 19 Base	'000 TSUs					1,816	1,752	1,801	1,836	1,871	1,901	1,931	+2.0%
Annual change	%					+4.3%	+0.6%	+2.8%	+1.9%	+1.9%	+1.6%	+1.6%	
STATFOR Oct 19 Base	'000 TSUs					-	1,725	1,757	1,782	1,818	1,850	1,886	+1.8%
Annual change	%					-	-0.9%	+1.9%	+1.4%	+2.0%	+1.8%	+1.9%	
Performance Plan	'000 TSUs						1,752	1,801	1,836	1,871	1,901	1,931	+2.0%
Annual change	%						+0.6%	+2.8%	+1.9%	+1.9%	+1.6%	+1.6%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient		Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
		3 months	12 months			
2019B (PP baseline, M3)	1,752			2019B (PP baseline, M3)	1,752	
2019F (as in the Reporting tables, M2)	1,797			2019F (STATFOR Feb 19, M3)	L 1,719 B 1,752 H 1,784	=B
2019B/ 2019F	-2.52%	-3.54%	-3.44%	2019F (STATFOR Oct 19, M3)	L 1,721 B 1,725 H 1,729	+1.57%

The 2019 baseline traffic is in line with STATFOR February 2019 base forecast. This is +1.57% higher than the STATFOR October 2019 base forecast.

The 2019 baseline traffic (1,752,000 SU) is calculated as a result of the application of CRCO M3/M2 three-months coefficient (-3.54%) to the 2019 forecast (M2) included in the performance plans (1,816,000 SU). However, the 2019 forecast (M2) included in the reporting tables (1,797,000 SU) shows a different value than the one included in the performance plan (-1% or 18,327 TSUs less), therefore the reporting tables should be amended to reflect the February 2019 forecast (M2) as reported in the performance plan.

The year-to-date (up to end of October) traffic evolution shows a decrease in traffic of +2.3% compared to the same period of 2018.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

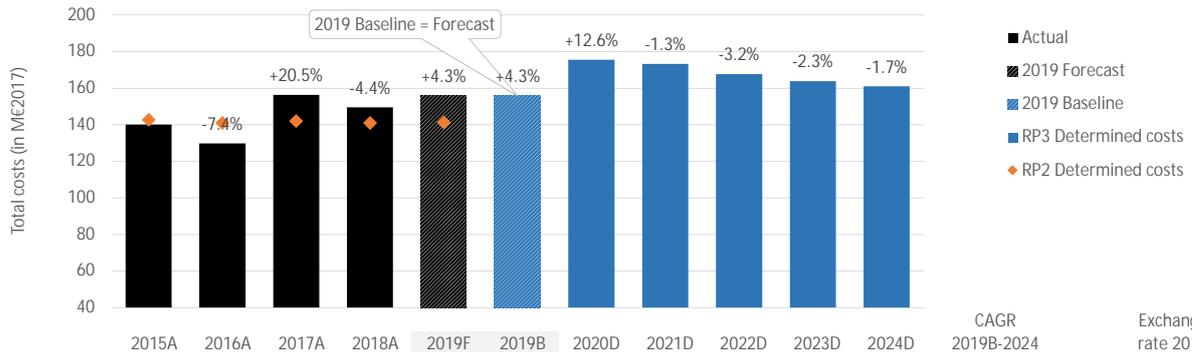
Review of the PP traffic forecast

The selected forecast is in line with STATFOR February 2019 base forecast for all years of RP3 (2020-2024), which forecasts a +2.0% annual growth on average over 2019-2024.

4.2.4 PRB Key Points

- The selected forecast is in line with STATFOR February 2019 base forecast for all years of RP3 (2020-2024).

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MCHF (nom)	155	143	174	167	175	-	199	198	193	191	189	-	CHF:€
Annual change	%		-7.7%	+21.0%	-3.7%	+4.9%	-	-	-0.5%	-2.4%	-1.5%	-0.9%	-	1.11124
Inflation index	2017 = 100	99.9	99.4	100.0	100.9	101.7	101.7	102.7	103.8	104.8	105.8	106.9	+1.0%	
Total costs	MCHF (2017)	156	144	174	166	173	173	195	192	186	182	179	+0.7%	
Annual change	%		-7.4%	+20.5%	-4.4%	+4.3%	+4.3%	+12.6%	-1.3%	-3.2%	-2.3%	-1.7%		
Total costs	M€ (2017)	140	130	156	149	156	156	175	173	168	164	161	+0.7%	

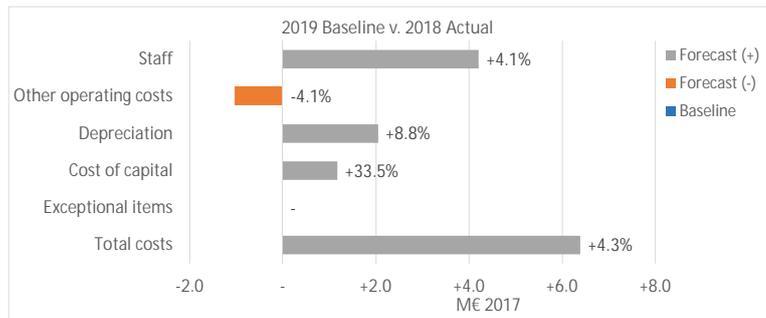
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

The index deviation by 2024 is only -0.03 p.p. due to rounding.

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+6.4	+4.3%
2019F v. 2019 RP2 DC	+14.6	+10.3%
2019F v. average 2015-2018	+12.0	+8.3%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast costs are +4.3% above the 2018 actuals (in real terms) and +10.3% higher than the planned RP2 determined costs. The main drivers for the increase compared to 2018 actuals are the staff costs (+4.1% or +4.2M€2017), the cost of capital (+33.5% or 1.2M€2017) and the depreciation costs (+8.8% or +2.0M€2017). Switzerland indicates that the 2019 costs forecast is based on the "budget 2019". The only evidence or justification provided on the performance plan regarding the costs increase are related to the fact that "Skyguide invested roughly between 15% and 20% more than planned in RP2, generating progressively additional calculated cost at the pace of the entry into operation of the various components of VC", which could justify the increase in depreciation and costs of capital, but no justification is provided regarding the staff costs increase.

2019 baseline analysis

The 2019 baseline costs are in line with 2019 forecast costs, in real terms. Please see the box above for detailed analysis.

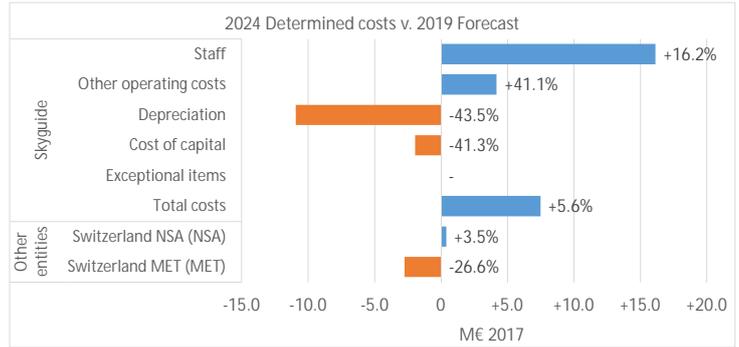
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 📌 Investments (see details in 3.5)
- ✅ Cost of capital (see details in 4.3.1)
- 📌 Pension costs (see details in 4.3.2)
- ✅ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



As far it concerns the RP3 determined costs, these are expected to increase by about +0.7% CAGR between 2019 baseline and 2024.

The main contributor to this increase is Skyguide, the costs of which are expected to increase by +5.6% (+7.5M€2017) between 2019 forecast and 2024. Higher costs, over the RP3 period, are mainly driven by significant higher staff costs (+16.2% or +16.2M€2017) and higher other operating costs (+41.1% or +4.2 M€2017). These are partially compensated with a decreases in depreciation costs (-43.5% or -10.9M€2017) and costs of capital (-41.3% or -1.9M€2017). The combined effect is the result of the Skyguide change in the capitalisation rules in 2020 (costs increase +12% with respect 2019), which would allow them turning some CAPEX into OPEX. Skyguide proposes to consider the impact of this accounting adaptation as restructuring cost since, as for the performance plan, it would allow them to implement the "Virtual Centre". For more details see the section 4.4 DUC of this document.

Finally, it is noted that the MET provider is expected to decrease their costs by -26.6% or -2.7M€2017.

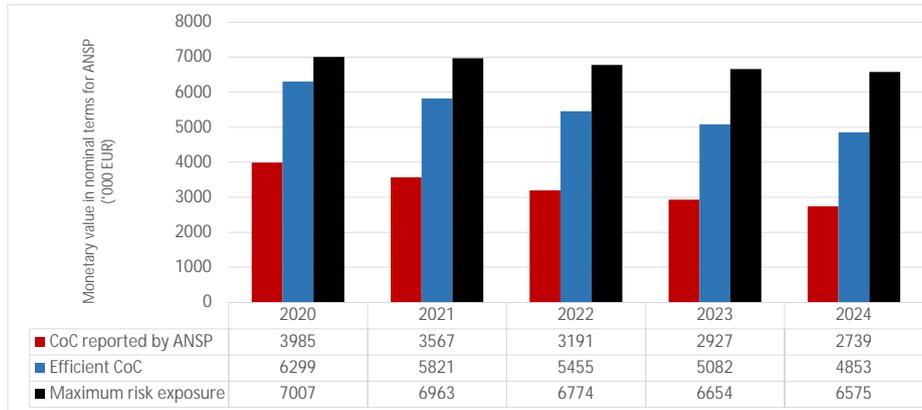
4.3.4 PRB Key Points

- The 2019 forecast costs are +4.3% above the 2018 actuals (in real terms) and +10.3% higher than the planned RP2 determined costs. The main drivers for the increase compare to the 2018 actuals are the staff costs (+4.1% or +4.2M€2017), the cost of capital (+33.5% or 1.2M€2017) and the depreciation costs (+8.8% or +2.0M€2017). No justification is provided regarding the staff costs increase in 2019 forecasts.
- In 2020 Skyguide proposes to change the capitalisation rules, which would allow them turning some CAPEX into OPEX. Skyguide proposes to consider the impact of this accounting adaptation as restructuring cost.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	159,243	158,240	153,959	151,229	149,429
Monetary value of Return on Equity	2,837	2,540	2,985	2,738	2,562
Ratio RoE/DC (%)	1.8%	1.6%	1.9%	1.8%	1.7%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	2.6%	5.5%	2.6%	5.7%	3.5%	5.9%	3.5%	5.9%	3.5%	6.0%
Interest on debts	2.2%	0.2%	2.2%	0.3%	0.5%	0.5%	0.5%	0.6%	0.5%	0.7%
Capital structure (% debt)	32.3%	29.4%	32.3%	29.6%	32.3%	29.6%	32.3%	29.5%	32.3%	29.5%
WACC	2.5%	4.0%	2.5%	4.1%	2.5%	4.3%	2.5%	4.3%	2.5%	4.4%

Is the interest on debts in line with the market? Yes

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.
- The efficient cost of capital is computed in line with competitive market practices and with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

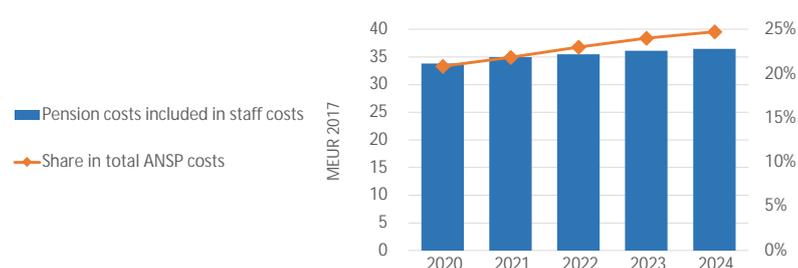
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	159,389	142,675	127,641	117,064	109,565
Net current assets	0	0	0	0	0
Adjustments total assets	0	0	0	0	0
Total asset base	159,389	142,675	127,641	117,064	109,565

- The fixed asset base will decrease over RP3, in line with the investments described in section 3.5 of this document.
- The RAB does not include neither net current assets, nor adjustments to the total asset base.
- The total asset base is therefore equal to the fixed asset base and will decrease over RP3 accordingly.

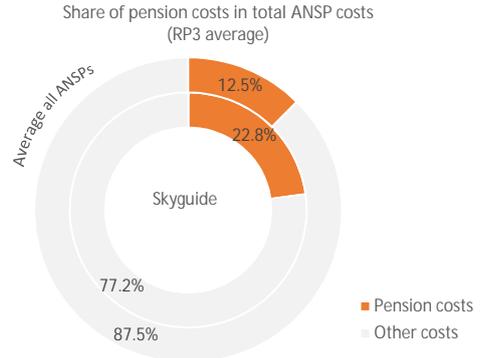
4.3.A.5 PRB Key Points ✔

- The cost of capital is in line with the maximum risk exposure and does not present major issues.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	MEUR 2017	33.8	35.0	35.5	36.1	36.5
Year on year variation	% change		+3.5%	+1.5%	+1.7%	+1.0%
Share in total ANSP costs	%	20.8%	21.9%	23.0%	24.0%	24.7%
Year on year variation	p.p.		1.0p.p.	1.1p.p.	1.0p.p.	0.7p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Higher**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **Yes**

Skyguide has four defined contribution pension schemes for different staff categories (three from 2022). The employer contribution rates to the defined contribution pension schemes are planned to increase in all categories (AOT from 16.3% to 18.2%, Managers from 26.1% to 28.3% and ATCOs from 19.6% to 20.8%).

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Skyguide manages its occupational defined contribution scheme through a separate legal entity called Skycare. Members receive defined benefits, though the full liability of the scheme is assumed by Skycare. Skyguide is only liable for making contributions to the scheme and so its contributions are assessed on a defined contribution basis.

4.3.B.4 PRB Key Points

- There is an increase in the trend of pension costs share in the total ANSP costs between 2020 and 2024.
- The ANSP RP3 average share of pension costs is higher than the Union-wide average.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

Switzerland did not mention changes to the cost allocation methodology with respect to RP2.

According to the Annex A of the performance plan: "Dedicated services are allocated to either terminal or en route. Services common to en route and terminal are allocated based on the respective key of the service."

1.2. Are the criteria for cost allocation clearly defined and justified?

Partially

If not, what are the issues identified?

The criteria for cost allocation are provided only very brief explanations.

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

n/a

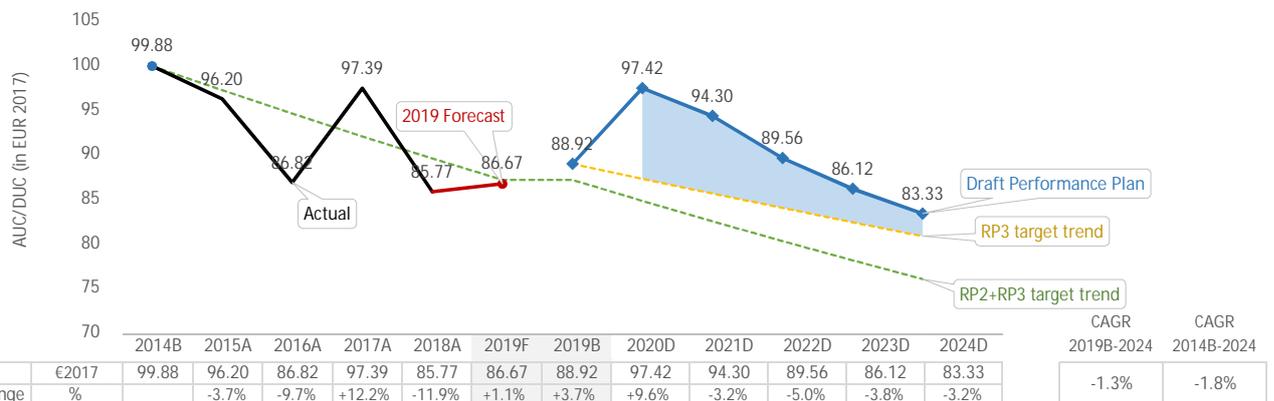
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points 1

- It is not clearly stated if Switzerland changes the cost allocation methodology with respect to RP2.
- The cost allocation methodology is not clearly described.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

<ul style="list-style-type: none"> ✗ DUC consistency with the Union-wide RP3 DUC trend ✗ DUC consistency with the Union-wide long-term DUC trend ✗ DUC level consistency 	<table border="1"> <tr> <td>PP trend</td> <td>-1.3%</td> <td>Union-wide trend</td> <td>-1.9%</td> <td>Difference</td> <td>+0.6p.p.</td> </tr> <tr> <td>PP trend</td> <td>-1.8%</td> <td>Union-wide trend</td> <td>-2.7%</td> <td>Difference</td> <td>+0.9p.p.</td> </tr> <tr> <td>PP 2019 baseline</td> <td>88.92</td> <td>Average comp. group</td> <td>69.81</td> <td>Difference</td> <td>+27.4%</td> </tr> </table>	PP trend	-1.3%	Union-wide trend	-1.9%	Difference	+0.6p.p.	PP trend	-1.8%	Union-wide trend	-2.7%	Difference	+0.9p.p.	PP 2019 baseline	88.92	Average comp. group	69.81	Difference	+27.4%
PP trend	-1.3%	Union-wide trend	-1.9%	Difference	+0.6p.p.														
PP trend	-1.8%	Union-wide trend	-2.7%	Difference	+0.9p.p.														
PP 2019 baseline	88.92	Average comp. group	69.81	Difference	+27.4%														

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	Yes
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	No

Switzerland proposes a -1.3% CAGR decreasing DUC trend over the RP3 period. The proposed trend deviates by +0.6 p.p. from the Union-wide RP3 DUC trend target (-1.9%).

The 2014-2024 DUC trend amount to -1.8% CAGR and deviates by +0.9 p.p, this is significantly worse than the Union-wide long term trend (-2.7%).

The DUC level is +27.4% higher than the average of the comparator group for the 2019 baseline and +16.9% higher in 2024.

Capacity targets are not consistent, therefore, the cost deviation from cost-efficiency trends is not analysed. Switzerland justifies the DUC deviation on the ground restructuring costs. As reported by Switzerland, when eliminating the 61.1M€2017 total restructuring costs planned for RP3 the DUC trend over the RP3 period would be consistent with the Union-wide RP3 trend of 1.9%.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs

Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +57.0 v. RP2+RP3 trend over the period 2020-2024 +91.5

Restructuring costs from previous periods to be recovered in RP3 (in M€2017)

2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
-	-	-	-	-	-

Restructuring costs planned for RP3 (in M€2017)

	2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
Staff	13.1	13.3	12.6	11.6	11.6	62.3
of which, pension costs	3.8	3.9	3.8	3.6	3.6	18.8
Other operating costs	4.6	4.1	3.9	3.4	3.5	19.5
Depreciation	-0.3	-1.4	-2.8	-4.4	-6.9	-15.9
Cost of capital	-0.2	-0.7	-1.0	-1.3	-1.6	-4.8
Exceptional items	0.0	0.0	0.0	0.0	0.0	0.0
Total restructuring costs	17.2	15.4	12.7	9.4	6.6	61.1

Summary of restructuring measures presented in the PP

As part of the renewal of the technical infrastructure, Skyguide has opted for a different architecture with the implementation of the of the Virtual Centre program. Skyguide indicates in the performance plan that further flexibility is needed in order to carry out the Virtual Centre under RP3 legislation, where non-spent CAPEX shall be refund to users. Skyguide proposes to change some capitalisation rules, which would allow to turn some CAPEX into OPEX. This approach would facilitate the achievement of better market conditions, and that the short term increase in operation costs and staff costs will be offset by the long term reduction in depreciation and capital costs. "The change in capitalisation rules would be: Stop capitalising internal hours on projects and stop capitalising external project costs up to Gate 2 of the projects. Gate 2 is the moment when the project receives a validation for implementation. As a baseline value, Skyguide proposes the latest cost forecast (budget 2019), which is not concerned by the mentioned change. As this change would be implemented as from 2020 on, comparing 2020-2024 cost (including the impact mentioned above) with proposed baseline value would make no sense from a performance perspective. Therefore, Skyguide propose to consider the impact of this accounting adaptation as restructuring cost." "If these cost are not recognised as restructuring cost, the owner of Skyguide (Swiss State) has forbidden to implement the change as it would put the company into serious financial troubles".

Switzerland indicates in the performance plan, that if the impact of the change mentioned above is withdrawn from the determined cost, the average determined unit cost evolution reached the average reduction level of -1.9%, in line with the Union-wide RP3 trend.

Analysis

The cumulative costs (sum of the determined costs over 2020-2024) are 57M€2017 higher than the costs to achieve the RP3 DUC trend, and 91.5M€2017 in order to achieve the long-term Union-wide trend. Switzerland presents restructuring costs for 61.1M€2017, hence explaining only the deviation from the RP3 Union-wide trend.

There are several elements that challenge the restructuring en route costs included in the RP3 performance plan of Switzerland:

- No demonstration is provided in the performance plan that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period (i.e. RP4). Switzerland provides a table in the performance plan with the increase in OPEX and the offsetting effect decreasing depreciation cost and interests cost. Switzerland estimates that the claim restructuring costs fulfils the legislation since from 2027 onwards the possible increase in OPEX is positively compensate by the decreased in depreciation and interest cost. The problem arrives when calculating the possible benefit (costs reduction) taking in to account the overall RP3 and RP4 period as showed in the table below. By the year 2028, the net impact shows a additional 71.3MCHF nominal terms costs increase for en route.

CHF-nominal terms as reported in 3.4.5.2 b) in the PP	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total for the overall period
Net impact of the restructuring costs in en-route: Increase in OPEX - (decrease in depreciation costs and interest costs)	19 627	17 799	14 963	11 369	8 447	3 798	1 117	-1 564	-4 246	71 309

- It is difficult to reconcile a change in of accounting rules under the actual definition of restructuring cost (see IR 2019/317 Article 2(18)). Understanding that the creation of the new Virtual Centre could fit under this definition, it is not clear why Skyguide needs to change the capitalization rules, which is the source of the additional restructuring costs claimed, to implement this project.

- Shifting CAPEX into OPEX releases skyguide from the RP3 obligation of reimbursing to the users the related costs of not implement planned investments.

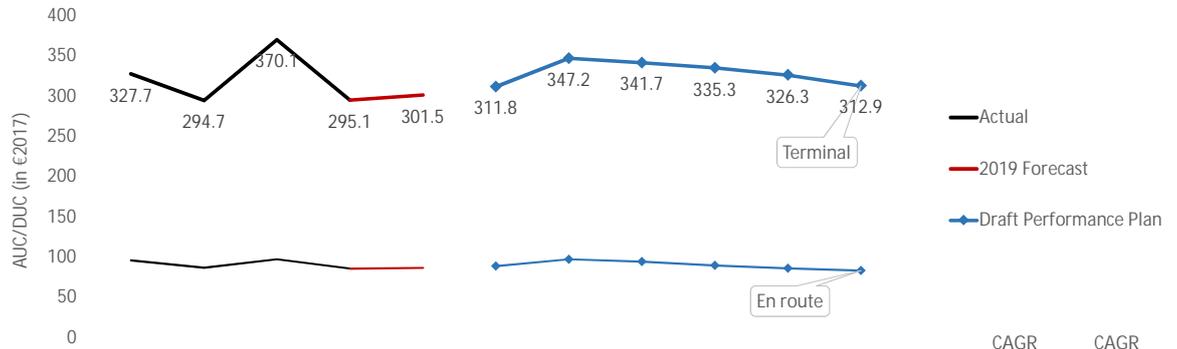
- Finally, from the explanations included in the performance plan, it is difficult to understand the operational improvement coming from the implementation of the Virtual Centre (at least from a capacity perspective). More details are provided in section 3.2 of this document.

✓ Can it be considered that the deviation is <u>exclusively</u> due to restructuring costs?	Yes
✗ Is it demonstrated that measures will deliver a net financial benefit to airspace users at the latest in RP4?	No

4.4.5 PRB Key Points

- Switzerland is not meeting any of the cost-efficiency criteria.
- The capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.
- Switzerland presents a DUC deviation under the justification of restructuring costs. The restructuring costs presented in the performance plan are not compliant with the definition in article 2(18) of the Regulation. No demonstration is provided in the performance plan that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period. On the contrary, the restructuring shows a negative impact increasing the overall costs for the period (2020-2028).

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal	€2017	327.7	294.7	370.1	295.1	301.5	311.8	347.2	341.7	335.3	326.3	312.9	+0.1%	-2.1%
Annual Change	%		-10.1%	+25.6%	-20.2%	+2.2%	+5.6%	+11.3%	-1.6%	-1.9%	-2.7%	-4.1%		
AUC/DUC - En route	€2017	96.2	86.8	97.4	85.8	86.7	88.9	97.4	94.3	89.6	86.1	83.3	-1.3%	
Annual Change	%		-9.7%	+12.2%	-11.9%	+1.1%	+3.7%	+9.6%	-3.2%	-5.0%	-3.8%	-3.2%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Geneva (LSGG)	GROUP III	171.3	378.1	+120.7%	167.4	404.4	+141.6%
Zürich (LSZH)	GROUP I	139.5	291.7	+109.1%	130.5	294.7	+124.9%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The unit cost for Geneva (LSGG) and Zurich (LSZH) was significantly higher than the median of their comparator group during RP2 and the difference with respect to the median of the comparator group becomes even higher during RP3.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	296.4			
2019F (STATFOR Feb 19)	L 292.6	B 296.4	H 299.6	=B
2019F (STATFOR Oct 19)	L 291.0	B 292.1	H 293.1	+1.47%

Costs

2019 forecast & baseline review	M€2017	%
2019 Forecast v. 2018 Actual	+2.4	+2.8%
2019 Forecast v. Avg. 2015-2018 Actual	-1.9	-2.1%
2019 Baseline v. 2019 Forecast	3.8	+4.3%

The 2019 baseline costs is +4.3% higher than the forecast

The 2019 forecast costs baseline is higher (+2.8%) than the actual 2018 costs. It is however -2.1% higher than the average costs for the 2015-2018 period.

"Latest cost forecast (= Budget 2019) has been taken as baseline value for RP3. Adjustments have been made for the following elements: change in allocation keys in MET costs + costs for renewal of GVA TWR."

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

The TNSU forecast is in line with STATFOR February 2019 base scenario TNSU forecast over all years of RP3.

Determined costs (terminal)

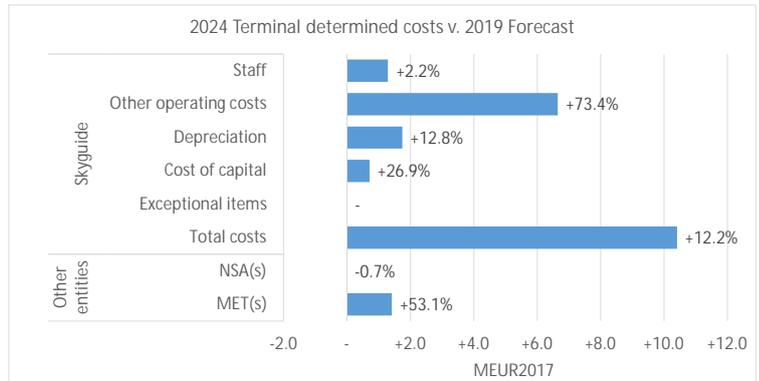
✗ Is inflation in PP in line with IMF (April 2019 forecast)? No

Cost elements - Skyguide (terminal)

- 🟡 Investments (see details in 3.5)
- ✔ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- 🟡 Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The Terminal Navigation Service Unit forecast is in line with STATFOR February 2019 base scenario TNSU forecast for all years of RP3.
- Overall, Switzerland plans to increase terminal costs by 12.2% (or 10.4M€2017) over RP3. There are very significant increases in all cost categories but mainly in other operating costs.
- Terminal WACC and its parameters are equal to the ones for en route.
- As for en route additional costs have been added from 2020 onwards due to the application of new capitalisation rules and claim by Switzerland as restructuring costs.
- The restructuring costs presented in the performance plan are not compliant with the definition in article 2(18) of the Regulation.
- No demonstration is provided in the performance plan that the restructuring measures concerned will deliver a net financial benefit to airspace users at the latest in the subsequent reference period. On the contrary it shows a negative impact increasing the overall costs for the period (2020-2028).

4.5.4 PRB Key Points ✗

- The terminal RP3 DUC trend is +0.1%, which is worse than the en route RP3 DUC trend of -1.3%.
- The terminal RP3 DUC trend is +0.1%, which is worse than the Terminal RP2 DUC trend of -2.1%.
- Zürich, the main airport, had a DUC 109.1% higher than the average of its comparator group over RP2. The difference is expected to be +125.9% over RP3. Geneva airport had a DUC 120.7% higher than the average of its comparator group over RP2. The difference is expected to be +141.6% over RP3.
- Switzerland used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to an increase in other operating costs.

PRB Assessment

FINLAND

Draft Performance Plan

Context and scope

Finland

Performance Plan: Draft performance plan (Article 12) Dated: 21.11.2019
 Documents no: 1717, 1727, 1689, 1693, 1696, 1212, 1215, 1217, 1216, 1214, 1209, 1218, 1570, 1720

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 0.8%
 % Costs V. SES 0.7%

Scope

FAB: NEFAB

ANSPs: ANS Finland
 Finnish Meteorological Institute (FMI)

ATS, CNS, AIS
 MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 Finnish Transport and Safety Agency Traficom

International organisation (network)
 NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Finland	n/a	No	No	No	
Terminal	Finland - TCZ	1	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group B Other States in the comparator group: Denmark
 Ireland
 Norway
 Sweden

Currency: € Exchange rate: 1.00000

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
ANS Finland	Safety policy and objectives	C	C	C	C	C
	Safety risk management	D	D	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Finland should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

The PRB understands that no investments are required to ensure that performance targets are achieved, this would also include investments needed to improve EoSM levels.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	0.97%	0.97%	0.96%	0.96%	0.96%

PRB Assessment

The PRB concludes that the environment targets proposed by Finland should be approved.

- ANS Finland's horizontal flight efficiency targets are consistent with its ANSP reference values published in the June 2019 ERNIP.

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.09	0.09	0.07	0.06	0.06
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.39	0.52	0.38	1.16	0.38

PRB Assessment

The PRB concludes that the capacity targets as proposed by Finland should be approved.

- Existing capacity plans indicate that Finland has sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	44.86	45.97	45.43	44.80	45.43
Target for determined unit cost (DUC) (€2017) - Terminal	137.98	140.53	138.27	135.89	136.81

CAGR 2014-2024	CAGR 2019-2024
-2.0%	+0.6%
n/a	-0.5%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Finland should be approved.

- Finland is not meeting neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- Finland DUC baseline is lower than the average of the comparator group.
- The deviation from the long-term Union-wide DUC trend is evaluated to be for the purpose of achieving the capacity targets.

PRB Recommendations

SAFETY

- Finland should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.

ENVIRONMENT

- Finland should consider its application of the FUA concept given a large proportion of the time that airspace was allocated to military airspace users it was unused.

- Finland should consider invoking point (b) of Article 32 of Commission Implementing Regulation (EU) 2019/317, which enables charging modulation to incentivise airspace routings that are shorter in distance.

CAPACITY

- Finland should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

FINLAND

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of RP3.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are achieved at the end of RP3. The targets are planned to be met in 2020.

1.1.2 Measures planned to reach the target (if applicable)

No specific measures are provided, however, the ANSP has achieved RP3 safety targets for four out of five management objectives. Some specific measures to achieve level D in 2020 in the area of Safety Risk Management should be provided. The mechanism of establishing safety measures is described, demonstrating that ANSP will achieve the safety targets at the end of RP3.

1.1.3 Interdependencies and Trade-offs

The impact on safety of the changes to the ANSP functional system required to satisfy other KPAs is addressed by standard safety assessment process and is thus compliant with current regulation.

1.1.4 Change Management

Specific change management procedures are applied by the NSA to ensure a minimisation of the impact on network performance. The procedures are currently under review to assure full compliance with Commission Implementing Regulation (EU) 2017/373.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Finland should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management. The PRB will closely monitor the implementation of measures over the RP3 to ensure that relevant measures are defined in particular for Safety Risk Management in its "RP3 watchlist".

The PRB understands that no investments are required to ensure that performance targets are achieved, this would also include investments needed to improve EoSM levels.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
ANS Finland	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	D	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets are planned to be met in 2020.

The draft performance plan does not describe any specific measures but explains that the measures and investments to support and ensure achieving the safety targets are regularly set in the Annual Business and Safety plan. Additionally, continuous monitoring of achieving the targets and levels is set in the National Aviation Safety Program (FASP) for the ANS part. Specific measures in the area of Safety Risk Management to achieve level D in 2020 shall be provided. However, considering current maturity of the safety level, it is probable that the RP3 safety targets will be achieved earlier than 2024.

1.3.1 Interdependencies and Trade-offs

The impact on safety of the changes to the ANSP functional system required to satisfy other KPAs is addressed by standard safety assessment process, thus compliant with the current regulation. It is expected that safety will not be compromised. Additionally, the NSA will assure the regular reviews of safety levels during RP3. The resources related to safety activities were ensured by long term planning and no shortfalls are predicted.

1.3.2 Change Management Practices

Safety related changes to service providers functional systems are managed by procedures, which are approved by Traficom - The Finnish Transport and Communications Agency. These procedures are regularly audited by Traficom in the framework of the Commission Implementing Regulation (EU) 1035/2011.

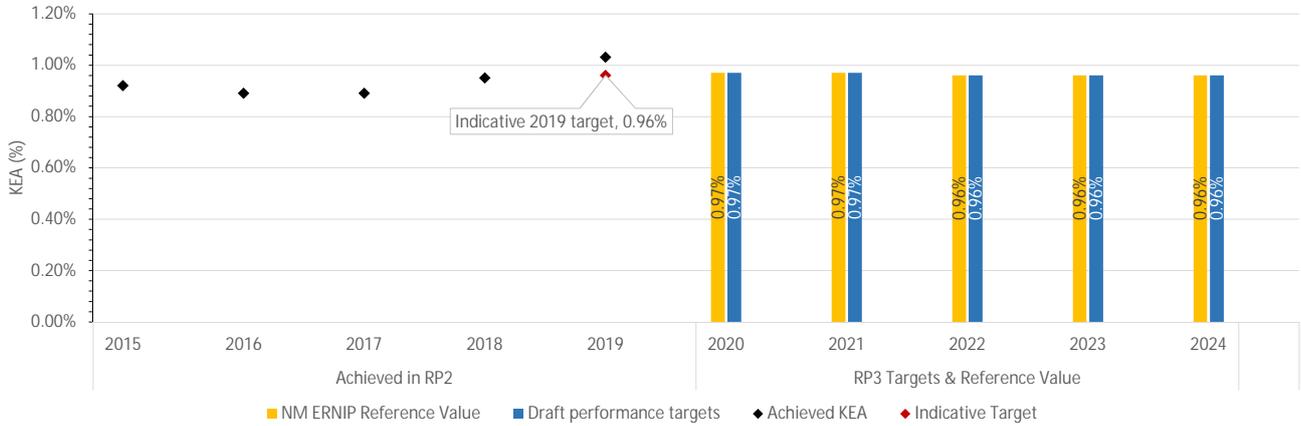
The NSA change management processes are currently being evaluated and updated according to the implementation of Commission Implementing Regulation (EU) 2017/373. The described process highlights that major airspace changes or improvements to ATM functional systems will be done ensuring a minimal negative impact on network performance.

FINLAND

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	0.97%	0.97%	0.96%	0.96%	0.96%
Draft performance targets	0.97%	0.97%	0.96%	0.96%	0.96%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by Finland should be approved.
 - ANS Finland's horizontal flight efficiency targets are consistent with its ANSP reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
NEFAB wide 24-hour FRA was implemented in November of 2015. ANS Finland offer FRA is between FL095 and FL660.		3.2.1(c)	Page 32
Major ERNIP Recommended Measures:	1	Reference in PP	Reference in ERNIP
Measure included within performance plan?		Implemented	Page 104
Implementation of Free Route Airspace extension in Finland (TMA)	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Finland achieved a KEA of 1.03% in 2019, which represents its worst performance thus far during RP2. Before 2019, Finland was already achieving the 2024 target.

Finland notes that its airspace is vulnerable to airspace user route choices and airspace restrictions degrading environmental performance.

ANS Finland has established NEFRA, together with NEFAB and DK-SE FAB states. By offering a lowest available level of FL95, ANS Finland does not contribute to the restriction of FRA within NEFRA. Finland did not comment on the potential to further expand cross-border FRA, although this is a FAB initiative that largely affects other NEFAB States (i.e. interfaces with FABEC and UK-IE FAB).

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Finland plan for an environmental incentive scheme?	✗
Finland does not intend to apply an optional incentive scheme for the environment KPA.	

FINLAND

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En-route ATFM delay

Targets defined in the performance plan are consistent with the national reference values, while the NOP delay forecasts are significantly lower.

Analysis of the Finland planned capacity profiles indicates good capacity performance during RP3 providing positive contribution to network performance.

Presented ATCO numbers and capacity enhancement measures provide evidence that Finland has sufficient capacity during RP3.

- Performance plan capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	+0%
- NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

Finland presents a variable target for RP3 that is always above the observed past performance in the period 2016-2018, to cater for weather, CRSTMP delays and programmed renovation works at the airport. Helsinki is the only airport included in the performance plan and no significant traffic increase is foreseen.

Helsinki's performance during RP2 was slightly worse than the median for similar airports and the proposed targets for RP3 further deviate from the past performance of similar airports.

3.1.3 Incentives

En route: The incentive scheme does not permit bonuses for the ANSP, although a possible penalty of 0.5% of revenue is foreseen. Delay forecast in NOP shows that the ANSP is expected to achieve the targets (and greatly surpass the NOP reference values) (forecast delay 0.01 minutes per flight annually 2020 - 2024). It is very unlikely that a penalty will be triggered - 0.1 minutes delay per flight. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: The Finnish terminal incentive scheme modulates the pivot values according to CRSTMP causes, includes no bonus and a very low maximum penalty (0.25%) with the maximum dead band, which seems a weak incentive scheme. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

RP3 performance plan has not introduced any major investment projects for RP3.

3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets as proposed by Finland should be approved.

- Existing capacity plans indicate that Finland has sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	-0.0%	+0.4%	+6.9%	+8.4%						
Actual ATFM delay per flight	0.02	0.00	0.00	0.00						
ANSP reference values						0.09	0.09	0.07	0.06	0.06
ANSP national targets						0.09	0.09	0.07	0.06	0.06
Forecast with eNM/ANSPs measures*					0.01	0.01				
Forecast w/o eNM/ANSPs measures*					0.01	0.01		0.01		

* NOP June 2019

- Performance plan capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
- NOP delay forecast is lower or equal to the performance plan capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

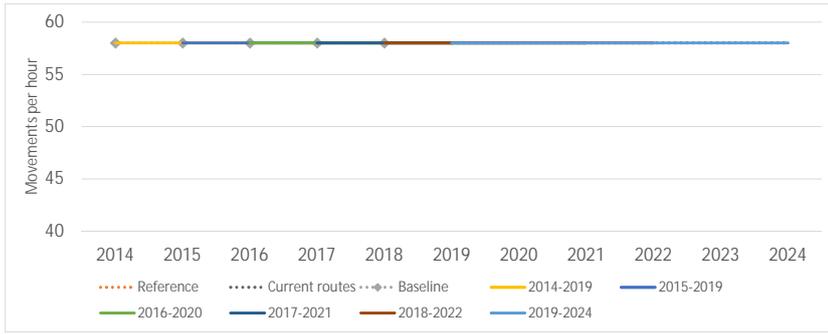
The Finnish performance plan for RP3 states that: "Historical performance of ANS Finland has been very good on en route and there has not been en route ATFM delays in recent years. ANS Finland is expected to reach these targets." Assessment of the proposed performance targets for RP3 against the latest NOP indicates that Finland has sufficient capacity to meet forecasted demand.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Tampere ACC (EFIN)	Additional ATCOs in OPS to start working in the OPS room	0	6	6	6	6	6	6	+5
	ATCOs in OPS to stop working in the OPS room	0	5	5	5	5	5	5	
	ATCOs in OPS to be operational at year-end	51	52	53	54	55	56	57	
Total - ANS Finland (en route)	Additional ATCOs in OPS to start working in the OPS room	0	6	6	6	6	6	6	+5
	ATCOs in OPS to stop working in the OPS room	0	5	5	5	5	5	5	
	ATCOs in OPS to be operational at year-end	51	52	53	54	55	56	57	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Tampere ACC (EFIN)



- Historical evolution of Tampere ACC capacity plans and actual delays indicate that planned capacity profiles enabled the achievement of low delay levels.

- RP3 capacity plan remains at the same levels as for the RP2 period.

- Taking into account the forecasted traffic growth and the evolution of the reference and current capacity profiles for Tampere ACC, it is evident that RP3 capacity plans match the expected capacity needed to meet the demand.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						58	58	58	58	58	58
Current routes						58	58	58	58	58	58
Baseline	58	58	58	58	58						
2014-2019	58	58	58	58	58	58					
2015-2019		58	58	58	58	58					
2016-2020			58	58	58	58	58				
2017-2021				58	58	58	58	58			
2018-2022					58	58	58	58	58		
2019-2024						58	58	58	58	58	58

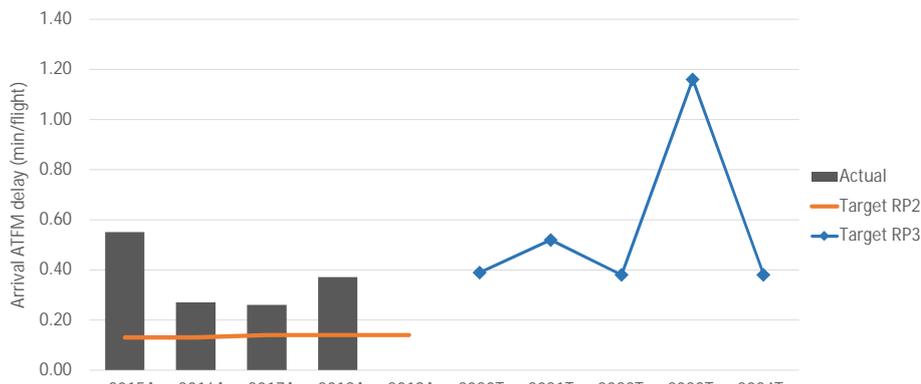
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- Proposed capacity targets are in line with the respective reference delay values, contributing to the achievement of the Union-wide capacity target.
- The existing capacity plans indicate that Finland has sufficient capacity to meet the forecasted demand and to reach the target.
- Presented ATCO numbers and NOP capacity forecast provide evidence that Finland has sufficient capacity to cope with the expected traffic growth during the planning period.

3.3.1 Overview of arrival ATFM delay per flight



National level	0.55	0.27	0.26	0.37	-	0.39	0.52	0.38	1.16	0.38
Helsinki/ Vantaa (EFHK)	0.55	0.27	0.26	0.37	-	0.39	0.52	0.38	1.16	0.38

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Finland has built the targets for RP3 based on three components:

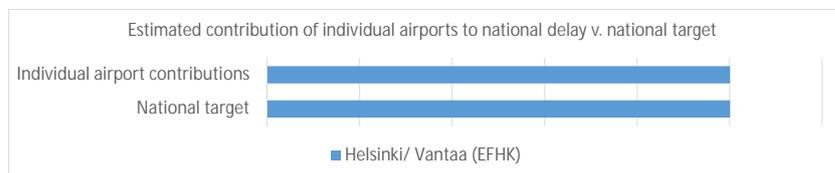
- estimated weather delay (constant 0.23 min/arr for each year of RP3);
- estimated CRSTMP delay (adding a constant 0.02 min/arr for each year of RP3); and
- estimated delay due to programmed renovation works on the runway and taxiway system at Helsinki airport (variable for each year of RP3 based on an estimation from the airport operator Finavia).

This method results in a variable target for RP3 that is always above the observed past performance in the period 2016-2018. The proposed target for 2023 (when one runway is programmed to be closed for two months) is 1.16, more than double of the worst performance observed in RP2 (2015: 0.55 minutes per arrival delay).

The STATFOR February 2019 base forecast is chosen, expecting a CAGR in IFR movements of 1.0% in 2019-2024, so no significant traffic increase is foreseen.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Helsinki/ Vantaa (EFHK)	0.57
National Target	0.57



As Helsinki is the only airport included in the performance plan, the national target coincides with the airport target and the potential delay contribution is only associated to this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Helsinki/ Vantaa (EFHK)	GROUP III	0.25	0.36	+0.12	0.57	+0.21

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80000 and < 225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80000 and < 225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Helsinki's performance during RP2 was slightly worse than the median for similar airports. The proposed target for RP3 further deviates from this past performance of similar airports.

3.3.5 PRB Key Points

- Finland presents a variable target for RP3 that is always above the observed past performance in the period 2016-2018, to cater for weather, CRSTMP delays and planned renovation works at the airport.
- Helsinki is the only airport included in the performance plan and no significant traffic increase is foreseen.
- Helsinki's performance during RP2 was slightly worse than the median for similar airports and the proposed targets for RP3 further deviate from that past performance of similar airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.05 min	0.000%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	No

	2020	2021	2022	2023	2024
NOP reference values	0.09	0.09	0.07	0.06	0.06
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.09	0.09	0.07	0.06	0.06
Pivot values for RP3	0.05	0.05	0.03	0.02	0.02

Threshold review

The threshold is fixed at 0.05 minutes, either side of the pivot value. The pivot value is more ambitious than the published NOP reference value. The pivot value will be amended each year to ensure that penalties are only triggered when actual delay is 0.01 minutes or higher than the performance plan target.

Modulation review

The pivot value will be updated each year, taking into account possible changing NOP reference values.

Review of financial advantages/disadvantages

The incentive scheme does not permit bonuses for the ANSP, although a possible penalty of 0.5% of revenue is foreseen. Delay forecast in NOP shows that the ANSP is expected to achieve the targets (and greatly surpass the NOP reference values) (forecast delay 0.01 minutes per flight annually 2020 - 2024). It is very unlikely that a penalty will be triggered - 0.1 minutes delay per flight.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	0.000%	0.250%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.010	±0.010	±0.010	±0.010	±0.010
Performance Plan targets	0.39	0.52	0.38	1.16	0.38
Pivot values for RP3	0.02	0.02	0.02	0.02	0.02

Threshold review

The Finnish terminal incentive scheme has opted for a dead band of 50% of the pivot value, which means there is no linear progression in the application of bonuses/penalties, and only maximum bonus or penalty are to be applied.

Modulation review

Finland has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is the maximum annual CRSTMP delay observed in RP2: 0.02 minutes per arrival.

Review of financial advantages/disadvantages

The Finnish terminal incentive scheme contemplates zero bonuses (the argument is that the scheme should not incentivise better performance than the historical average). The maximum penalty is only 0.25%, which together with the wide dead band results in a weak terminal incentive scheme.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✔

En route:

- The incentive scheme does not permit bonuses for the ANSP.
- Delay forecast in NOP shows that the ANSP is expected to achieve the targets. It is very unlikely that a penalty will be triggered - 0.1 minutes delay per flight.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

- The Finnish terminal incentive scheme modulates the pivot values according to CRSTMP causes.
- Scheme includes no bonus and a very low maximum penalty (0.25%) with the maximum dead band, which seems a weak incentive scheme.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	7.3	9.0	8.7	9.0	10.2	44.3
	En route	5.5	6.9	6.9	7.4	8.6	35.3
	Terminal	1.8	2.0	1.8	1.7	1.7	9.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)		
						ER	TMZ	
						Total:	0.0	0.0

Airspace user feedback regarding major investments

The airspace users appreciated the details provided during the consultations concerning the investments.

Review of investments

n/a

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	70.9	55.2	1.5	3.5	5.6	6.7	8.1	25.4
Existing investments			5.8	5.5	3.1	2.3	2.1	18.9

Description and justification of other new and existing investments in fixed assets planned over RP3

Other new investments represent 57% of the total determined costs of investments over RP3, while existing investments represent the remaining 43%. Other new investments greatly increase over the period, however ANS Finland does not detail the division between other new and existing investments. 2015-2018 actual CAPEX delivery reaches some 41% of planned for the same period and the underspend amounts to 31.77M€. It is uncertain if this amount will be given back to the airspace users. The enlisted main investments domains are: SUR domain; ATM domain; COM domain; NVA domain; TRG domain. Moreover, details on FINEST (cross-border cooperation) are provided.

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand n/a
 Finland provides sufficient capacity to meet the demand. No major capacity measures nor capacity related investment projects are planned for RP3. The main capacity measure includes mainly airspace organisation and extended collaboration with neighbouring ANSP (FRA extension, capacity sharing and ATCO sharing). Other and new existing investments may address capacity improvements via ATM system updates and FINEST projects, but the level of details provided on those projects is too low to make an appropriate assessment.
- b) Operational aspects of how and when capacity improvements are necessary considered in investment plans are elaborated in the PP n/a
 No major investments in RP3. Low level of details on other investments to assess the capacity relevance.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented n/a
 No major investments in RP3. Low level of details on other investments to assess the capacity relevance.

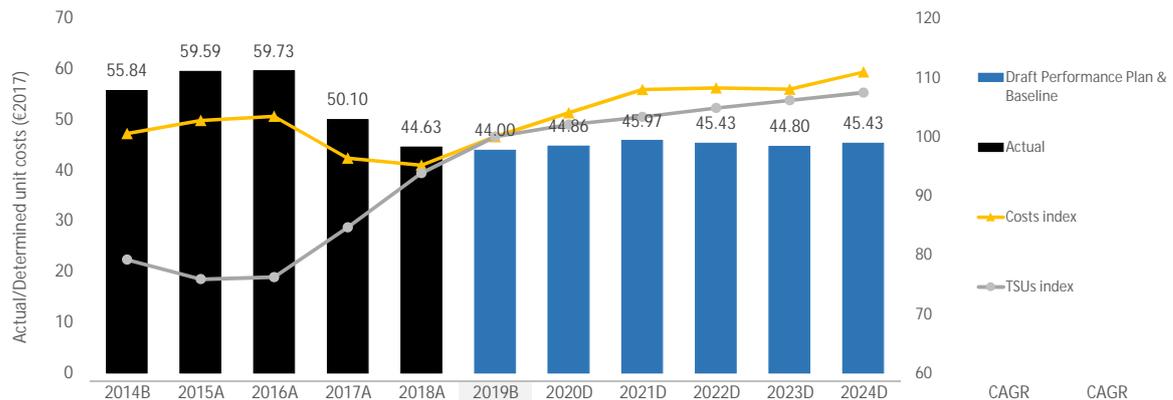
3.5.4 PRB Key Points ✔

- No major issues identified.
- No major investments on the capacity related projects in RP3.
- More information on the other investments would be needed to assess the capacity relevance.

FINLAND

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	43.970	44.896	45.347	42.504	42.365	0.000	47.370	49.826	50.721	51.411	53.505	-	+2.0%
Total costs	M€ (2017)	44.317	45.315	45.626	42.504	41.961	44.087	45.872	47.608	47.730	47.649	48.916	+2.1%	+1.0%
TSU	'000	793.7	760.4	763.8	848.4	940.2	1,001.9	1,022.6	1,035.7	1,050.7	1,063.7	1,076.7	+1.5%	+3.1%
AUC/DUC	€ (2017)	55.84	59.59	59.73	50.10	44.63	44.00	44.86	45.97	45.43	44.80	45.43		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	55.84	59.59	59.73	50.10	44.63	44.00	44.86	45.97	45.43	44.80	45.43		
Annual change	%		+6.7%	+0.2%	-16.1%	-10.9%	-1.4%	+1.9%	+2.5%	-1.2%	-1.4%	+1.4%	+0.6%	-2.0%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	44.00 €2017	✓
The 2019 baseline costs are fully aligned with the 2019 forecast costs (44.087M€2017) which is +2.1M€2017 (or +5.1%) above the 2018 actual level of costs. The 2019 TSU baseline is in line with STATFOR February 2019 base forecast.		

4.1.3 Summary of cost-efficiency assessment results

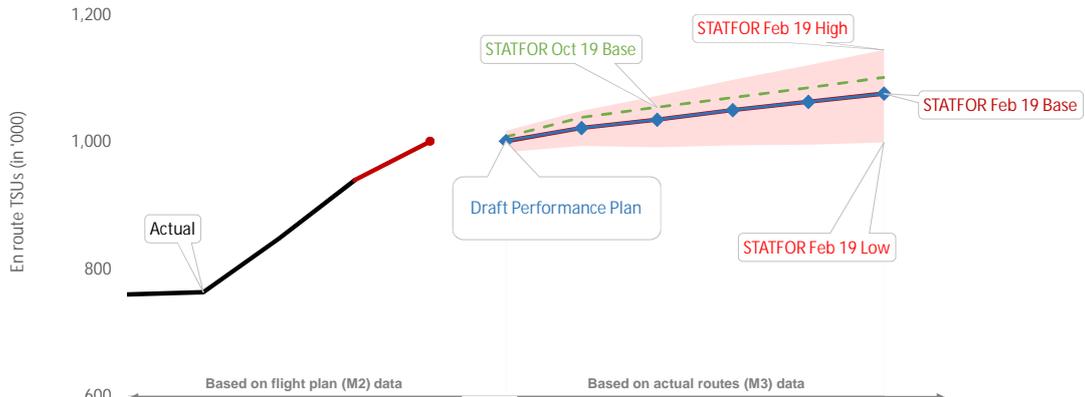
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	0.6%	✗
The RP3 en route DUC trend is +0.6% p.a. on average which is worse than the Union-wide RP3 DUC target trend (-1.9%) over 2019-2024. The related RP3 en route cost trend is +2.1% p.a. on average in real terms while the traffic RP3 trend is only +1.5% over 2019-2024.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-2.0%	✗
The long term en route DUC trend is -2.0% p.a. on average which is worse than the Union-wide DUC target trend (-2.7%) over 2014-2024. The related long term en route cost trend is +1.0% p.a. on average in real terms, while the traffic long term trend is +3.1% p.a. on average over 2014-2024.		
c) DUC level (2019 baseline) lower than the average of comparator group (B) average (49.37 €2017)?	-10.9%	✓
The 2019 baseline DUC (44.00€2017) is -10.9% lower than the average of the comparators' group (49.37€2017). Finland en route DUC remains below the average of its comparators' group over the whole of RP3 (2020-2024).		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		✓
The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend is +19.7M€2017 (+2.3M€2017 from the long-term trend). The deviation from the long term trend can be fully attributed to the cost of capacity measures.		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB conclusions

The PRB concludes that the cost-efficiency targets proposed by Finland should be approved.

- Finland is not meeting neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- Finland DUC baseline is lower than the average of the comparator group.
- The deviation from the long-term Union-wide DUC trend is evaluated to be for the purpose of achieving the capacity targets.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	760	764	848	940								
	Annual change	%	+0.5%	+11.1%	+10.8%								
STATFOR Feb 19 Base	'000 TSUs					1,001	1,002	1,023	1,036	1,051	1,064	1,077	+1.5%
	Annual change	%				+6.5%	+6.6%	+2.1%	+1.3%	+1.4%	+1.2%	+1.2%	
STATFOR Oct 19 Base	'000 TSUs					-	1,009	1,039	1,055	1,071	1,086	1,102	+1.8%
	Annual change	%				-	+7.3%	+3.0%	+1.5%	+1.5%	+1.4%	+1.5%	
Performance Plan	'000 TSUs						1,002	1,023	1,036	1,051	1,064	1,077	+1.5%
	Annual change	%					+6.6%	+2.1%	+1.3%	+1.4%	+1.2%	+1.2%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient		Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
		3 months	12 months		L	B	H	
2019B (PP baseline, M3)	1,002			2019B (PP baseline, M3)	1,002			
2019F (as in the Reporting tables, M2)	1,001			2019F (STATFOR Feb 19, M3)	L 985	B 1,002	H 1,019	=B
2019B/ 2019F	0.06%	+0.06%	+0.10%	2019F (STATFOR Oct 19, M3)	L 1,002	B 1,009	H 1,015	-0.7%

The 2019 TSU baseline is in line with STATFOR February 2019 base case forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast
n/a

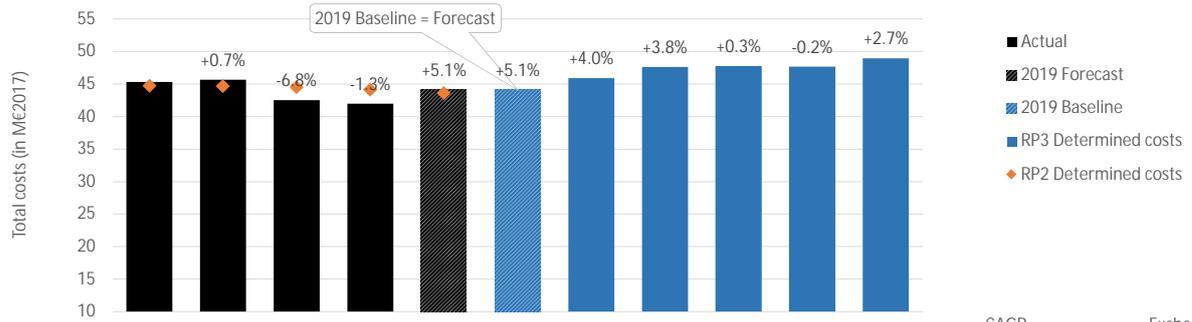
Review of the PP traffic forecast

The selected TSU forecasts are in line with STATFOR February 2019 base case scenario for all years of RP3 (2020-2024), which forecasts an average growth of +1.5% p.a. over 2019-2024.

4.2.4 PRB Key Points

- No major issues identified.

4.3.1 Overview of en route costs in RP2 and RP3



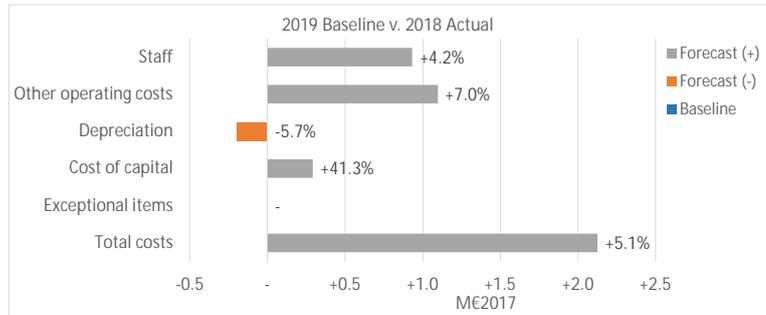
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	44.896	45.347	42.504	42.365	44.991	0.000	47.370	49.826	50.721	51.411	53.505	-	€:€
Annual change	%	-	+1.0%	-6.3%	-0.3%	+6.2%	-	-	+5.2%	+1.8%	+1.4%	+4.1%	-	1.00000
Inflation index	2017 = 100	98.8	99.2	100.0	101.2	102.543	102.543	104.1	106.0	108.0	110.1	112.3	+1.8%	-
Total costs	M€ (2017)	45.315	45.626	42.504	41.961	44.087	44.087	45.872	47.608	47.730	47.649	48.916	+2.1%	-
Annual change	%	-	+0.7%	-6.8%	-1.3%	+5.1%	+5.1%	+4.0%	+3.8%	+0.3%	-0.2%	+2.7%	-	-
Total costs	M€ (2017)	45.315	45.626	42.504	41.961	44.087	44.087	45.872	47.608	47.730	47.649	48.916	+2.1%	-

Is inflation in PP in line with IMF (April 2019 forecast)?

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+2.1	+5.1%
2019F v. 2019 RP2 DC	+0.5	+1.1%
2019F v. average 2015-2018	+0.2	+0.5%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

2019 forecast costs amounts to 44.08M€2017 which is +0.5M€2017 higher (+1.1%) than the 2019 RP2 determined costs and +2.1 M€2017 (+5.1%) above the 2018 actual costs, the latter mainly due to higher staff costs (+0.9M€2017), other operating costs (+1.1M€2017) and cost of capital (+0.3M€2017) with lower depreciation costs (-0.2M€2017). When compared to the average 2015-2018 actuals, the difference is only +0.2M€2017 (+0.5%). Finland reports that "the determined costs is 5.1% higher than the latest actual costs but the traffic forecast is also 6.5% higher than the actual traffic for the 2018. Total estimated costs are higher than for 2018 but the traffic forecast show that traffic is increasing faster than costs."

2019 baseline analysis

2019 baseline costs are fully aligned with the 2019 forecast costs (44.087M€2017) which is +2.1M€2017 (or +5.1%) above the 2018 actual level of costs.

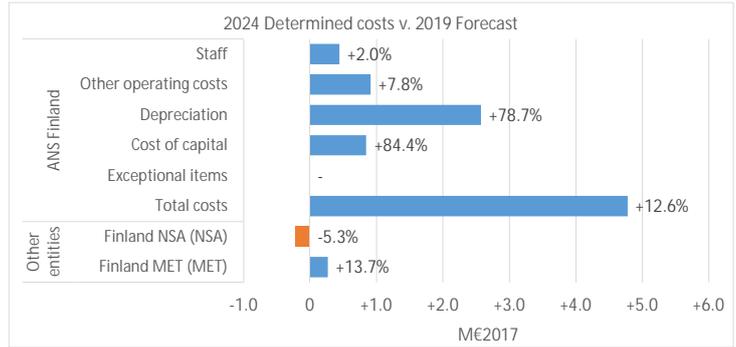
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✓ Investments (see details in 3.5)
- ⓘ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



In total, the 2024 ANSP costs are +4.8M€2017 (or +12.6%) higher than the 2019 forecast/baseline. The cost increase between 2019 forecast and 2024 determined is mainly related to ANS Finland depreciation costs (+2.6M€2017 or +78.7%), other operating costs (+0.9M€2017), cost of capital (0.8M€2017 or +84.4%) and staff costs (+0.4M€2017 or +2.0%).

From the section "4.3.B Pensions" of this document, the pension costs (included in staff costs) are planned to slightly decrease over RP3 in real terms and the share of pension cost in total ANSP costs remain lower than the Union-wide average. On the other hand, Finland reports that "staff costs are expected to grow 2.1% yearly from estimated 2019 level because of FTE and salary increases" and "pension cost are expected to increase during RP3, because of increase in wages". A net increase of one additional ATCO staff is planned annually since 2018 to reach 57 ATCOs in 2024 (from 51 in 2018).

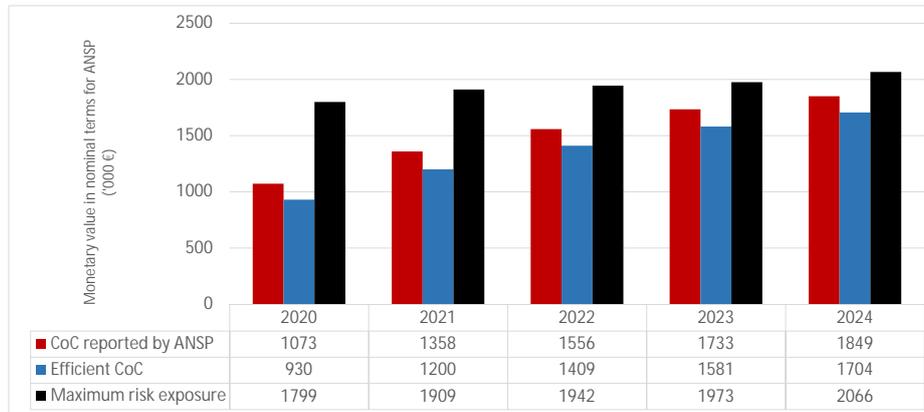
4.3.4 PRB Key Points

- The 2019 cost forecast proposed by Finland is 5.1% above the 2018 value. This is due to an increase of staff and other operating costs.
- The 2019 baseline proposed by Finland is in line with the 2019 forecast.
- Depreciation costs are the major driver of cost increase over RP3.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	40,889	43,392	44,136	44,840	46,958
Monetary value of Return on Equity	1,073	1,358	1,556	1,733	1,849
Ratio RoE/DC (%)	2.6%	3.1%	3.5%	3.9%	3.9%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	142	158	147	152	145

Total 2020-2024	744
-----------------	-----

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	9.6%	8.0%	9.6%	8.2%	9.6%	8.4%	9.6%	8.5%	9.6%	8.6%
Interest on debts	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
Capital structure (% debt)	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
WACC	4.8%	4.1%	4.8%	4.2%	4.8%	4.3%	4.8%	4.4%	4.8%	4.4%

Is the interest on debts in line with the market?	Yes
---	-----

- ANS Finland does not have any loans at the moment. However, the cost of debt has been calculated by an external consultant based on the CAPM model assuming that 60% is financed via debt. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.
- The efficient cost of capital is computed in line with competitive market practices and with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 0.74M€ above the efficient cost of capital.

4.3.A.4 Regulated Asset Base review

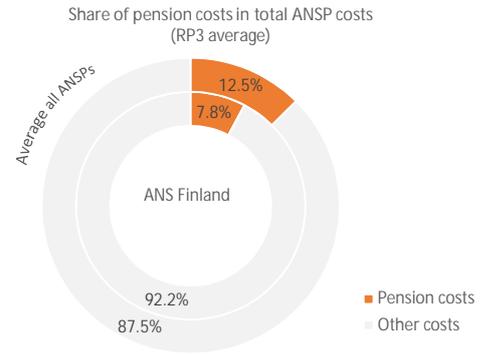
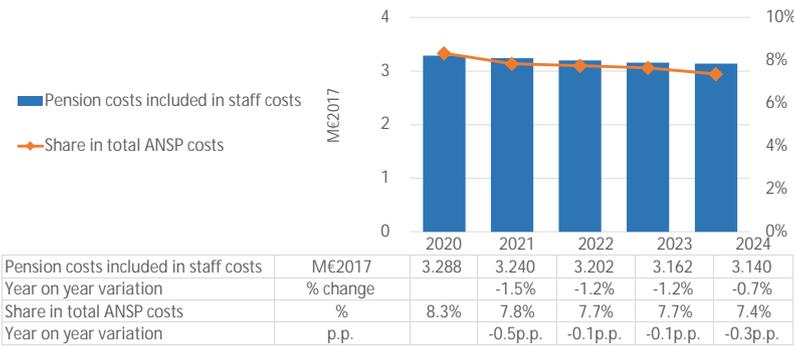
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	20,615	26,566	30,547	34,195	36,579
Net current assets	1,832	1,861	2,009	2,073	2,119
Adjustments total assets	0	0	0	0	0
Total asset base	22,447	28,427	32,556	36,268	38,698

- The fix asset base will increase over the period. This is broadly in line with the increase in investments as detailed in section 3.5 of this document.
- The net current assets do not present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base increases over RP3, this is mostly due to the increase in the fixed asset base.

4.3.A.5 PRB Key Points

- The reported cost of capital is 0.744M€ above the efficient cost of capital over the period 2020-2024. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 2.6%-3.9%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight decrease**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

n/a

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

No. The (employer) contribution rate forecast is assumed to be 16.95% for ANS Finland and 16.48% for FMI over RP3.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

n/a

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

n/a

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Finland reports that "The contribution rate and changes are set by the state and there is no means to mitigate this risk."

4.3.B.4 PRB Key Points



- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Finland did not change the cost allocation methodology with respect to RP2.
 - Finland's costs are allocated to en route and to terminal according to the following principles: all ACC costs are allocated to en route cost base, all TWR costs are allocated to terminal cost base, APP costs are allocated to en route and terminal cost bases according to distance based rule and costs of services common to both en route and terminal services are allocated in proportional way (these services include technical ANS, AIS and administration). Costs related to flights from 0 to 20km from the airport are in terminal cost base, while costs related to flights over 20km from the airport are allocated to en route cost base.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

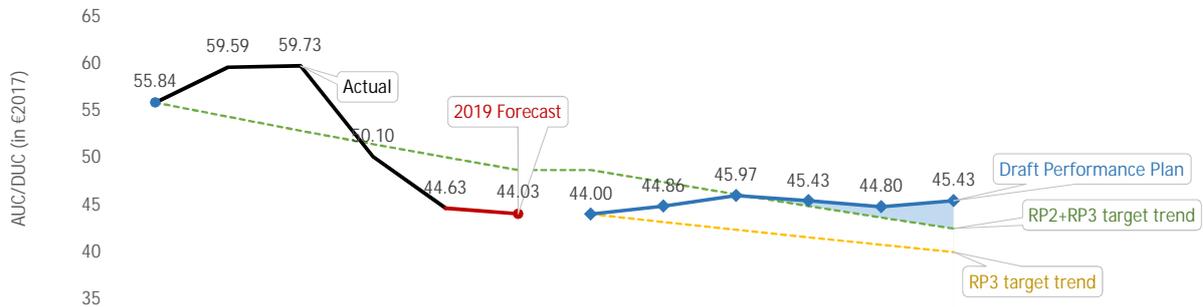
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.3.C.3 PRB Key Points ✓

- Finland did not change the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024	
AUC/DUC	€ (2017)	55.84	59.59	59.73	50.10	44.63	44.03	44.00	44.86	45.97	45.43	44.80	45.43	+0.6%	-2.0%
Annual Change	%		+6.7%	+0.2%	-16.1%	-10.9%	-1.3%	-1.4%	+1.9%	+2.5%	-1.2%	-1.4%	+1.4%		

4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	+0.6%	Union-wide trend	-1.9%	Difference	+2.5p.p.
PP trend	-2.0%	Union-wide trend	-2.7%	Difference	+0.7p.p.
PP 2019 baseline	44.00	Average comp. group	49.37	Difference	-10.9%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 en route DUC trend is +0.6% p.a. on average, which is worse than the Union-wide RP3 DUC trend (-1.9%) over 2019 baseline to 2024. The long term en route DUC trend is -2.0% p.a. on average which is worse than the Union-wide long-term DUC trend (-2.7%) over 2014 baseline to 2024 determined. The long term trend would be met if Finland did not present the deviation in the last years of RP3.

The 2019 baseline DUC (44.00€2017) is -10.9% lower than the average of the comparators' group (49.37€2017). Finland en route DUC remains below the average of its comparators' group over the whole RP3 (2020-2024).

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +19.7 v. RP2+RP3 trend over the period 2020-2024 +2.3

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change in ATCOs in OPS during RP3 (FTEs*)	+12.5	Additional ATCO costs (M€2017)*	+1.5
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€2017)	0.0	of which, related to capacity (see Section 3.5 for details)	0.0
---	-----	---	-----

Analysis

Although nothing is reported under "New major investments", the total DC of investments (see section 3.5 of this document) represent +35.3M€ (nominal) over 2020-2024 reported under "other new investments" and "existing investments". However, it is not possible to specifically allocate investment costs to capacity measures.

The performance plan presents a net increase of one additional ATCO staff is planned annually since 2018 to reach 57 ATCOs in 2024 (from 51 in 2018) - this represents an estimated 12.5 additional FTEs over RP3. The additional ATCO costs are estimated at around +1.5M€2017 over RP3. The estimates are not including the cost related to ATCOs training and overheads. It is noted that no capacity issues are recorded in 2017-2018 and that the proposed capacity targets for RP3 are in line with the respective reference delay values.

Since part of the additional costs can be considered to be related to staffing (+1.5M€2017) and the remaining 0.8M€2017 attributed to the related other operating costs, it can be established that the deviations from the cost-efficiency long-term trend is solely for the purpose of achieving the RP3 capacity targets.

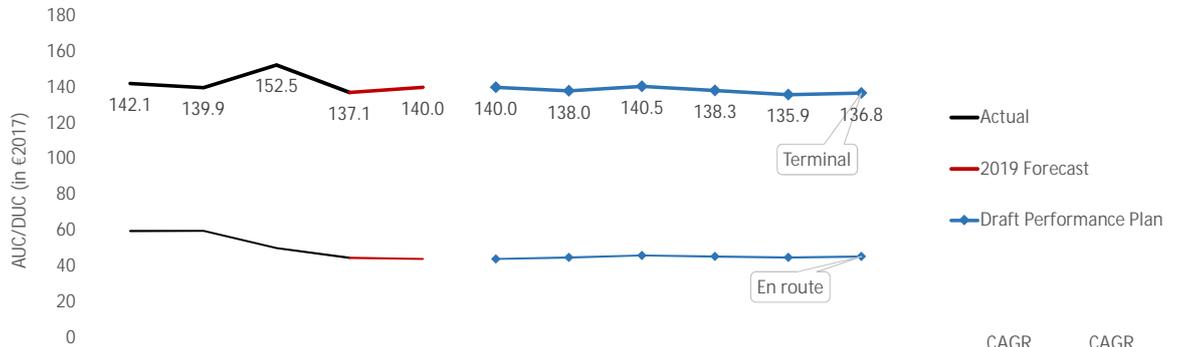
✓ Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? Yes

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group.
- The deviation from the Union-wide long-term DUC trend can be exclusively attributed for the purpose of achieving the capacity targets.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal	€ (2017)	142.1	139.9	152.5	137.1	140.0	140.0	138.0	140.5	138.3	135.9	136.8	-0.5%	-0.4%
Annual Change	%		-1.5%	+9.0%	-10.1%	+2.1%	+2.1%	-1.4%	+1.8%	-1.6%	-1.7%	+0.7%		
AUC/DUC - En route	€ (2017)	59.6	59.7	50.1	44.6	44.0	44.0	44.9	46.0	45.4	44.8	45.4	+0.6%	
Annual Change	%		+0.2%	-16.1%	-10.9%	-1.3%	-1.4%	+1.9%	+2.5%	-1.2%	-1.4%	+1.4%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Helsinki/ Vantaa (EFHK)	GROUP III	171.33	142.9	-16.6%	167.4	137.9	-17.6%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

For Helsinki/Vantaa (EFHK) (Group III), the average unit cost (142.9€2017 over RP2) and the planned cost (over RP3) are much lower (-16.6% over RP2 and -17.6% over RP3) than the median airport in their respective group.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	127.5			
2019F (STATFOR Feb 19)	L 125.8	L 127.5	L 129.1	=B
2019F (STATFOR Oct 19)	L 125.1	L 125.7	L 126.2	+1.4%

Costs

2019 forecast & baseline review	ME 2017	%
2019 Forecast v. 2018 Actual	+1.3	+7.6%
2019 Forecast v. Avg. 2015-2018 Actual	+2.4	+15.5%
2019 Baseline v. 2019 Forecast	0.0	+0%

n/a

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

Review of the PP traffic forecast

The Terminal Navigation Service Unit (TNSU) forecast is in line with STATFOR February 2019 base forecast over all years of RP3.

Determined costs (terminal)

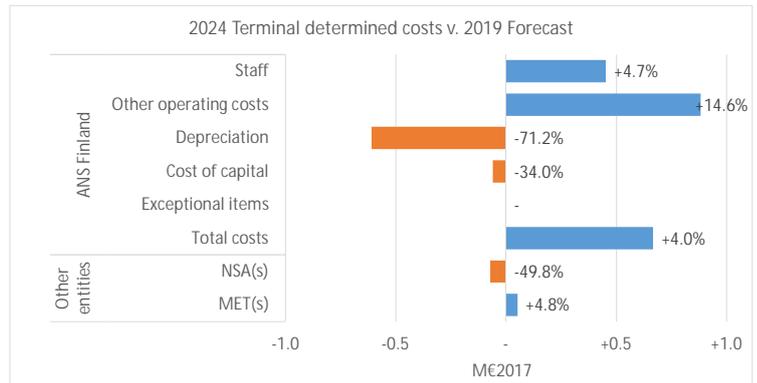
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - ANS Finland (terminal)

- ✓ Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.25%
Additional incentives?	No



- The share of terminal investment costs (20%) is lower than share of terminal costs in the total costs (30%).
- Terminal WACC and its parameters are equal to the ones for en route.
- Just like for en route, the 2019 forecast is aligned with the 2019 baseline costs (+140.0M€2017).
- The Terminal RP3 DUC trend is -0.5% p.a. on average, which is better than the en route DUC trend (+0.6%) over 2019 baseline to 2024.
- The Finnish terminal incentives scheme contemplates zero bonuses. The parameters selected results in a weak penalty scheme.
- The terminal 2024 costs are +0.7M€2017 (or +4.0%) higher than the 2019 forecast. The cost increase between 2019 forecasts and 2024 costs is mainly related to ANS Finland Staff costs (+0.5M€2017 or +4.7%); Other operating costs (+0.9M€2017 or +14.6%) partially balanced by a decrease in depreciation costs (-0.6M€2017 or -71.2%) and Cost of capital (-0.1M€2017 or +34.0%).

4.5.4 PRB Key Points ✓

- The Terminal RP3 DUC trend is -0.5%, which is better than the en route RP3 DUC trend of +0.6%.
- The Terminal RP3 DUC trend is -0.5%, which is better than the Terminal RP2 DUC trend of -0.4%.
- Helsinki/Vantaa, the only airport included in the scope of the performance plan, had a DUC 16.6% lower than the average of its comparator group over RP2. The difference is expected to be -17.6% over RP3.
- Finland used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to an increase in other operating costs.

PRB Assessment

GREECE

Draft Performance Plan

Context and scope

Greece

Performance Plan: Draft Performance Plan Dated: 21.11.2019
 Documents no: 1699, 1700, 1241, 1242, 1234, 1239, 1238, 12332, 1231, 1701, 1236, 1235, 1702, 1240

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 2.6%
 % Costs V. SES 1.4%

Scope

FAB: BLUE MED FAB

ANSPs: HCAA
 HNMS

ATS,CNS, AIS
 MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317):
 CAA/NSA
 NATIONAL COORDINATION CENTER FOR SEARCH AND RESCUE

STATE/NSA
 SAR

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Greece	n/a	No	No	No	
Terminal	Greece - TCZ	1	No	No	No	
Changes in the CZs from RP2		No				
Compared to RP2, SAR costs are included in the cost base and occupational pension schemes are introduced.						

Comparator group: Group D Other States in the comparator group: Cyprus
 Estonia
 Latvia
 Lithuania
 Malta

Currency: € Exchange rate: 1.00000

1. Safety ✓

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
HANSP	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Greece should be approved.
 -The EoSM safety targets are in line with the Union-wide performance targets.

The PRB notes that some relevant measures aiming at achieving the required safety performance targets have been described. Interdependencies are addressed and the performance plan sufficiently explains how safety will be addressed when implementing changes, which may be required to achieve other performance targets.

2. Environment ✓

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.94%	1.83%	1.72%	1.72%	1.72%

PRB Assessment

The PRB concludes that the environment targets proposed by Greece should be approved.
 - HCAA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✓

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.34	0.32	0.26	0.20	0.20
National target for terminal and airport ANS ATFM arrival delay per flight (min)	1.20	0.90	0.70	0.40	0.20

PRB Assessment

The PRB concludes that the capacity targets proposed by Greece should be approved.
 - The PRB notes that existing capacity plans indicate that a capacity gap may be expected.
 - The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

The PRB will closely monitor the implementation of proposed measures and planned increase of staffing levels.

4. Cost-efficiency ✗

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	36.95	36.07	38.35	37.23	36.80
Target for determined unit cost (DUC) (€2017) - Terminal	195.45	199.12	194.79	190.42	186.17

CAGR 2014-2024	CAGR 2019-2024
+1.6%	+3.4%
n/a	+1.9%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Greece should not be approved.
 - Greece is not meeting any of the cost-efficiency criteria.
 - The deviation from the cost-efficiency trends is not exclusively for the purpose of achieving the capacity targets.

PRB recommendations

ENVIRONMENT

- Greece should ensure that 24-hour FRA is implemented before the end of 2022 in order to be PCP compliant.
- Greece should work with its other BLUE MED FAB partners to ensure cross-FAB FRA is implemented as recommended in the ERNIP.

CAPACITY

- Greece should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- Greece should revise and justify the costs included in the baseline and planned for RP3 with a specific focus on the staff costs, the pension costs, and the NSA and MET costs.
- Greece should clarify and detail the costs related to the pension scheme.
- Greece should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Greece should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

GREECE

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan stipulates measures to be applied during RP3 in the Safety Risk Management area that are considered relevant.

1.1.3 Interdependencies and Trade-offs

The draft performance plan does not include investments required to achieve the safety maturity target level. The performance plan underlines the priority of safety with respect to changes to ATM functional systems.

1.1.4 Change Management

The draft performance plan indicates that the change management practices are applied according to Commission Implementing Regulation (EU) 2017/373. However, no further information on this aspect was included in the submitted updated draft performance plan of Greece.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Greece should be approved.
- The EoSM safety targets are consistent with the Union-wide performance targets.

The PRB notes that some relevant measures aiming at achieving the required safety performance targets have been described. Interdependencies are addressed and the performance plan sufficiently explains how safety will be addressed when implementing changes, which may be required to achieve other performance targets.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for the Safety KPA is complete, i.e. have been defined for each year and the target EoSM levels are achieved at the end of RP3.
		Target	Target	Target	Target	Target		
HCAA	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan stipulates the measures to be applied during RP3: the implementation of Safety Committee meetings, continuous training of the involved staff, implementation of eTOKAI platform for the reporting and investigation of occurrences, identification of hazards, formal processes for the conduct of safety management system audits, safety surveys and safety/risk assessments of changes and associated mitigations measures. Considering that the ANSP will need to improve in the Safety Risk Management area, the measures are considered relevant.

1.3.1 Interdependencies and Trade-offs

The draft performance plan does not include investments required to achieve the safety maturity target level. The draft performance plan underlines the priority of safety with respect to changes to ATM functional systems. The ANSP has implemented an Integrated Management System harmonising the Safety, Quality and Security Management Systems aiming at monitoring and balancing the impact over all KPAs.

1.3.2 Change Management Practices

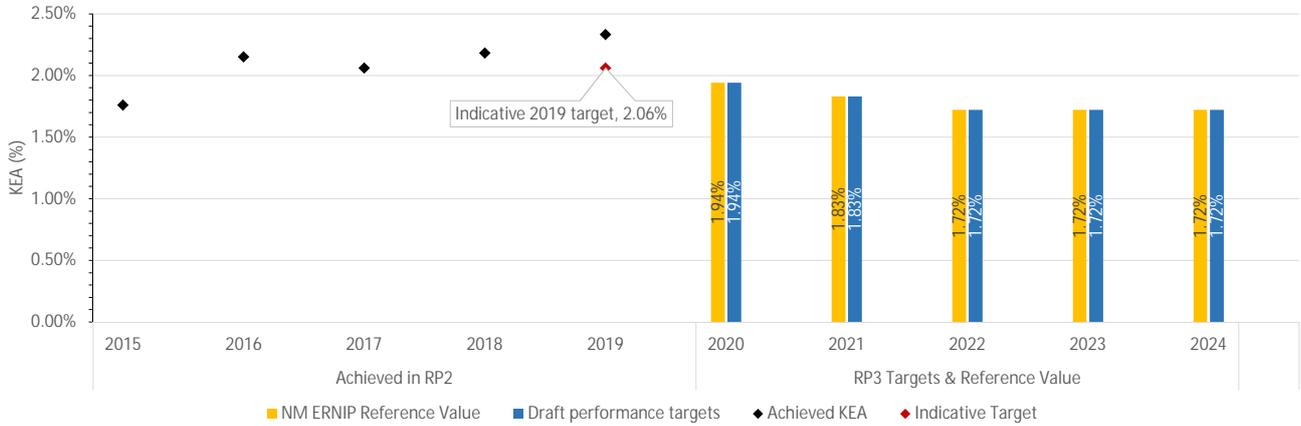
The draft performance plan indicates that the change management practices are applied according to Commission Implementing Regulation (EU) 2017/373. However, no further information on this aspect was included in the submitted updated draft performance plan of Greece.

GREECE

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.94%	1.83%	1.72%	1.72%	1.72%
Draft performance targets	1.94%	1.83%	1.72%	1.72%	1.72%
Comparison of draft performance targets with reference values	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by Greece should be approved.
 - HCAA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✘
According to the LSSIP 2018, FRA implementation is at an early stage and still requires significant effort. The performance plan does state FRA implementation is planned but with no expected date.	

Reference in PP	Reference in LSSIP
Annex P	Page 41

Major ERNIP Recommended Measures:	3
Measure included within performance plan?	
Cross-border FRA within Blue Med	✘
Hellas FRA - Free Route Airspace Greece - Phase 4a;	✔
Hellas FRA - Free Route Airspace Greece - Phase 4b	✔

Reference in PP	Reference in ERNIP
None	Page 11
Annex P	Page 134
Annex P	Page 158

FUA Implementation according to latest LSSIP	Implementation
1	✔
2	✔
3	✔

The chart in section 2.1.1 shows that Greece achieved a KEA of 2.33% in 2019 and needed to meet an indicative target of 2.06% in 2019 to achieve the planned target of 1.94% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achieved value and the 2020 reference value.

Hellas FRA - FRA Greece - Phase 3b was implemented in 2019 and dropped the lower limit of DCTs to FL355. Phase 4a of Hellas FRA aims to implement night FRA (21:00 - 04:00) within Hellas UIR between FL355 - FL460 (Phase 4a) by summer 2020. Phase 4b aims to complete 24-hour FRA by 2021 between FL355 and FL460, although the vertical limits need to be lowered to meet the PCP.

Greece's performance plan is vague with regards to the implementation of its FRA which does not make it possible to effectively assess whether it will implement the ERNIP measures. Greece did not commit to a Blue Med FAB cross-border FRA as recommended by the ERNIP.

Since the implementation of FRA is dependent on a new ATM system that will be in service by 2023, it could be delayed by small issues in procurement or change management.

Other measures include offering direct routings below FRA and improving the remaining ATS route network.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Greece plan for an environmental incentive scheme?	✘
Greece does not plan to apply an optional incentive scheme for the environment KPA.	

GREECE

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Targets defined by Greece are consistent with the national reference values as defined in the latest NOP 2019-2024 edition.

The existing capacity plans indicate capacity gap at the beginning of RP3 which should reduce by the end of RP3. The achievement of the proposed targets depend on the implementation of the proposed measures and increased staffing numbers.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✗	!	!	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values?

Capacity target in the year 2024 is less than or equal to the 2024 reference value?

3.1.2 Arrival ATFM Delay

The proposed targets for Athens are in line with the capacity constraints detected in RP2 and with the planned measures during RP3 to mitigate the delays. However, this means that Arrival ATFM delays during RP3 are expected to continue being higher than at similar airports.

3.1.3 Incentives

En route: The incentive scheme comprises 0.2% of maximum bonuses and penalties. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: Due to the small dead band the scheme is too sensitive to small variations in the system and at the same time has very low maximum bonuses or penalties. (±0.20%). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

New major investments reported by Greece constitute 70% of the total investment costs, however Greece has delivered 13% of the CAPEX during RP2 to date (2015-2018). RP3 major investments are planned to be charged from 2022.

None of the new investment projects aims directly at improving the ATM capacity, but some may contribute to it while supporting othe capacity measures Other and new existing investments may address capacity improvements.

3.1.5 PRB conclusions ✓

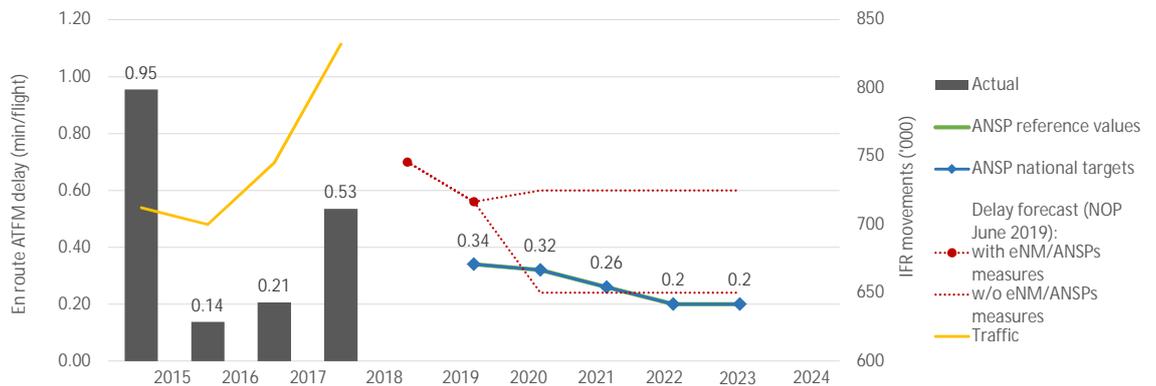
The PRB concludes that the capacity targets proposed by Greece should be approved.

The PRB notes that existing capacity plans indicate that a capacity gap may be expected.

The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

The PRB will closely monitor the implementation of proposed measures and planned increase of staffing levels.

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	+5.1%	-1.7%	+6.5%	+11.7%						
Actual ATFM delay per flight (movements)	0.95	0.14	0.21	0.53						
ANSP reference values						0.34	0.32	0.26	0.20	0.20
ANSP national targets						0.34	0.32	0.26	0.20	0.20
Forecast with eNM/ANSPs measures*					0.70	0.56				
Forecast w/o eNM/ANSPs measures*					0.70	0.56		0.24-0.6		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✗	⚠	⚠	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

Annex Q of the performance plan contains the description of main measures put in place to achieve the capacity targets, such as:

- Implementation of new ATM system;
- Enhanced ModeS Radars network;
- New VCS (the installation and full operational capability of the above systems by 2023);
- Airspace reorganisation;
- Recruitment of ACC ATCOs;
- ATFM measures.

The performance plan capacity enhancement measures are in line with the latest NOP 2019-2024 (June edition).

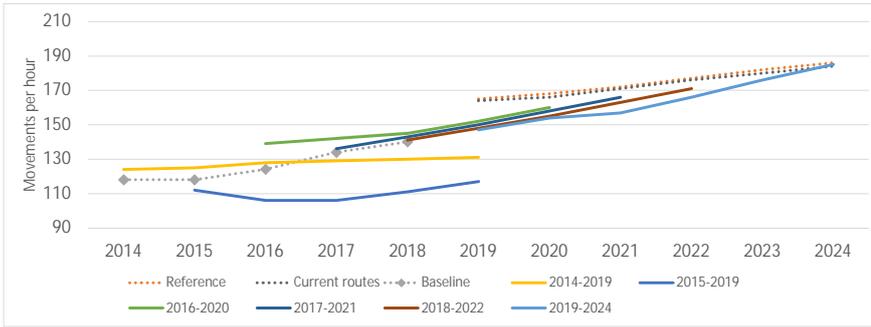
ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Total - HCAA (en route)	Additional ATCOs in OPS to start working in the OPS room	0	24	59	6	14	17	15
	ATCOs in OPS to stop working in the OPS room	3	4	4	6	14	17	15
	ATCOs in OPS to be operational at year-end	210	230	285	285	285	285	285

2024 (end) - 2020 (beg.)	+55
--------------------------	-----



Athens ACC (LGGG)



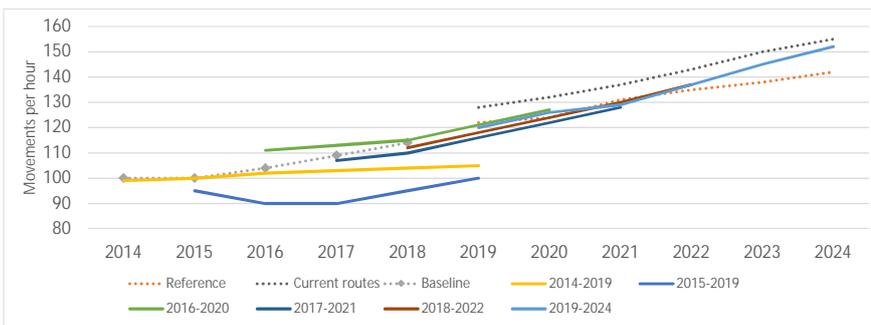
- Historical evolution of capacity profiles in RP2 shows that capacity plans were higher than the baseline, except for 2015-2019 capacity plans which had lower values. The latest capacity plans developed by the ANSP after 2018 are planning lower capacity profile values when being compared to reference and current routes profile until 2023.

- Latest capacity plans developed by the ANSP outline a profile which is below the reference routes profile in all the years of RP3 (with a tendency of decreasing the gap), and also below the current capacity profiles until 2023, while in 2024 it is planned to be above the current route profile by 0.5%.

- The delay forecasts in the latest NOP are higher than the reference delay values for the last two years of RP3. Delays for Athens ACC are foreseen to remain close to the reference values depending on the actual implementation of the planned measures.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						165	168	172	177	182	186
Current routes						164	166	171	176	180	184
Baseline	118	118	124	134	140						
2014-2019	124	125	128	129	130	131					
2015-2019		112	106	106	111	117					
2016-2020			139	142	145	152	160				
2017-2021				136	143	150	158	166			
2018-2022					141	148	155	163	171		
2019-2024						147	154	157	166	176	185

Makedonia ACC (LGMD)



- Historical evolution of capacity profiles in RP2 shows that capacity plans were mainly in line with the baseline, except for 2015-2019 capacity plans, which had lower values. The latest capacity plans developed by the ANSP after 2018 are planning lower capacity profile values when being compared to the current route profile, while at the same time the figures are higher than the reference values from mid till the end of RP3.

- Latest capacity plans developed by the ANSP outline a profile which is below the current route profile during the whole RP3 (between 1.9% and 5.8%). When being compared to the reference profiles, ANSP capacity plan shows higher figures from 2022 till 2024 between 1.5% and 7%.

- The delay forecasts in the latest NOP are higher than the reference delay values for the last two years of RP2. Delays for Makedonia ACC are foreseen to remain close to the reference values depending on the actual implementation of the planned measures.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						122	124	131	135	138	142
Current routes						128	132	137	143	150	155
Baseline	100	100	104	109	114						
2014-2019	99	100	102	103	104	105					
2015-2019		95	90	90	95	100					
2016-2020			111	113	115	121	127				
2017-2021				107	110	116	122	128			
2018-2022					112	118	124	130	137		
2019-2024						120	126	129	137	145	152

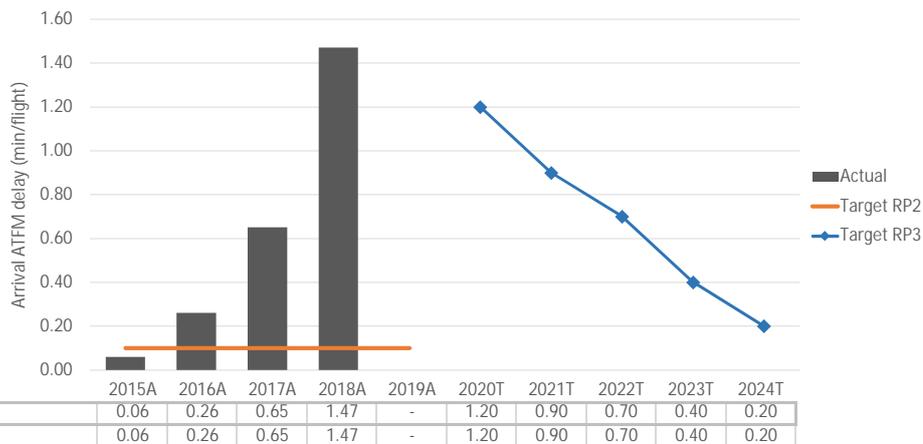
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- Greece proposes targets that are equal to the national reference values. For the last two years of RP3, targets are below the NOP forecasted delay.
- Capacity plans indicate that Greece may face a capacity gap if traffic flows shift towards shortest routes and if measures are not implemented appropriately.

3.3.1 Overview of arrival ATFM delay per flight



3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Athens, the only airport included in the Greek performance plan for RP3, surpassed in 2018 the target for arrival ATFM delays in RP2 by a factor of 15, the main reason being problems with the ATCO provision in summer season. The situation is not expected to improve in the short term, but several measures are foreseen in the performance plan: 12 new ATCOs (S2021), PBN procedures (2022), ASMGCS (2021), CDM (2021-2022), new ATM surveillance system (2022).

The targets for RP3 are adapted to the current capacity constraints and the RP3 national target decreases in line with the implementation plan for these measures.

The STATFOR February 2019 base forecast is chosen for the performance plan, expecting a CAGR in IFR movements of 2.7% in 2019-2024.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Athens (LGAV)	0.68
National Target	0.68



As Athens is the only airport included in the performance plan, the national target coincides with the airport target and the potential delay contribution is only associated to this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Athens (LGAV)	GROUP II	0.22	0.65	+0.43	0.68	+0.46

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Athens' delays during RP2 were considerably higher (by 0.43 minutes per arrival) than the median for similar airports. The proposed target for RP3 further deteriorates from this past performance of similar airports.

3.3.5 PRB Key Points

- The proposed targets for Athens are in line with the capacity constraints detected in RP2 and with the planned measures during RP3 to mitigate the delays. However, this means that Arrival ATFM delays during RP3 are expected to continue being higher than at similar airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	0.200%	0.200%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.34	0.32	0.26	0.20	0.20
Alert threshold (Δ Ref. value in fraction of min)	±0.057	±0.056	±0.053	±0.050	±0.050
Performance Plan targets	0.34	0.32	0.26	0.20	0.20
Pivot values for RP3	0.34	0.32	0.26	0.20	0.20

Threshold review

The threshold is symmetrical around pivot value, which is based on reference values provided in NOP.

Modulation review

No modulation mechanism will be applied.

Review of financial advantages/disadvantages

Full bonus and full penalty is 0.2% of revenue. Delay forecast in NOP shows delays between 0.24 and 0.60 minutes per flight over RP3, which implies the possibility of penalties.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.03 min	0.200%	0.200%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.600	±0.450	±0.350	±0.200	±0.100
Performance Plan targets	1.20	0.90	0.70	0.40	0.20
Pivot values for RP3	1.20	0.90	0.70	0.40	0.20

Threshold review

The Greek terminal incentive scheme has opted for a dead band of ±0.03 min (2.5% of the pivot value for 2020), which might be too low to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Greece has opted for pivot values based on the performance targets (not modulated).

Review of financial advantages/disadvantages

The terminal incentive scheme is symmetric. The low maximum bonus or penalty (only 0.2%) makes this a weak terminal incentive scheme.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✘

En route:

- The incentive scheme comprises 0.2% of maximum bonuses and penalties.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

- The scheme seems too sensitive to small variations (small dead band) and at the same time has very low maximum bonuses or penalties. (±0.20%).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of	M€ (nominal)	2.8	4.0	24.7	23.7	27.3	82.5
	En route	2.7	2.9	23.7	22.7	26.3	78.4
	Terminal	0.1	1.1	1.0	1.0	1.0	4.1

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Procurement of 8 Surveillance systems	Procurement and installation of five (5) surveillance systems (PSR S-band collocated with MSSR MODE S EHS) for the air traffic management, installed in KERKIRA, THESSALONIKI, RODOS, HERAKLION, MITILINI and three (3) surveillance systems (PSR L-band collocated with MSSR MODE S EHS) for the en route air traffic management installed in HIMITTOS, LEMNOS, ATTAVIROS.	49.6	Yes	Yes	23.4	0.0
2	Procurement and installation of CNS/ATM systems for new Kastelli Airport	CNS infrastructure for the new Kastelli Airport (e.g. SMR - ASMGCS - PSR/MSSR (EHS) - ILS - GBASS - HMI - IP Network - Voice Communication and Recording System (VCRS)- CPDLC)	43.0	Yes	No	2.7	1.8
3	Procurement of new DPS/ATM system and 7 Surveillance Systems	Procurement of new Data Processing System / Air Traffic Management – DPS/ATM and 7 Surveillance Radars installed in KAMARA (collocated PSR and MSSR Enhanced Mode-s (EHS)), LEFKADA, KITHIRA, PILIO, KARPATOS and MEREDA.	37.9	Yes	Yes	19.0	0.0
4	Procurement of new ANS facilities equipped with CNS/ATM infrastructure	CNS infrastructure for the new Towers (Mykonos, Santorini and Mytilene) (e.g. HMI - IP Network - Voice Communication and Recording System (VCRS)).	16.9	Yes	No	3.1	2.0
5	Procurement of 19 Voice Communication and Recording Systems (VCRS) for 5 Major and 14 National Airports	Procurement and installation of 19 Voice Communication and Recording Systems (VCRS) at 5 Major (Corfu, Rhodes, Kos, Thessaloniki and Iraklion) and 14 National Airports (Alexandroupolis, Limnos, Sitias, Milos, Samos, Kavala, Kalamata, Ioannina, Chios, Skiathos, Aktio/Prevezas, Karpathos, Paros and KHEMS). The procurement includes the following (per site): A. Voice Communications System (VCS). B. Digital Voice Recording Systems C. Time Reference Display Units. D. Installation and cabling of VCS network. E. Controller Working Positions (CWPs).	11.7	Yes	No	1.9	1.3
6	Procurement of DLS	The DLS system under procurement will be a Multi-Frequency "C" model (Model C Multi Frequency - Model C-MF) as described in the Strategic Plan for the SESAR Deployment Manager of the Data Link Services (DLS). The procurement includes the following equipment: a) VDL Model C-MF Ground Station, b) ATN air-to-ground router (AGR) c) ATN ground-to-ground router (AGG). d) ACARS Data System Processor, e) Central VHF Management Entity (C-VME), f) Multi-frequency Monitoring System, g) System performance supervision system.	5.6	Yes	Yes	2.8	0.0
Total:						52.9	5.1

Airspace user feedback regarding major investments

Airspace users expressed a great concern regarding the underspent CAPEX in RP2. Greece was urged to commit to the full implementation of the investment plan to ensure the delivery of agreed performance targets. Airspace users requested the NSA to define and implement a CAPEX monitoring system that ensures the investment plan is implemented and benefits to airspace users are realised.

The performance plan does not contain explanatory information on the description of the asset and benefits to airspace users. Airspace users requested Greece to review it in line with the Eurocontrol standard inputs for cost benefit analysis.

Review of investments

Major new investments represent 70% of the total determined costs over RP3. Greece plans to charge the depreciation costs, costs of capital and costs of leasing of new major investments start in the third year of RP3. The 2015-2018 actual CAPEX delivery was 13% of the planned for the same period and the amount underspent is 88.5M€. The performance plan does not seem to mention any information about reimbursement for the Airspace users for the unspent amount. The performance plan does not include details regarding continuation of the investments projects started in RP2 and planned to be continued in RP3.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
----	------------------------------	--------------------------------------	--------------------	----------------------------------

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	13.1	10.2	0.4	1.0	1.4	1.6	1.6	5.9
Existing investments			2.4	3.0	4.8	4.3	4.1	18.5

Description and justification of other new and existing investments in fixed assets planned over RP3

Other new investments represent 7% of the total determined costs of investments over RP3, while existing investments represent the 22%. The costs of other new and existing investments relate to the implementation of the investment plan of RP3 as well as projects which have started in RP2 and are going to be completed in RP3. Greece states that all the projects are important to ensure safety and capacity of ANS in order to meet growing traffic demand. The investment plan covers also projects which are obligatory according to the provisions of the Regulations and SESAR solutions. The performance plan claims that costs are calculated in a transparent manner, according to the results of the consultation meeting, in order to ensure that they are not going to be recovered twice.

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand ✓

Main issues causing capacity deficits in RP2 resulted from the lack of ATM capacity and sufficient ATCO staff. Most of the measures proposed by Greece via the NOP 2019-2024 and the performance plan concentrate on closing gaps in identified areas including airspace, procedures and staffing.

Within the NOP, Greece proposed new ATM system and VCS as the technological capacity enhancement measures. Due to low level of details provided in description of the new investment projects, it is difficult to establish the link to the introduced measures and/or the degree of contribution of individual investment projects to the capacity improvement. None of the new investment projects aims directly at improving the ATM capacity. They all provide technological building blocks, which may contribute to capacity increase via support to airspace, procedures and staffing measures if properly implemented. Some of the projects seem to be those postponed from RP2, as caused mainly by late adoption of the BLUE MED performance plan. All projects claim to have local impact and the description does not provide for details of contribution to the FAB or Union-wide improvements.

- Investment #1: replacement of CNS with higher performance technology which may support the new ATM System and airspace measures such as FRA and new sectorization.
- Investment #2: new CNS infrastructure at a local airport of Kastelli, Crete (with unknown traffic share), only small part may contribute to capacity improvements.
- Investment #3: elements of the new ATM system and CNS. These project may contribute to capacity improvement via support of FRA implementation.
- Investment #4: new CNS infrastructure for TWR at three small islands with unknow traffic share. Due to low level of detail it is difficult to justify positive link to the overall CAP improvement.
- Investment #5: new CNS infrastructure at five major and 14 national airports. Due to low level of detail in description, it is difficult to assess the extent of contribution to the capacity improvement and link to the VCS measure as introduced in the NOP. It is not clear what type and the performance of the old communication system was before.
- Investment #6 DLS: SESAR concept, it may contribute to capacity improvements if duly implemented.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ✗

The operational aspects of how and when capacity improvements are necessary are not visible in the investment plan. The STATFOR predicts slowdown in the traffic levels along RP3. According to the NOP 2019-2024, Greece is expected to maintain capacity gap in RP3 even if the capacity enhancement measures are timely introduced. Nevertheless, the performance plan claims to achieve reference values in all years of RP3. Most of the investment projects are planned to be operational by middle of RP3 (2022) or at its end (Investment #3 in 2024).

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ✓

All capacity related investment projects are planned to be deployed in the middle of RP3 (2022). The investment plan foresees no related cost before projects are implemented. Main capacity measures introduced in the NOP 2019-2024 for the beginning of RP3 include airspace, procedures and staffing improvements. Comparing the investment plan and the capacity enhancement measures introduced by the NOP, it seems that old ATM system can support all other capacity measures and that the new ATM system will only further improve the CAP.

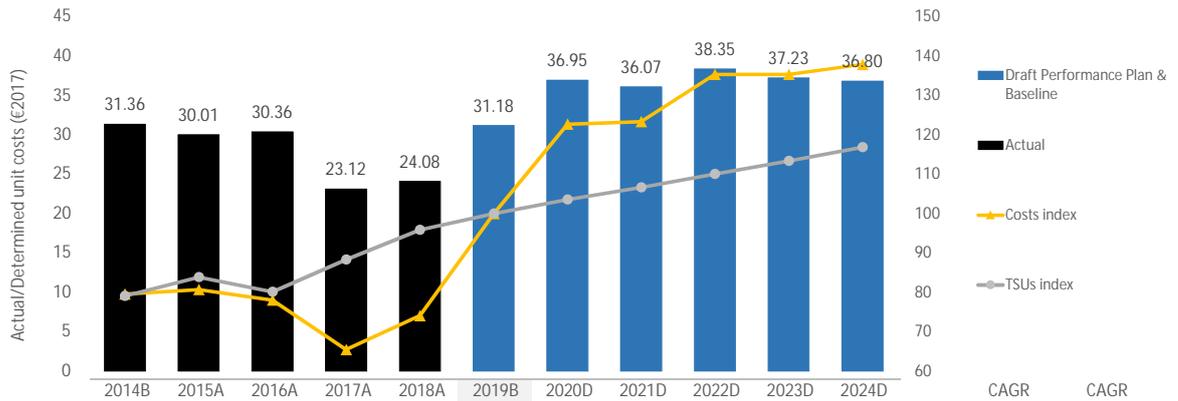
3.5.4 PRB Key Points ✗

- New major investments reported by Greece constitute 70% of the total investment costs, however Greece has delivered 13% of the CAPEX during RP2 to date (2015-2018). RP3 major investments are planned to be charged from 2022.
- Due to low level of details provided in description of the new investment projects, it is difficult to establish the link to the introduced measures in the NOP and/or the degree of contribution of individual investment projects to the capacity improvement. Other and new existing investments may address capacity improvements but the level of detail provided on those projects is low to make appropriate assessment.
- None of the new investment projects aims directly at improving the ATM capacity, but some may contribute to it while supporting other capacity measures.

GREECE

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	145	146	141	119	136	-	230	234	259	263	271	-	+6.5%
Total costs	M€ (2017)	145	147	142	119	135	182	223	225	246	246	251	+6.6%	+5.7%
TSU	'000	4,618	4,899	4,678	5,158	5,600	5,840	6,046	6,228	6,427	6,620	6,824	+3.2%	+4.0%
AUC/DUC	€ (2017)	31.36	30.01	30.36	23.12	24.08	31.18	36.95	36.07	38.35	37.23	36.80		
Exchange rate	€:€				1.000									
DUC	€ (2017)	31.36	30.01	30.36	23.12	24.08	31.18	36.95	36.07	38.35	37.23	36.80		
Annual change	%		-4.3%	+1.2%	-23.9%	+4.2%	+29.5%	+18.5%	-2.4%	+6.3%	-2.9%	-1.2%	+3.4%	+1.6%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified? 31.18 €2017 ✘

The 2019 TSU baseline is in line with STATFOR February 2019 base forecast.

The 2019 cost baseline is +35.0% higher than the 2018 actual costs, and +14.4% above the 2019 cost forecast, mainly due to the inclusion of occupational pension costs and SAR costs which were not part of RP2 determined cost and to an increase in NSA costs in anticipation of a reorganisation of HCAA and the CAA.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? 3.4% ✘

The RP3 DUC trend of +3.4% is worse than the Union-wide trend of -1.9% p.a.

b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? 1.6% ✘

The long-term DUC trend over 2014-2024 of +1.6% is worse than the Union-wide long-term trend of -2.7%.

c) DUC level (2019 baseline) lower than the average of comparator group (D) average (30.06 €2017)? +3.7% ✘

The 2019 DUC baseline is +3.7% above its comparators' average. The situation is planned to further deteriorate over the period (+19.2% in 2024).

d) Deviation exclusively due to measures necessary to achieve the capacity targets? ✘

The difference between the RP3 determined costs reported in the performance plan and the determined costs that would be required to meet the RP3 cost efficiency trend amount to +246.6M€2017 (+383M€2017 from the long term trend). This is much higher than the sum of costs of new investments relating to capacity (+45.2M€2017) and costs of additional ACC ATCOs (+25.0M€2017), which amounts in total to +70.2M€2017. Even if the +70.2M€2017 are only a rough estimation which might be incomplete, it is considered that the cost deviation with regard to the Union-wide trends (+246.6M€2017 and +383M€2017) is too large to be exclusively due to capacity related measures.

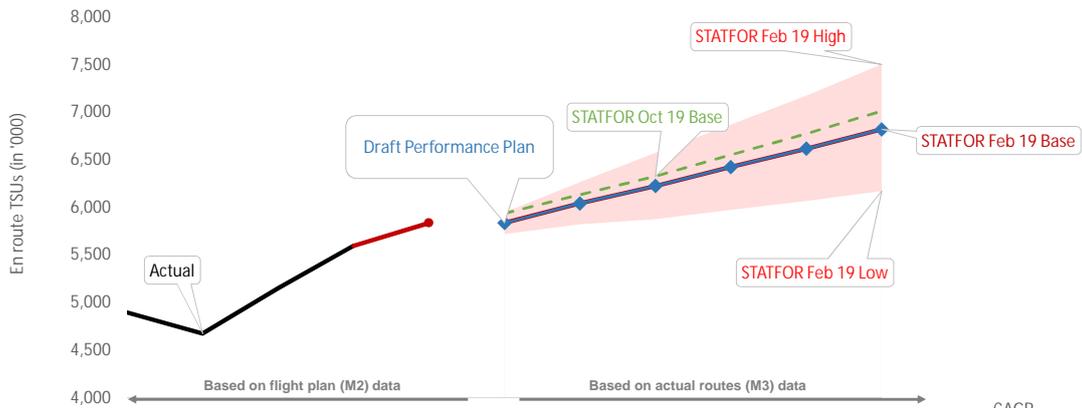
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? n/a

4.1.4 PRB Conclusions ✘

The PRB concludes that the cost-efficiency targets proposed by Greece should not be approved.

- Greece is not meeting any of the cost-efficiency criteria.
- The deviation from the cost-efficiency trends is not exclusively for the purpose of achieving the capacity targets.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	4,899	4,678	5,158	5,600								
Annual change	%		-4.5%	+10.3%	+8.6%								
STATFOR Feb 19 Base	'000 TSUs					5,840	5,840	6,046	6,228	6,427	6,620	6,824	+3.2%
Annual change	%					+4.3%	+4.3%	+3.5%	+3.0%	+3.2%	+3.0%	+3.1%	
STATFOR Oct 19 Base	'000 TSUs					-	5,941	6,135	6,331	6,556	6,776	7,016	+3.4%
Annual change	%					-	+6.1%	+3.3%	+3.2%	+3.5%	+3.4%	+3.5%	
Performance Plan	'000 TSUs					5,840	6,046	6,228	6,427	6,620	6,824		+3.2%
Annual change	%						+4.3%	+3.5%	+3.0%	+3.2%	+3.0%	+3.1%	

4.2.2 Baseline review

✓ M3/M2 coefficient check	'000 TSUs	CRCO Coefficient		✓ Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
		3 months	12 months					
2019B (PP baseline, M3)	5,840			2019B (PP baseline, M3)	5,840			
2019F (as in the Reporting tables, M2)	5,840			2019F (STATFOR Feb 19, M3)	L 5,725	B 5,840	H 5,953	=B
2019B/ 2019F	0.00%	+0.01%	-0.01%	2019F (STATFOR Oct 19, M3)	L 5,912	B 5,941	H 5,968	-1.70%

The 2019 TSU baseline is in line with STATFOR February 2019 base forecast.

4.2.3 Review of the PP traffic forecast

✓ Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast
n/a

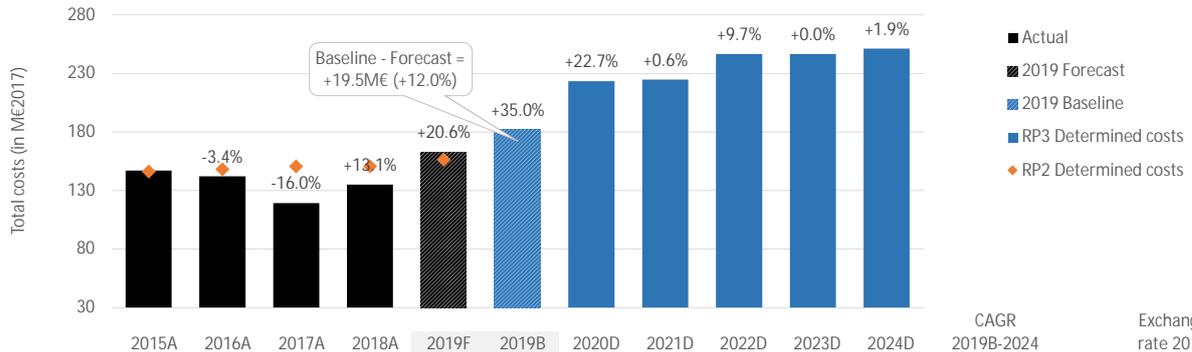
Review of the PP traffic forecast

The selected TSU forecasts are in line with STATFOR February 2019 base forecast for all years of RP3 (2020-2024), which forecast an average growth of +3.2% p.a. over 2019-2024.

4.2.4 PRB Key Points

- No major issues identified.

4.3.1 Overview of en route costs in RP2 and RP3

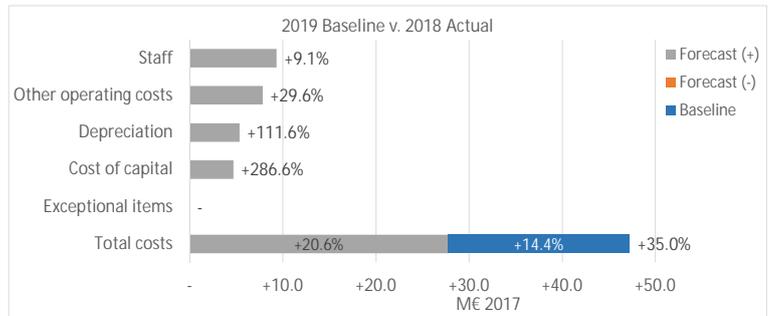


		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	146	141	119	136	165	-	230	234	259	263	271	-	€:€
Annual change	%		-3.4%	-15.2%	+13.9%	+21.6%	-	-	+1.9%	+10.8%	+1.4%	+3.1%	+1.7%	1.00000
Inflation index	2017 = 100	98.9	98.9	100.0	100.8	101.9	101.9	103.3	105.0	106.9	108.7	110.7		
Total costs	M€ (2017)	147	142	119	135	163	182	223	225	246	246	251	+6.6%	
Annual change	%		-3.4%	-16.0%	+13.1%	+20.6%	+35.0%	+22.7%	+0.6%	+9.7%	+0.0%	+1.9%		
Total costs	M€ (2017)	147	142	119	135	163	182	223	225	246	246	251	+6.6%	

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+27.8	+20.6%
2019F v. 2019 RP2 DC	+6.5	+4.1%
2019F v. average 2015-2018	+26.9	+19.8%

2019 baseline analysis	M€2017	%
2019B v. 2019F	19.5	+12.0%



2019 forecast analysis

The 2019 costs forecast is +20.6% higher than the 2018 actual costs due to large increase in all cost categories. With this respect, Greece is stressing that the financial accounts are prepared on a cash basis, which implies possible shifts from one year to the next if an expense is incurred at the end of one year but the cash out flow occurs only in the next year. Given that the 2019 baseline does not directly builds upon the 2019 forecast, the 2019 forecast is less relevant for this assessment.

2019 baseline analysis

The 2019 cost baseline is +35.0% higher than the 2018 actual costs, and +12% (or 19.5M€2017) above the 2019 cost forecast discussed above.

As detailed in Annex R of the performance plan, Greece used the following approach to calculate its 2019 cost baseline:

- application of a linear regression model to the 2015-2018 actual costs and traffic, leading to a total cost of 125.6M€ (nominal terms);
- addition of 10.9M€ (nominal terms) for SAR costs which were not included in the Greek cost base in previous reference periods;
- addition of 14.0M€ (nominal terms) for extra NSA costs, now substantially higher than in RP2 (around 23M€ compared to 9M€ per year in RP2);
- addition of 31.5M€ (nominal terms) for the introduction of occupational pension schemes, while there was only a State first pillar pension scheme in previous reference periods.

While the performance plan provides annexes in order to document the assumptions underlying the additional SAR and pension costs, the additional NSA costs lack documentation, it is only mentioned that these costs are due to "reorganisation of HCAA & CAA" to take into account the Law 4427/2016. It is understood from the stakeholder consultation that the law did not enter into force yet and that the amounts presented for the consultation were still subject to revaluation. In this respect, PRB notes that the total RP3 NSA costs provided in the draft performance plan are some -8% lower than those presented for consultation (in nominal terms).

While the inclusion of all these additional costs improve the comparability with the scope of reporting for RP3, it is important to keep in mind that these costs are not genuine costs for the year 2019 and will materialise only from 2020 onwards. The use of this "high" baseline for 2019 does not enable meeting the RP3 DUC target as further large increases are planned between 2020 and 2024.

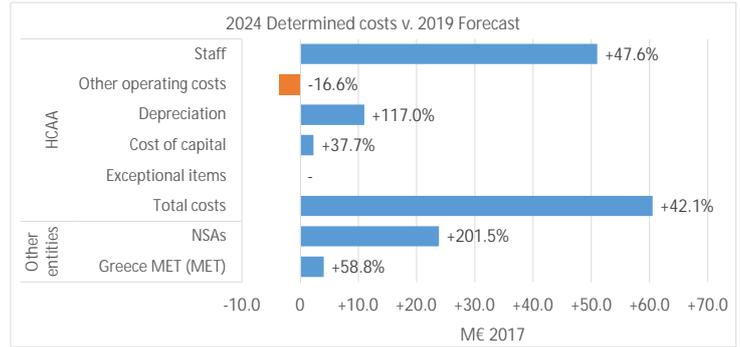
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✗ Investments (see details in 3.5)
- ✓ Cost of capital (see details in 4.3.1)
- ✗ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.20%
Maximum penalty (% of determined costs)	0.20%
Additional incentives?	No



The 2024 determined costs for Greece are planned to be +54.4% higher than the 2019 forecast and +37.9% higher than the 2019 baseline. These increases are mainly due to:

- Increases in ANSP staff costs from 2020 onwards, reflecting the inclusion of occupational pension schemes (on average +33.5M€ p.a. in nominal terms for en-route) and also presumably higher staff numbers and/or increases in salaries. Indeed, when excluding the occupational pension costs, the ANSP staff costs are still planned to increase by +20.4M€ in 2020 (+18.6% in nominal terms compared to 2019 forecast). The performance plan does not provide any information on this increase in staff costs (beyond the increase in pension costs).
- Increases in ANSP depreciation costs due to the replacement of eight surveillance systems in 2022 and the commissioning of a new data processing system and seven surveillance systems.
- As discussed in the baseline analysis, the inclusion of SAR costs and additional NSA costs in anticipation of application of Law 4427/2016 are also major contributors to the planned increase.

As discussed in more details in Section 4.3.B, pension costs account for almost 19% of HCAA total costs over RP3, following the introduction of 2 occupational schemes that are financed by levying 6€ per en-route service unit. The PP does not explain how the 6€ per service unit actually relate to future pension obligations. Moreover, the figures provided in Annex T of PP on the required additional pension costs for ATCOs do not reconcile with the amounts charged to users (the latter being twice higher).

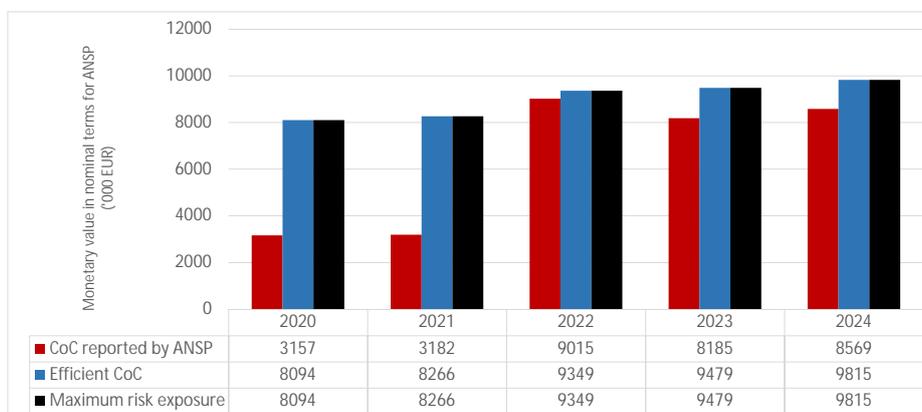
4.3.4 PRB Key Points

- Several cost items included in the baseline are RP3 costs and therefore should not be factored in the 2019 cost baseline.
- The magnitude of the increase in NSA costs is not justified and even not explained in the performance plan.
- There is no explanation to the large increase in staff costs in 2020 (beyond the increase due to pensions).
- The performance plan presents inconsistencies and lack of explanation for the pension costs.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	183,960	187,866	212,468	215,425	223,065
Monetary value of Return on Equity	3,157	3,182	9,015	8,185	8,569
Ratio RoE/DC (%)	1.7%	1.7%	4.2%	3.8%	3.8%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	5.6%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	5.6%	14.4%	5.6%	14.6%	5.6%	5.8%	5.6%	6.5%	5.6%	6.4%

Is the interest on debts in line with the market? Yes

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure. The first years of RP3 are affected by the low regulated asset base.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

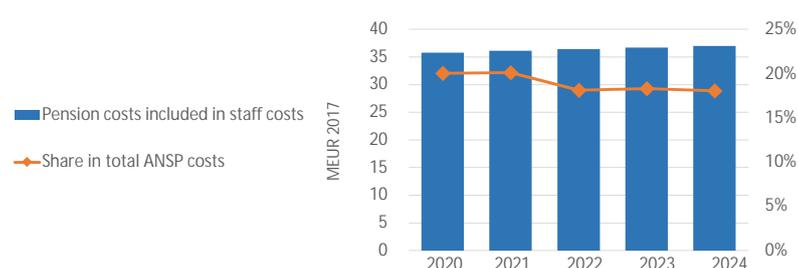
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	11,264	10,800	113,468	97,749	103,571
Net current assets	44,805	45,718	46,660	47,630	48,630
Adjustments total assets	0	0	0	0	0
Total asset base	56,069	56,517	160,128	145,379	152,200

- The fixed asset base will significantly increase within the period. This is partially in line with the investments described in section 3.5 of this document. However, the amounts pose questions on the feasibility of such increase.
- The net current assets seem excessive considering the expected cash flow.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over RP3, this is mainly driven by an increase in the fixed asset base.

4.3.A.5 PRB Key Points

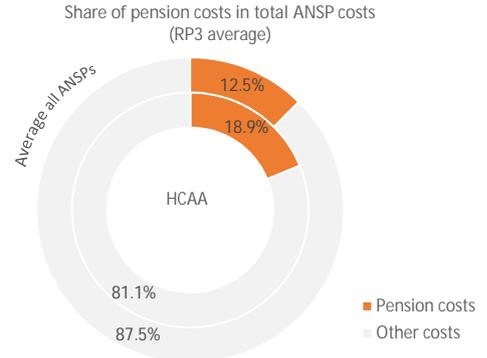
- The cost of capital is in line with the maximum risk exposure and does not present major issues.
- The asset base greatly increase from 2022, when RP3 major investments are starting to be charged.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	MEUR 2017	2020	2021	2022	2023	2024
Year on year variation	% change		+0.9%	+0.8%	+0.8%	+0.8%
Share in total ANSP costs	%	20.0%	20.1%	18.1%	18.3%	18.1%
Year on year variation	p.p.		0.1p.p.	-2.0p.p.	0.2p.p.	-0.2p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Decrease**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Higher**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

n/a

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

The contribution rate reported in the performance plan is stable (16.33%) throughout RP3. However, this rate is higher than the 13.33% indicated in Annex T of the performance plan dedicated to pensions.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

The determined cost scheme is a new feature of RP3. It is understood that the determined cost base is calculated in proportion to traffic and are not the result of a contribution rate applied to payroll.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

The defined benefit scheme is a new feature of RP3. It is understood that the defined benefit pension costs are calculated in proportion to traffic and are not the result of actuarial calculations.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

In addition to the pre-existing State first pillar pension scheme, two occupational schemes are introduced in RP3:

- i) OIF-ATCG providing both defined contribution and defined benefit schemes to ATCOs (800 staff); and
- ii) OPF HCAA providing both defined contribution and defined benefit schemes to non-ATCOs (1090 staff).

The share of pension costs in the total ANSP costs planned for RP3 is almost 19%, which according to the findings of the PRC Pension Study would make HCAA pensions one of the most expensive in Europe (in relative terms).

The following issues have been identified in the calculation assumptions for the three pension schemes:

- The first pillar employer's contribution rate used in the performance plan (16.33%) is higher than the rate provided in Annex T (13.33%) of the performance plan.
- Annex T of the performance plan explains that the amount of pension costs is calculated as 6€ per en route service unit in order to finance both OIF-ATCG and OPF HCAA schemes. Although an exact match could not be found, applying this assumption broadly results in the total (en route and terminal) occupational pension costs that are included in the performance plan. The performance plan does not explain how the 6€ per service unit actually relate to future pension obligations which are a function of the staffing characteristics and actuarial assumptions rather than a function of the traffic evolution.
- Annex T of the performance plan also explains that the introduction of the occupational schemes aims at bridging the gap (for ATCOs) between a current replacement rate (ratio of pension at retirement to salary when active) of 44% and a target rate of 70%. It is unclear whether the gap bridging applies in full to all active staff upon retirement or if it will be scaled to the number of years of service.
- For ATCOs, Annex T shows that reaching a replacement rate of 70% implies an increase in the level of current pensions by 900€/month/ATCO. This corresponds to an annual cost of 8.6M€ per year for the employer (900€ x 12 months x 800 ATCOs), which is less than half of the 18.0M€ of occupational pension costs for ATCOs included in the enroute and terminal cost bases for 2020 (and rising by +3.0% p.a. in nominal terms between 2020 and 2024).

4.3.B.4 PRB Key Points

- Pension costs are significantly higher than the Union-wide average.
- There is a possible reporting error in the contribution rate for first pillar.
- Calculating pension costs based on traffic is not relevant.
- There is a lack of description of the relevant parameters required to estimate future pension obligations.
- The amount charged per year for ATCOs is way higher than the cost indicated in Annex T (18M€ vs. 8.6M€) of the performance plan.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Greece did no mention changes to the cost allocation methodology with respect to RP2.
 - The criteria used to allocate costs between en route and terminal are: "ATCO WPs and allocation of personnel, number of sectors, number of flights, the use of equipment, the organisational structure, etc"

1.2. Are the criteria for cost allocation clearly defined and justified? **Partially**

If not, what are the issues identified?

The criteria for cost allocation are explained briefly.

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? **No**

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified? **n/a**

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline? **n/a**

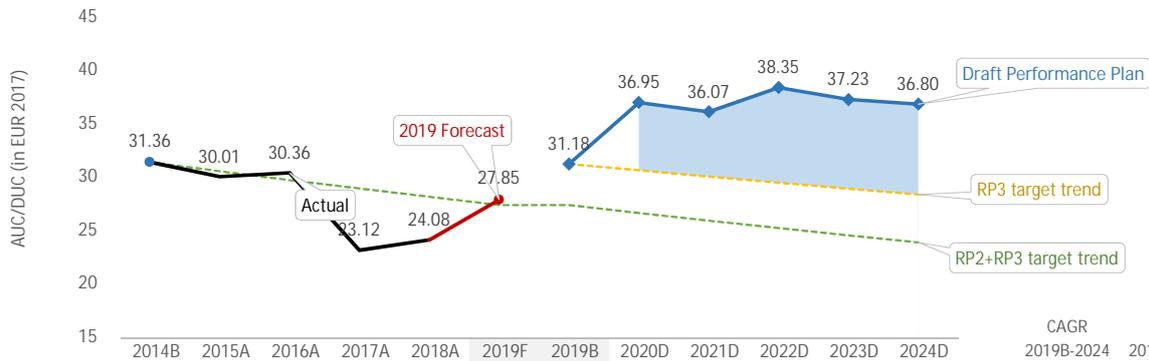
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points 

- Greece did no mention changes to the cost allocation methodology with respect to RP2.
 - The cost allocation methodology is briefly explained.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024	
AUC/DUC	€2017	31.36	30.01	30.36	23.12	24.08	27.85	31.18	36.95	36.07	38.35	37.23	36.80	+3.4%	+1.6%
Annual Change	%		-4.3%	+1.2%	-23.9%	+4.2%	+15.6%	+29.5%	+18.5%	-2.4%	+6.3%	-2.9%	-1.2%		

4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	+3.4%	Union-wide trend	-1.9%	Difference	+5.3p.p.
PP trend	+1.6%	Union-wide trend	-2.7%	Difference	+4.3p.p.
PP 2019 baseline	31.18	Average comp. group	30.06	Difference	+3.7%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Even using a 2019 cost baseline inflated by additional cost items in order to improve comparability with the RP3 scope, the DUC trends for Greece are much worse than the Union-wide trends: +3.4% vs. -1.9% for RP3 and +1.6 vs. -2.7% for RP2 and RP3.

The 2019 DUC baseline for Greece is +3.7% above its comparators' average. The situation is planned to further deteriorate over the period (+19.2% in 2024).

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +246.6 v. RP2+RP3 trend over the period 2020-2024 +383.0

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+247.5	Additional ATCO costs (M€2017)*	+19.2
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€2017)	52.9	of which, related to capacity (see Section 3.5 for details)	45.2
---	------	---	------

Analysis

Section 3.6.3 of the performance plan indicates that the planned costs for RP3 aim at absorbing the traffic increase while meeting the capacity target. However, Greece does not provide any detailed analysis to justify that the magnitude of the cost deviation against the Union-wide target is proportionate.

Even though the 2019 baseline has been inflated to improve comparability with the scope of RP3 reporting, the cumulative costs (sum of the determined costs over 2020-2024) are higher than the level of costs strictly needed to achieve the RP3 cost efficiency target in each year of RP3 by 246.6M€2017.

In order to provide a rough estimation on whether this deviation of 246.6M€ is proportionate with the measures taken, the two following cost items can be considered:

- The cumulative additional costs for ATCOs planned to be working in the ACC by the end of RP3. Based on the average unit cost for ATCO in OPS reported by HCAA in the ACE 2017 report (not comprising the new occupational pension schemes), it is estimated that the announced recruitment plan for the ACC would result in around 19.5M€2017. Using pension cost information reported in the performance plan, it is estimated that the extra costs associated with the occupational pension schemes for ATCO would add some 5.5M€2017, making a total of 25.0M€2017.
- The determined costs of new major investments, which represent some 45.2M€2017 over RP3.

As a conclusion, and even if the rough estimation calculated above (25.0 + 45.2 = 70.2M€2017) might be incomplete, it is considered that the cost

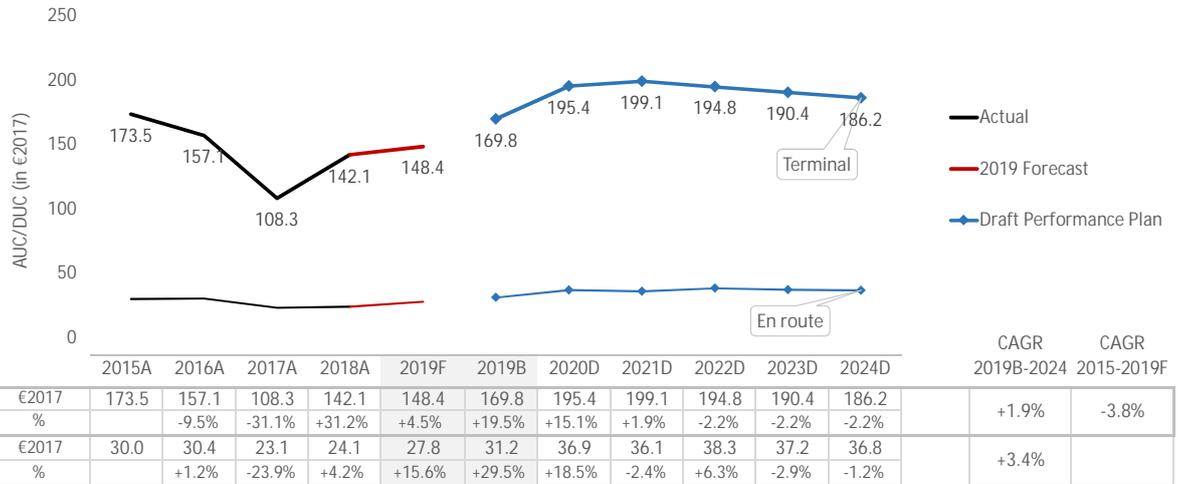
- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- Greece is not meeting any of the cost-efficiency criteria.
- Greece deviates from the trends criteria to achieve the capacity targets. In this regard, the capacity targets are consistent and the capacity measures described are adequate. However, the deviation from the cost-efficiency trends is not exclusively for the purpose of achieving the capacity targets.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Athens (LGAV)	GROUP II	157.2	145.3	-7.5%	148.9	193.2	+29.8%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

While Athens airport DUC was -7.5% below the median of its comparators in RP2, it is planned to be +29.8% higher in RP3.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	135.0			
2019F (STATFOR Feb 19)	L 132.0	B 135.0	H 138.2	=B
2019F (STATFOR Oct 19)	L 128.9	B 129.4	H 129.9	+4.33%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+2.1	+11.7%
2019 Forecast v. Avg. 2015-2018 Actual	+3.9	+24.1%
2019 Baseline v. 2019 Forecast	2.9	+14.5%

- No major issues identified.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

Review of the PP traffic forecast

The selected TNSU forecasts are in line with STATFOR February 2019 base forecast for all years of RP3 (2020-204), which forecast an average growth of +3.0% p.a. over 2019-2024.

Determined costs (terminal)

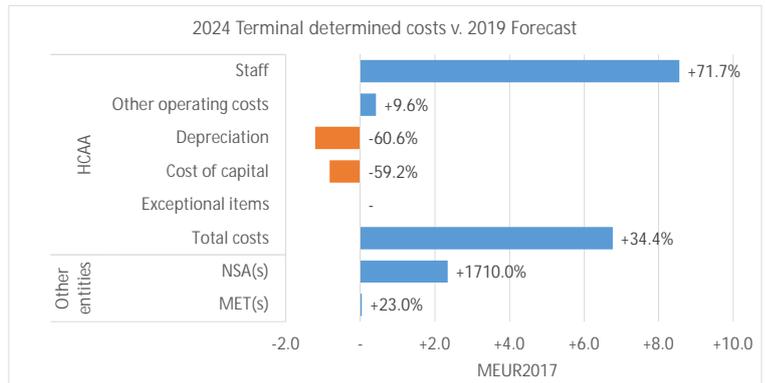
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - HCAA (terminal)

- ✗ Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✗ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.20%
Maximum penalty (% of determined costs)	0.20%
Additional incentives?	No



- The share of terminal investment costs (5%) is lower than the share of terminal total costs (12%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The 2024 determined costs for Athens are planned to be +45.7% higher than the 2019 forecast and +27.3% higher than the 2019 baseline.

These increases are mainly due to:

- Increases in ANSP staff costs from 2020 onwards, going far beyond the increase due to the inclusion of occupational pension schemes.
- As discussed in the baseline analysis for en route, the inclusion of additional NSA costs in anticipation of application of the Law 4427/2016 is also a major contributor to the planned increase. SAR costs are 100% allocated to en route so have no impact on the terminal cost base.

4.5.4 PRB Key Points ✗

- The Terminal RP3 DUC trend is +1.9%, which is better than the en route RP3 DUC trend of 3.4%.
- The Terminal RP3 DUC trend is +1.9%, which is worse than the Terminal RP2 DUC trend of -3.8%.
- Athens, the only airport included in the scope of the performance plan, had a DUC 7.5% lower than the average of its comparator group over RP2. The difference is expected to be +29.8% over RP3.
- Greece used the STATFOR February 2019 base forecast for terminal traffic. The traffic forecast is in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs significantly increase over the period, mainly due to a significant increase in staff costs.
- The inclusion of additional NSA costs in anticipation of application of the Law 4427/2016 is also a major contributor to the planned increase in costs. SAR costs are 100% allocated to en route so have no impact on the terminal cost base.

PRB Assessment

HUNGARY

Draft Performance Plan

Context and scope

Hungary

Performance Plan: Draft performance plan (Article 12) Dated: 01.10.2019
 Documents no: 1226, 1227, 1594, 1595, 1596, 1597, 1225, 1220, 1224, 1223, 1593

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.6%
 % Costs V. SES 1.3%

Scope

FAB: FAB CE

ANSPs: HungaroControl
 Hungarian Meteorological Service (Országos Meteorológiai Szolgálat)

ATM (including ATC, FIS, FMP, AMC),
 AIS, CNS, MET,
 MET

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 Hungarian NSA

NM, CRCO
 NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Hungary	n/a	No	No	No	<p>ER 83% TRM 17%</p>
Terminal	Hungary - TCZ	1	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group C Other States in the comparator group: Bulgaria, Croatia, Czech Republic, Poland, Portugal, Romania, Slovakia, Slovenia

Currency: HUF Exchange rate: 308.99300

1. Safety 

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Hungarocontrol	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	D	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Hungary should be approved.

-The EoSM safety targets are in line with the Union-wide performance targets.

-The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

-The change management processes and transition plans to minimize the network impact of planned changes compliant with Commission Implementing Decision (EU) 2017/373) are not described.

The PRB notes that interdependencies between safety and other KPAs are address and it is explained how safety will be addressed when implementing changes, which may the required to achieve other performance targets (no trade-off is considered).

2. Environment 

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.45%	1.44%	1.43%	1.43%	1.43%

PRB Assessment

The PRB concludes that the environment targets proposed by Hungary should be approved.

- HungaroControl's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity 

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.90	0.90	0.70	0.40	0.12
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.05	0.05	0.05	0.05	0.05

PRB Assessment

The PRB concludes that the capacity targets proposed by Hungary should not be approved.

- National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in each year of the reference period.

- The measures provided in the performance plan do not provide sufficient evidence that Hungary will reach the capacity targets by the end of RP3.

- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency 

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	35.15	36.74	38.15	39.03	39.61
Target for determined unit cost (DUC) (€2017) - Terminal	285.59	305.51	327.36	341.28	330.97

CAGR 2014-2024	CAGR 2019-2024
+1.4%	+5.8%
n/a	+6.3%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Hungary should not be approved.

- Hungary does not meet neither the Union-wide RP3 DUC trend nor the Union-wide long term trend criteria.

- Hungary DUC level in 2019 is below the average of the comparator group.

- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

PRB Recommendations

SAFETY

- Hungary should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.
- Hungary Should define the change management practices that will ensure the negative impact on network performance is minimised while the changes are implemented.

ENVIRONMENT

- Hungary should work with Slovakia to ensure it joins as a participant of SEE in 2023.

CAPACITY

- Hungary should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets in each calendar year of RP3.
- Hungary should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.
- Hungary should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- Hungary should adjust the traffic forecast to the base scenario.
- Hungary should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Hungary should revise the 2019 cost baseline value by not including the cost of the introduction of the occupational early retirement scheme.
- Hungary should reduce the cost of capital proposed aligning it to the market risk exposure.
- Hungary should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

HUNGARY

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained in 2021.

1.1.2 Measures planned to reach the target (if applicable)

While measures are described in some detail with reference to the "fourth Safety Program (2020-2024)", there is no clear link between the measures described and the improvement required in the area of Safety Risk Management. Moreover, the draft performance plan notes that the "fourth Safety Program" will support the achievements of RP3 targets, however it does not describe how the document will support such achievements.

1.1.3 Interdependencies and Trade-offs

The draft performance plan does not identify any particular interdependency or trade-off, but notes in general terms that changes to ATM Functional systems required to achieve other KPAs targets will be subject to the "standard risk assessment and mitigation procedure".

The draft performance plan specifies that safety KPA has the priority over the other areas. The interdependencies, as described in the draft performance plan, are adequately explained.

1.1.4 Change Management

The draft performance plan does not describe change management practices to ensure minimum impact on network performance. In this regards, it is noted that a "proper implementation plan" will be established for one particular airspace project, however the specific practices adopted are not presented in the draft performance plan.

It is considered that the practices should be explained in further details.

1.1.5 PRB Conclusions 

The PRB concludes that the safety targets proposed by Hungary should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management. The PRB will closely monitor the implementation of measures over the RP3 to ensure that relevant measures are defined in particular for Safety Risk Management in its "RP3 watchlist".
- The change management processes and transition plans to minimize the network impact of planned changes compliant with Commission Implementing Decision (EU) 2017/373) are not described.

The PRB notes that interdependencies between safety and other KPAs are address and it is explained how safety will be addressed when implementing changes, which may the required to achieve other performance targets (no trade-off is considered).

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
HungaroControl	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained in 2021.

Measures are described in some detail with reference to the fourth Safety Program (2020-2024). More specifically, the draft performance plan mentions that "The fourth Safety Program (2024) which assures the maintenance of current state of its SMS and covers developments in Technology, HF related issues, Compliance and Performance Monitoring, Cyber and Data safety, Safety II application and in Just and Safety Culture. The fourth Safety Program enlists 70 actions aiming to support the achievement of RP3 Safety targets. The draft performance plan lists some of them, however none defines specific measures to improve the safety risk management.

1.3.1 Interdependencies and Trade-offs

The draft performance plan does not identify any particular interdependency or trade-off, but notes in general terms that changes to ATM Functional Systems required to achieve other KPAs targets will be subject to the "standard risk assessment and mitigation procedure". It is noted that "The mitigation measures may vary case by case and the most reasonable ones will be applied" and that the ANSP is to provide safe services and fulfil legal obligations (as a principle safety has priority over other aspects). Staff shortages will not affect safety performance as safety has priority.

The draft performance plan defines the safety performance monitoring scheme based on the severity of occurrences (i.e. internal safety target) and notes that values of the aggregated safety performance are monitored monthly and that remedial actions are taken in case of adverse trends.

1.3.2 Change Management Practices

The draft performance plan notes that airspace changes are to be implemented, but does not refer to any particular practice which will ensure that impact on network performance will be minimised. It is noted that a "proper implementation plan" will be established for such project, but not how the impact is minimised and through which practices.

The practices should be explained in further details.

HUNGARY

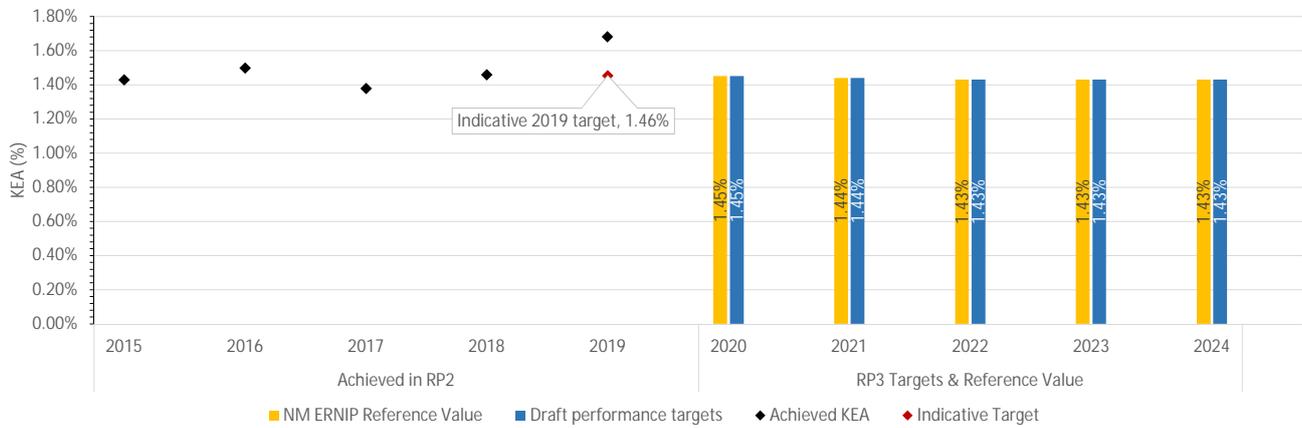
Environment KPA

2.1 Summary of environment key data and assessment results

Hungary

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.45%	1.44%	1.43%	1.43%	1.43%
Draft performance targets	1.45%	1.44%	1.43%	1.43%	1.43%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Hungary should be approved.
 - HungaroControl's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? Hungarocontrol implemented free route airspace in 2015 between FL095 and FL 660.	✓	Reference in PP 3.2.1(b)	Reference in LSSIP Page 42
Major ERNIP Recommended Measures: Measure included within performance plan?	3	Reference in PP Implemented	Reference in ERNIP Page 90
Implementation of SEEN (South East Europe Night) FRA Phase 2	✓	Implemented	Page 121
Implementation of SEE (South East Europe) FRA	✓	Implemented	Page 13
Implementation of HUFRA (Hungary Free Route Airspace)	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Hungary achieved a KEA of 1.68% in 2019 and needed to meet an indicative target of 1.46% in 2019 to achieve the planned target of 1.45% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value. In terms of measures to achieve those targets, Hungary has already implemented three out of three major ERNIP projects, namely implementation of HUFRA, SEEN and SEE.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Hungary plan for an environmental incentive scheme? Hungary does not plan to apply an optional incentive scheme for the environment KPA.	✗
--	---

HUNGARY

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The targets defined in the performance plan are not consistent with the national reference values first four years of RP3 with visible improvement over the period and for the last year, i.e. the planned target is equal to the reference delay value. The proposed targets for the first two years of RP3 are slightly higher than the NOP forecasted delay.

Analysis of current capacity profiles also indicates that potential capacity gap could be expected during the RP3 depending on the evolution and distribution of traffic demand. The ANSP should update the capacity plan to show all improvements from the measures proposed, or introduce additional measures to make the targets realistic.

The increased ATCO numbers and lack of described capacity enhancement measures indicate that this increase in ATCO numbers was not taken into account in the current capacity plan, thus not providing adequate evidence that Hungary would reach the proposed capacity target by the end of RP3.

1. PP capacity target is consistent with the reference value	✗	✗	✗	✗	✓
Deviation target v. reference value (minutes per flight)	0.76	0.76	0.57	0.28	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

Hungary (or its only airport in the performance plan, Budapest) registered zero or very low delays during RP2 showing no capacity constraints. The proposed target for RP3 continues in line with past good performance allowing for a small margin in the delays.

3.1.3 Incentives

En route: pivot value has no relationship to reference values published in NOP for years 2020-2023 (0.14 - 0.12 minutes per flight). Pivot value is based on national performance plan targets (0.90-0.40 minutes per flight). NOP delay forecast is 0.88 minutes per flight for 2020-2024, which falls in dead band. Both maximum bonus, and maximum penalty are fixed at 0.5% of revenue. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

Hungary has decided to not modulate the pivot values for the terminal incentive scheme. The scheme is symmetric with maximum bonus/penalty being only 0.5% and a dead band that allows for small variations in performance with no associated bonuses/penalties. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

The RP3 performance plan has introduced five major investments in total cost 30.3M€ in RP3, one of which could be related to the capacity improvement based on a description provided in the performance plan. However, it is difficult to assess the contribution of the planned investments to capacity provision, since major investments are general system overhauls or new system deployments, not strongly linked to current capacity constraints.

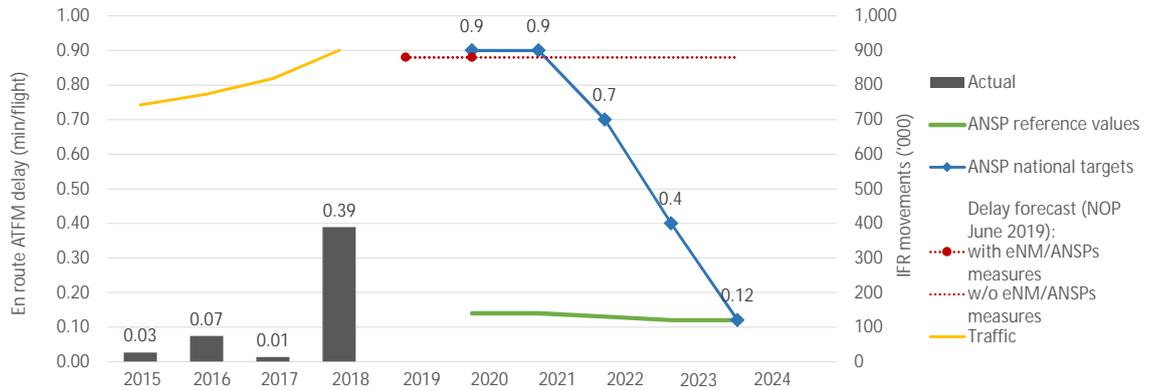
It is uncertain if the investments planned for investment #3 (MATIAS system Build 12) will be realised by the end of RP2, or if the costs for this project will be rolled forward to RP3 (given that this project is also planned for RP3).

The capacity related investment, the same way as the other enlisted ones, is complex project but it includes elements of PCP and addresses some measures related to airspace management and sectorisation introduced in the NOP 2019-2024. Cost of other new and existing investments is 70.8 M€ and 83.6 M€, respectively. The level of contribution on the capacity improvement is difficult to assess due to low level detail description provided for the investments.

3.1.5 PRB conclusions ✗

- The PRB concludes that the capacity targets proposed by Hungary should not be approved.
- National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in each year of the reference period.
 - The measures provided in the performance plan do not provide sufficient evidence that Hungary will reach the capacity targets by the end of RP3.
 - The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight



Y-on-Y change in traffic (IFR movements)	+10.9%	+4.3%	+5.8%	+10.0%					
Actual ATFM delay per flight	0.03	0.07	0.01	0.39					
ANSP reference values					0.14	0.14	0.13	0.12	0.12
ANSP national targets					0.90	0.90	0.70	0.40	0.12
Forecast with eNM/ANSPs measures*					0.88	0.88			
Forecast w/o eNM/ANSPs measures*					0.88	0.88		0.88	

* NOP June 2019

1. PP capacity target is consistent with the reference value		✗	✗	✗	✗	✓
Deviation target v. reference value (minutes per flight)		0.76	0.76	0.57	0.28	0.00
2. NOP delay forecast is lower or equal to the PP capacity target		✓	✓	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP

Description of capacity enhancement measures

There are three capacity enhancement measures outlined in the performance plan:

- Intensive recruitment of ATCOs;
- Examining the possibility of introducing a new rostering scheme;
- Resectorisation of Budapest FIR.

The capacity improvement measures outlined in Annex Q of the performance plan are not consistent with the measures outlined in the performance plan template. This is particularly significant with regards to ATCO planning, where Annex Q of the performance plan indicates more ATCO FTEs for all RP3 years than what is provided in the respective table of the performance plan template. Annex Q of the performance plan is not referenced in the performance plan template, thus, for the assessment, values provided in the performance plan template are used.

Certain investment projects are indicated as having positive effects on capacity, however they are not mentioned under capacity enhancement measures.

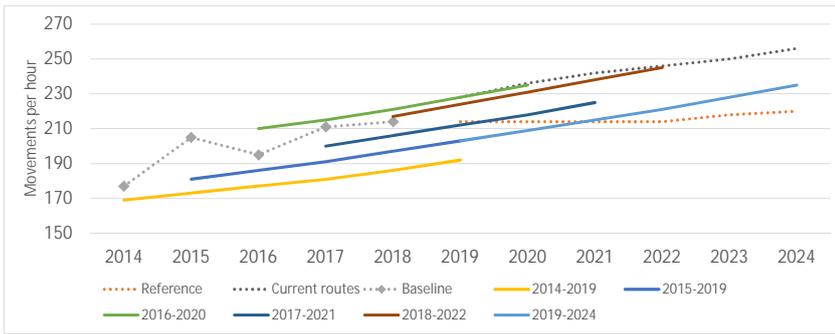
ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Budapest ACC (LHCC)	Additional ATCOs in OPS to start working in the OPS room	4	5	8	9	11	11	11	+31
	ATCOs in OPS to stop working in the OPS room	5	4.9	4	2	5	4	4	
	ATCOs in OPS to be operational at year-end	97	97	101	108	114	121	128	
Total - HungaroControl (en-route)	Additional ATCOs in OPS to start working in the OPS room	4	5	8	9	11	11	11	+31
	ATCOs in OPS to stop working in the OPS room	5	4.9	4	2	5	4	4	
	ATCOs in OPS to be operational at year-end	97	97	101	108	114	121	128	

3.2.3 Existing and previous ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC)



Budapest ACC (LHCC)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						214	214	214	214	218	220
Current routes						228	236	242	246	250	256
Baseline	177	205	195	211	214						
2014-2019	169	173	177	181	186	192					
2015-2019		181	186	191	197	203					
2016-2020			210	215	221	228	235				
2017-2021				200	206	212	218	225			
2018-2022					217	224	231	238	245		
2019-2024						203	209	215	221	228	235

- Historical data shows capacity plans throughout RP2 were always planned from actual baseline with a steady 3% increase, irrespective of the traffic forecast. Actual baseline values also show a drop in capacity profiles from 2015 to 2016, which was recovered again in 2017.

- Latest planned profile - although it exceeds the reference profile as of 2021 and stays above those values for the remainder of the period - is consistently below the current routes profile for the entire RP3, with an average difference of -9.96%. This means, that if traffic flows remain the same, the ANSP will not be able to reach the capacity targets. There is a drop planned from the 2018 actual baseline profile in the latest capacity plans: capacity profiles will only reach the 2018 actual level in 2021.

- Latest delay forecasts by the NM are below the national targets in the first two years of RP3. As from the 3rd year of the reference period, the target values drop steeply below the NM delay forecast, and settle on the reference value for the last year. This creates a significant difference between the forecasted and the planned delay values for the last two years of the reference period. This indicates, that significant capacity improvement measures need to be put in place from 2021.

- There is an inconsistency in the performance plan between planned capacity profiles and capacity targets. In particular, the steep drop in delays from 2022 is not reflected in the planned capacity profile, which indicates a steady 3% capacity increase for all years of RP3. Also the planned increase in the number of ATCOs in OPS is not reflected in the planned capacity profiles.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures



Review of the special events leading to higher delays in some years of RP3

The performance plan contains no evidence, explanation or justification whatsoever regarding special events in relation to the capacity targets. In the latest NOP, there is one significant event listed for 2023, but without any reference to the effects it may have on capacity performance.

Review of the capacity enhancement measures related to special events

The performance plan contains no measures related to special events.

3.2.5 Review of the measures to increase capacity and address capacity gaps ✘

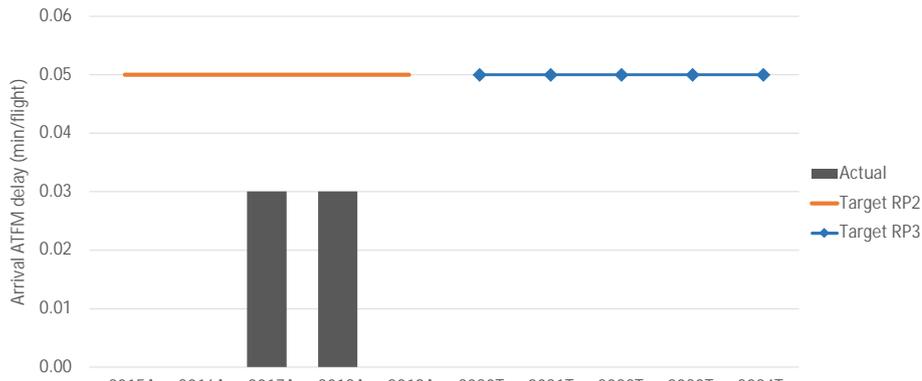
- | | | |
|----|--|-----|
| a) | Performance plan contains additional capacity enhancement measures planned to address the gap closure
In addition to what is described in the NOP, the performance plan template and its Annex Q give reference to an improved rostering mechanism to be implemented. The reference is, however, very vague. | ! |
| b) | Measures proposed by the NM are implemented in the Performance Plan
The performance plan does not refer to the implementation of eNM/ANSPs proposed measures. Otherwise, the measures are in line with those of the NOP. Annex Q of the performance plan provides figures regarding the maximum number of sectors, which are not consistent with the values provided in the NOP. If difference is the result of including the KFOR sector in the figures in Annex Q of the performance plan, than the figures are not consistent with the NOP. | ✘ |
| c) | The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM
n/a | n/a |
| d) | The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values
There is no indication in the performance plan of any additional measures proposed by the NSA. | ✘ |
| e) | Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)
Staffing plans outlined in the performance plan may adequately address the capacity gap closure, if successfully implemented. The number of new ATCOs to be brought into operations is between eight and eleven each year. The performance plan provides no information regarding how the risks associated with this are going to be mitigated. Planned capacity profiles do not indicate that the increase in ATCO numbers will enable HungaroControl to close the capacity gap. | ✘ |
| f) | Flexible use of operational staff is planned and ensured
There is reference in the performance plan to an improved rostering mechanism which would enable a more flexible use of ATCO working hours. This is not considered as sufficient evidence that the flexible use of operational staff is ensured. | ✘ |
| g) | Limitations of ATM system/infrastructure is mitigated
The performance plan contains no reference to ATM system/infrastructure limitations as regards to capacity. However, the performance plan contains investments into ATM systems/infrastructure, which address certain capacity improvements as well. | ✔ |

3.2.6 PRB Key Points ✘

- Proposed targets are not following the reference values for the first four years of the reference period. Proposed targets for the first two years of RP3 are higher than the NOP forecasted values. However, there is an improvement over the period and for the last year, the planned target is equal to the reference value.
- Existing capacity plans indicate that Hungary may face a capacity gap over RP3 if traffic flows continue to follow current routes.
- There is inconsistency in the performance plan regarding capacity enhancement measures. Descriptions of measures are not detailed enough, and do not provide sufficient evidence that Hungary will be able to reach the capacity targets, especially in the last year of the reference period. The current NOP indicates that the increase in ATCO numbers was not taken into account in the current capacity plan.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



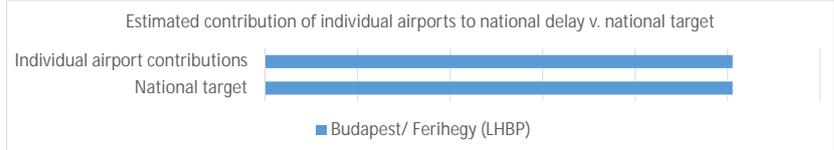
	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.00	0.00	0.03	0.03	-	0.05	0.05	0.05	0.05	0.05
Budapest/ Ferihegy (LHBP)	0.00	0.00	0.03	0.03	-	0.05	0.05	0.05	0.05	0.05

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Hungary (or its only airport in the performance plan, Budapest) registered zero or very low delays during RP2. The target proposed for RP3 is constant and equal to the target in RP2 (0.05 minutes per arrival). This is in line with past performance and allows for a small margin in the delays.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Budapest/ Ferihegy (LHBP)	0.05
National Target	0.05



As Budapest is the only airport included in the performance plan, the national target coincides with the airport target and the potential delay contribution is only associated to this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Budapest/ Ferihegy (LHBP)	GROUP III	0.25	0.02	-0.23	0.05	-0.20

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Arrival ATFM delay at Budapest airport was very low compared with similar airports, showing no capacity constraints. The proposed target for RP3 continues in the same line.

3.3.5 PRB Key Points

- The target proposed for RP3 is constant and equal to the target in RP2 (0.05 minutes per arrival).
- Arrival ATFM delay at Budapest airport was very low compared with similar airports, showing no capacity constraints. The proposed target for RP3 continues in the same line.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±2.5%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.14	0.14	0.13	0.12	0.12
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.90	0.90	0.70	0.40	0.12
Pivot values for RP3	0.90	0.90	0.70	0.40	0.12

Threshold review

Threshold is symmetrical around pivot value, although the pivot value has no relationship to reference values published in the NOP for years 2020-2023. The pivot value is based on national performance plan targets.

Modulation review

No modulation of pivot values is foreseen.

Review of financial advantages/disadvantages

Both maximum bonus, and maximum penalty are fixed at 0.5% of revenue. Bonus is triggered at 0.878, and full bonus due at 0.85 minutes per flight (527% and 507% of reference value published in NOP). Penalty is triggered at 0.923 and full penalty due at 0.95 minutes per flight (559% and 578% of reference value published in NOP). NOP delay forecast is 0.88 minutes per flight for 2020-2024, which falls within the dead band.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±25.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.025	±0.025	±0.025	±0.025	±0.025
Performance Plan targets	0.05	0.05	0.05	0.05	0.05
Pivot values for RP3	0.05	0.05	0.05	0.05	0.05

Threshold review

The terminal incentive scheme establishes a dead band of ±25% that allows for small variations in performance with no associated bonuses/penalties.

Modulation review

Hungary has decided to not modulate the pivot values for the terminal incentive scheme.

Review of financial advantages/disadvantages

The scheme is symmetric. The maximum bonus/penalty is only 0.5%. Nevertheless, the maximum penalty would be applied as of 0.075 min/arr, which is still well below the median performance of similar airports.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ⚠

En route:

- Pivot value is based on national performance plan targets (between 2020 and 2023 delay values are 0.90-0.40 minutes per flight) and there is no foreseen modulation. The NOP delay forecast is 0.88 minutes per flight for 2020-2024, which falls in the dead band.
- Both maximum bonus, and maximum penalty are fixed at 0.5% of revenue.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

- Hungary has decided to not modulate the pivot values for the terminal incentive scheme.
- The scheme is symmetric with maximum bonus/penalty being only 0.5% and a dead band that allows or small variations in performance with no associated bonuses/penalties.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

RP3 investment ratio ER/TRM



		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	29.4	35.6	36.8	41.0	43.2	186.0	
	En route	M€ (nominal)	24.4	28.5	27.8	29.7	31.6	142.0
	Terminal	M€ (nominal)	5.0	7.1	9.0	11.3	11.6	44.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State. The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	New MATIAS system (ANSIII, ANSI, TTF), new simulator	The new MATIAS system fulfills the remaining PCP regulations with the new FDP and HMI capabilities. By this development the system will be able to exchange flight information during the pre-tactical and tactical phases by ATC systems and Network Manager using the yellow SWIM Profile. Also the required services will be implemented to support the exchange of flight information using the blue SWIM Profile. The new FDP will be designed to process the air derived flight data provided through ADS-C EPP service. This includes potential interface with the datalink system to access to the aircraft flight data. New Trajectory Prediction sub system will also be developed to integrate such additional information. Air Ground communication capability will need to be upgraded to allow an increased capacity for new foreseen exchanges. A new MATIAS system will also have contingency, test and simulator capabilities and HungaroControl plans to use that in the KFOR (Kosovo) Sector as well.	54.0	Yes	No	0.7	0.1
2	MATIAS Build 13 ANS I HW replacement PCP, new TWR interface	One of the purpose is the replacement of the current hardware and upgrade the software of the Business continuity center. New TWR interface will be implemented to the integrated TWR system (see point Investment 4) There will be basic implementation of SWIM yellow profile and further enhancement is planned in the functionality in relation of the PCP Family 3.2.1. (Upgrade of ATM systems to support DCT & Free Route) and Family 2.3.1. (Time Based Separation).	18.0	Yes	No	7.2	1.2
3	MATIAS system Build 12	The main aim of the asset is to further develop the Hungarian ATS system (MATIAS) in order to fulfill the requirements of the Pilot-Common-Project Regulation AF3 and AF4 requirements. This Implementation Project aims to upgrade HungaroControl ATM system, to: - ASM Management of real time airspace data: Adapt ATM systems to exchange airspace reservation (ARES) messages containing real time (tactical) activation status of predefined airspace structures with local ASM support systems and to display airspace status data at the CWP. - Management of Dynamic Airspace Configurations: Basic system improvements supporting the management of dynamic airspace configuration - Interface ATM systems to NM systems: Upgrade the ATM system with the capability to receive and process EFPL information via FF-ICE/1 and develop the associated procedures. Also important part of the asset is the replacement of the current hardware of the MATIAS system in Budapest ATS center.	17.8	Yes	Yes	12.3	2.0
4	A-SMGCS integrated upgrade	The main objective of the asset is to implement and synchronize necessary infrastructure – via software upgrades and/or installations of the current ATM system - that will result in an operational and state-of-the-art integrated tower ATM system. Implementation of a new operational and contingency TWR system, as an upgrade of HungaroControl's existing A-SMGCS system.	7.2	Yes	No	0.0	3.2
5	ATM Backup System Build 1	Currently there is an old legacy home-developed ATM backup system in operation in Budapest ATS centre. Any further development is impossible for that. Therefore the aim of the asset is to develop and implement a new ATM backup system to ensure continuous capability to maintain the unchanged level of safety of ATC service provision during the evacuation of the airspace in case of major failure of the main ATM system. Further very important aims of the new ATM Backup system to display the drone operations for the air traffic controllers and to provide actual operational ATC information for the ATC during the normal regular operation. The new ATM Backup system will also have new contingency, test and simulator capabilities and HungaroControl plans to use that in the KFOR (Kosovo) Sector as well.	5.4	Yes	No	3.1	0.5
Total:						23.3	7.0

Airspace user feedback regarding major investments

The airspace users expressed their concern regarding the useful life of major investments, which is considered rather short. It should be in line with the Eurocontrol standards.

Review of investments

New major investments represent 16% of the total determined costs of investments over RP3. The sum of the determined costs for investments for RP3 is higher than the total value of the assets for investment #3, MATIAS system Build 12. This is possibly due to a mismatch between the lifecycle of the assets and the depreciation costs for the investment. The RP2 plan was fully delivered, except for one investment: MATIAS system Build 12 (actual CAPEX was lower than originally planned by the end of 2018). The 2015-2018 actual CAPEX is 103% of the planned one for the same period and the overspend amounts to 1.7M€. However, it is uncertain if the investments planned for MATIAS system Build 12 will be realised by the end of RP2 or if the costs for this project will be rolled forward to RP3 (given that this project is also planned for RP3).

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
----	------------------------------	--------------------------------------	--------------------	----------------------------------

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	100.0	97.8	5.6	11.2	15.1	18.9	20.0	70.8
Existing investments			22.6	20.2	15.3	13.0	12.4	83.6

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 38% of the total determined costs of investments over RP3 and existing investments represent 45%. HungaroControl does not provide details regarding the investments. HungaroControl claims that part of these investments are required by regulation, part of them are SESAR-related, a third category is where investments are necessary for the on-going business (such as furniture and fixtures, building- and IT-related investments, extension or renewal of existing buildings and machinery -including CNS equipment). Other investments in general are instrumental in providing business continuity. Procurement of new assets is regulated by company policy to ensure cost-effectiveness.
--	---

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand ✔
- It is difficult to assess the contribution of the planned investments to capacity provision, since major investments are general system overhauls or new system deployments, not strongly linked to current capacity constraints. Investments into back-up systems and business continuity centre are justified by safety reasons, not capacity.
- Investment #1 (New MATIAS system (ANSIII, ANSI, TTF), new simulator) - not enough information to assess the link to capacity improvements. The project, however, supports implementation of capacity-related functionalities;
 - Investment #2 (MATIAS Build 13 ANS I HW replacement PCP, new TWR interface) - technical enabler. Not enough information to assess the link to capacity improvements. The project, however, supports implementation of capacity-related functionalities;
 - Investment #3 (MATIAS system Build 12) - complex project supporting capacity improvement functionalities, overhaul type of project;
 - Investment #4 (A-SMGCS integrated upgrade) - may support capacity improvements. The project addresses many PCP ATM functionalities relevant to Capacity KPA. More information is needed to assess the contribution;
 - Investment #5 (ATM Backup System Build 1) - neutral contribution, not relevant to the Capacity KPA;
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ⓘ
- Planned investments enter into operation as of mid-2021. This means that, considering also a ramp-up period until benefits are fully delivered, capacity improvements will be enabled from 2022 onwards. The performance plan contains little information about ATS system functionalities to be deployed and its effect on capacity. Main measures described under capacity targets are not at all referenced / related to investments described in investment plans.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ⓘ
- It is difficult to identify capacity related capital expenditure based on the investment plans (see also 3.a and 3.b). Planned investments into ATS systems are perceived as reasonably scheduled, taking into account the time needed to fully implement such complex systems.

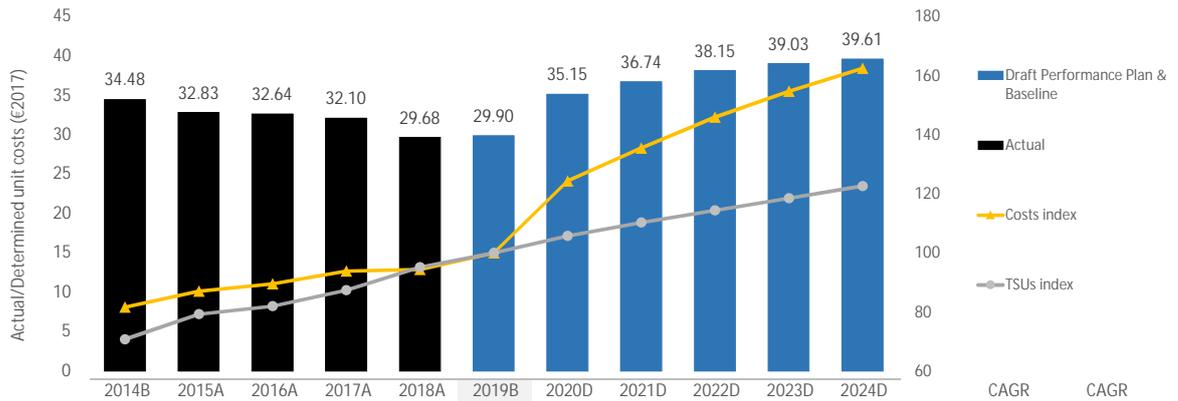
3.5.4 PRB conclusions ⓘ

- It is uncertain if the investments planned for investment #3 (MATIAS system Build 12) will be realised by the end of RP2, or if the costs for this project will be rolled forward to RP3 (given that this project is also planned for RP3).
- Other new investments represents a large portion of RP3 investments costs (37%), however detailed information is not provided.
- The contribution of investments to capacity is unclear and more details are needed.

HUNGARY

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MHUF (nom)	25,086	26,757	27,629	29,492	30,337	-	42,004	46,832	51,729	56,137	60,373	-	+9.2%
Total costs	MHUF (2017)	25,652	27,347	28,141	29,492	29,677	31,427	39,061	42,581	45,883	48,619	51,071	+10.2%	+7.1%
TSU	'000	2,408	2,696	2,790	2,973	3,236	3,402	3,597	3,751	3,892	4,031	4,173	+4.2%	+5.7%
AUC/DUC	HUF (2017)	10,654	10,144	10,085	9,919	9,169	9,238	10,860	11,352	11,789	12,060	12,239		
Exchange rate	HUF:€				308.993									
AUC/DUC	€ (2017)	34.48	32.83	32.64	32.10	29.68	29.90	35.15	36.74	38.15	39.03	39.61		
Annual change	%		-4.8%	-0.6%	-1.7%	-7.6%	+0.7%	+17.6%	+4.5%	+3.8%	+2.3%	+1.5%	+5.8%	+1.4%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	29.90 €2017	✗
<p>The 2019 traffic (TSUs) baseline informing the DUC baseline is based on the STATFOR 2019 February High forecast which represents a +6.4% traffic increase with respect to 2018. Justification is provided in the performance plan, however the traffic evolution to date (-2.9% up to the end of September) does not support the choice of baseline which would imply a traffic increase of +31.9% for the months of October to December 2019 with respect to the same period of 2018.</p> <p>Hungary has applied the linear regression methodology using the actual costs of the 2015-2018 period for the calculation of the 2019 cost baseline, however it has added 0.7M€ corresponding to the re-introduction of an early retirements scheme. The addition of these costs to the baseline is questionable (see 'Baseline analysis' in 4.3.2).</p>		

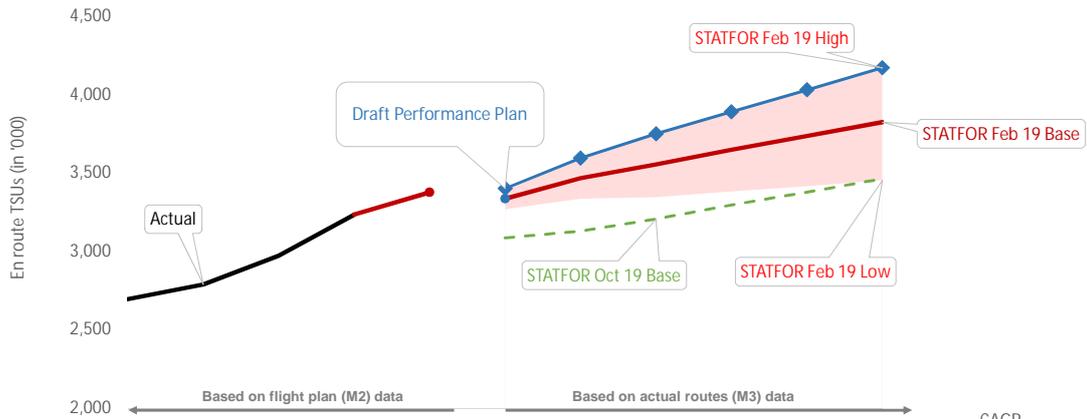
4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	+5.8%	✗
Hungary does not meet the RP3 assessment criteria, with an RP3 trend of +5.8% p.a.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	+1.4%	✗
Hungary does not meet the long-term (RP2+RP3) assessment criteria, with a long-term trend of +1.4% p.a.		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (42.16 €2017)?	-29.1%	✓
Hungary meets the DUC level assessment criteria, with a DUC 2019 baseline -29.1% lower than its comparator group. Despite the strong increase over RP3, the DUC at the end of the period (2024) would still be -1.2% lower than its comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB conclusions

<p>The PRB concludes that the cost-efficiency targets proposed by Hungary should not be approved.</p> <ul style="list-style-type: none"> - Hungary does not meet neither the Union-wide RP3 DUC trend nor the Union-wide long term trend criteria. - Hungary DUC level in 2019 is below the average of the comparator group. - Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed. 	✗
--	---

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	2,696	2,790	2,973	3,236								
Annual change	%		+3.5%	+6.6%	+8.8%								
STATFOR Feb 19 Base	'000 TSUs					3,378	3,337	3,468	3,555	3,650	3,737	3,826	+2.8%
Annual change	%					+4.4%	+3.1%	+3.9%	+2.5%	+2.7%	+2.4%	+2.4%	
STATFOR Oct 19 Base	'000 TSUs					-	3,088	3,130	3,208	3,298	3,379	3,465	+2.3%
Annual change	%					-	-4.6%	+1.4%	+2.5%	+2.8%	+2.5%	+2.5%	
Performance Plan	'000 TSUs					3,402	3,597	3,751	3,892	4,031	4,173		+4.2%
Annual change	%						+5.1%	+5.7%	+4.3%	+3.8%	+3.6%	+3.5%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	3,402		
2019F (as in the Reporting tables, M2)	3,402		
2019B/ 2019F	0.00%	-1.22%	-1.19%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
	L	B	H	
2019B (PP baseline, M3)		3,402		
2019F (STATFOR Feb 19, M3)	L 3,268	B 3,337	H 3,401	+1.9%
2019F (STATFOR Oct 19, M3)	L 3,075	B 3,088	H 3,097	+10.2%

- The 2019 traffic baseline used in the performance plan is the same as the 2019 forecast in the Reporting Tables despite the fact that they should be calculated according to M3 and M2 methodologies respectively. The Reporting Tables should be amended to reflect the M3/M2 coefficient.
- Hungary uses a 2019 traffic baseline in line with the STATFOR February 2019 High forecast, which is +1.9% higher than the February base forecast and +10.2% higher than the October base forecast and represents a +6.4% traffic increase with respect to 2018 (when using M3 2018 actual values).
- The justification for this choice of baseline can be seen below under section 4.2.3 of this document.
- The year to date (up to the end of September) traffic evolution shows a decrease in traffic of -2.9% compared to the same period of 2018. The baseline chosen by Hungary would imply a traffic increase of +31.9% for the months of October to December of 2019 compared to the same period of 2018.
- Despite the justifications provided, the choice of 2019 traffic baseline does not seem realistic considering the traffic evolution to date.

4.2.3 Review of the PP traffic forecast



✘ Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

The main factors cited by Hungary in the Annex D of the performance plan for choosing the high scenario of the STATFOR February 2019 are:

- The growth potential of low-cost carriers, which have a higher market share in CEE countries than in Western Europe. In particular, they cite the ongoing expansion by Wizzair being their number one partner.
- The effect of the new Istanbul airport which, in their opinion, is underestimated by STATFOR. The planned narrow body fleet expansion by Turkish Airlines is provided as supporting evidence.
- The fact that Budapest airport is not capacity constrained and that new secondary airports are included in the network. They consider that the flights for these secondary airports are missing from the STATFOR forecast.
- They expect the recovery of Russian traffic to Mediterranean touristic destinations to be stronger than assessed by STATFOR. They also expect tourism from China to CEE countries to stay strong.
- From March 2020 LOT Airlines will offer 12 destinations from Budapest airport. This was communicated after the STATFOR forecast was published.
- The possible expansion of the EU to western Balkan States which they consider an upside risk compared to the STATFOR base scenario.
- The historic underestimation by STATFOR of the Hungarian traffic during RP2.
- Hungary also refers to the recommendation of the NM included in the NOP 2019-2024 (dated June 2019) of planning according to the high traffic growth.

Review of the PP traffic forecast

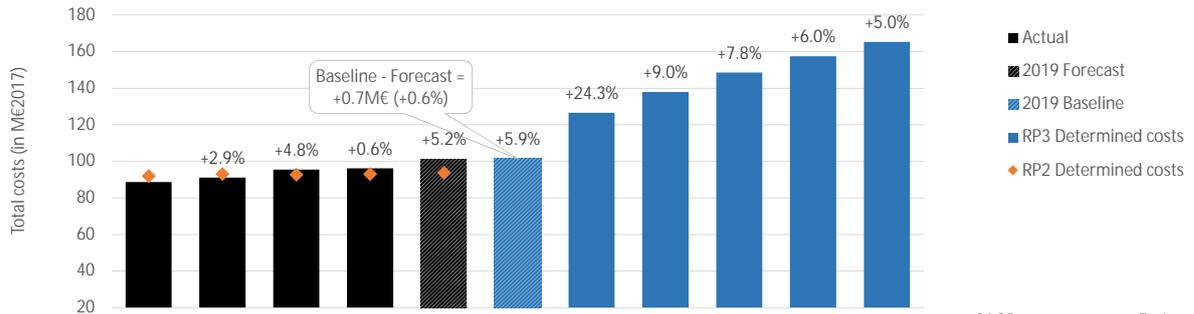
- During RP2, the traffic growth in Hungary was indeed consistently more aligned with the high STATFOR scenarios than the base scenarios, however this happened in a context where Hungarocontrol was capable of accommodating this increasing demand without generating significant delay.
- This reached a tipping point in 2018 when, as recognised in the performance plan, in spite of the significant effort made by Hungarocontrol during RP2, it reached its capacity limit with the current airspace structure, ATM system and number of controllers and delays reached 0.39 min/flight.
- The situation has deteriorated in 2019 when, despite the traffic decrease during the summer, the year to date (up to September) delays have more than tripled in Hungary with respect to the same period of 2018 reaching 2.05 min/flight.
- According to the performance plan, the capacity-enhancing measures planned by Hungary are not likely to take effect and reduce delay before 2023.
- Considering the situation above, it seems unlikely that the factors that caused the traffic decrease in Hungary in 2019 (capacity constraints, eNM measures and potential economic slowdown) will not have an effect on airlines' choices and traffic flows in the coming years.
- The choice of forecast made by Hungary is not fully consistent with the latest developments and forecasts.

4.2.4 PRB Key Points



- The choice of the traffic forecast for the baseline and the entire RP3 suggested by Hungary is not fully justified and does not seem realistic considering the traffic evolution to date.

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MHUF (nom)	26,757	27,629	29,492	30,337	32,700	-	42,004	46,832	51,729	56,137	60,373	-	HUF:€
Annual change	%	-	+3.3%	+6.7%	+2.9%	+7.8%	-	-	+11.5%	+10.5%	+8.5%	+7.5%	-	308.99300
Inflation index	2017 = 100	97.3	97.7	100.0	102.9	106.1	106.1	109.4	112.7	116.0	119.5	123.1	+3.0%	-
Total costs	MHUF (2017)	27,347	28,141	29,492	29,677	31,226	31,427	39,061	42,581	45,883	48,619	51,071	+10.2%	-
Annual change	%	-	+2.9%	+4.8%	+0.6%	+5.2%	+5.9%	+24.3%	+9.0%	+7.8%	+6.0%	+5.0%	-	-
Total costs	M€ (2017)	89	91	95	96	101	102	126	138	148	157	165	+10.2%	-

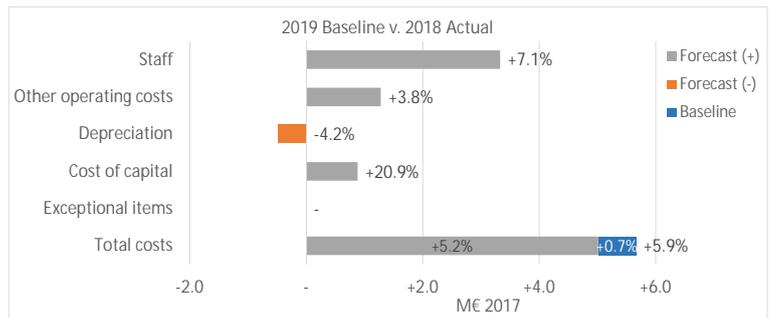
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

- The inflation percentage submitted by Hungary in its performance plan differs from the IMF April 2019 forecast for the year 2019 (3.233% by IMF v. 3.10% in the performance plan) and is consistent with IMF forecast for the 2020-2024 period. The index deviation by 2024 is only 0.01 p.p.
- Had the IMF forecast been used, the overall determined costs for the 2019-2024 period would be -0.3M€2017 lower.

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+5.0	+5.2%
2019F v. 2019 RP2 DC	+7.4	+7.9%
2019F v. average 2015-2018	+8.3	+8.9%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.7	+0.6%



2019 forecast analysis

- The 2019 forecast costs are +5.0% above the 2018 actuals (in real terms) and +7.9% higher than the planned RP2 determined costs.

2019 baseline analysis

- The 2019 cost baseline is +0.6% (or 0.7M€2017) higher than the 2019 forecast.
- Hungary has applied the linear regression methodology using the actual costs of 2015 to 2018 for the calculation of the 2019 cost baseline. The use of this methodology was supported by the airspace users in their response to the draft performance plan presented during the stakeholder consultation meeting on the 31 July 2019.
- However, Hungary has added the cost of the introduction of an occupational early retirement scheme to the baseline resulting from the linear regression. According to the performance plan, the justification for this is that a statutory early retirement scheme was already part of the cost base for RP2 but was terminated by law at the end of 2014. The non-incurred costs will be reimbursed to users as part of the cost-exempt from cost sharing mechanism. Hungary considers necessary to re-introduce an early retirement scheme and has added to the 2019 baseline the same costs that were initially planned for the RP2 2019 cost base in the terminated statutory scheme.
- The inflation in the performance plan for 2019 is lower than the IMF forecast from April 2019 (3.1% instead of 3.233%). Had the IMF inflation been used, the 2019 cost baseline would be -0.10M€2017 lower.

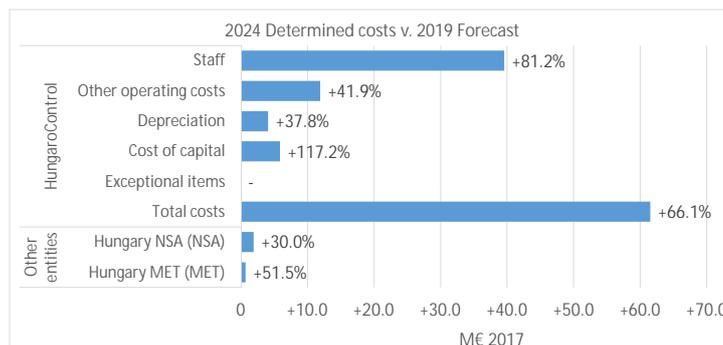
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 🚩 Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- ANSP costs in 2024 are +66.1% (or 61.5M€2017) higher than in 2019. Although there are significant increases in all cost categories, the main drivers for the overall increase are staff costs (+81.2%, or 39.6M€2017) and other operating costs (+41.9% or 11.9M€).

- Staff costs are planned to increase strongly for ATCO and non-ATCO staff. The increase in ATCO costs is due to the strong recruitment planned for the period but also to the increase in salaries, which, according to the performance plan, is justified to prevent "ATCO drain" from other ANSPs. For non-ATCO staff, the performance plan cites the need to retain resources in response to the pressure of the Hungarian labour market and also due to wages being lower when compared regionally.

- For other operating costs, the main driver are the training costs for the large intake of ATCOs planned over the period.

- Depreciation costs correspond, according to the performance plan, to the investments planned for the period in response to the current capacity situation.

- It should be recognised that during RP2 (2015-2018) Hungary absorbed a very significant traffic increase, on average, +20.7% higher than foreseen in the RP2 performance plan (+31.9% in 2018). Despite the fact that the traffic threshold for revising the performance plan was surpassed already in 2016, Hungary did not revise its plan and kept its costs almost in line with the RP2 determined costs throughout the period (+1.2% higher than planned on average over the period, in real terms).

4.3.4 PRB Key Points

- The inflation in the performance plan for 2019 is lower than the IMF forecast from April 2019. In case of using the IMF inflation the 2019 cost baseline would be 0.10M€2017 higher.

- The 2019 cost forecast proposed by Hungary is 5.2% above the 2018 value. This is due to planned recruitment and training of ATCO and non-ATCO staff as well as increase in salaries (to prevent "ATCO drain" to other ANSPs). The 2019 cost baseline is +0.6% (or 0.7M€2017) higher than the forecast.

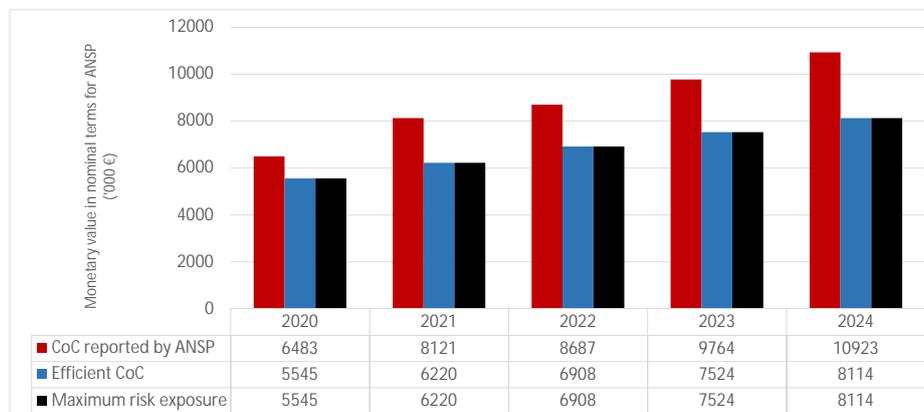
- However, Hungary has added the cost of the introduction of an occupational early retirement scheme to the baseline which should not be considered. Indeed, it is not clear when the scheme will be introduced and the costs should be treated as a genuine RP3 cost.

- Hungary could have revised the performance plan already in 2016. Hungary absorbed a traffic increase 20.7% higher than planned while keeping the costs only +1.2% higher than planned, in real terms, and even lower in nominal.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	126,024	141,365	157,004	171,010	184,414
Monetary value of Return on Equity	6,483	8,121	8,687	9,764	10,923
Ratio RoE/DC (%)	5.1%	5.7%	5.5%	5.7%	5.9%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	938	1901	1779	2239	2809

Total 2020-2024	9,665
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	8.1%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	8.1%	6.9%	8.1%	6.2%	8.1%	6.4%	8.1%	6.2%	8.1%	6.0%

Is the interest on debts in line with the market? n/a

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 9.66M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 5.1%-5.9%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	110,354	131,650	113,263	124,425	136,817
Net current assets	-29,503	-30,752	-5,481	-3,289	-1,295
Adjustments total assets	-421	-143	0	0	0
Total asset base	80,430	100,754	107,782	121,137	135,522

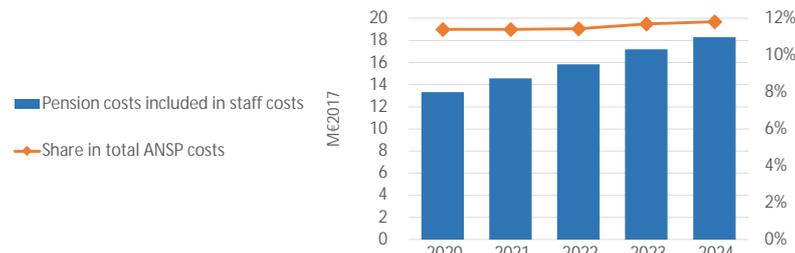
- The fixed asset base will slightly increase over the period in line with the investments described in section 3.5 of this document.
- The RAB includes small adjustments for the two first years of the period. These adjustments consist the proportionate part of investment financed by the EU community funds received before the company was established in 2007.
- The net current assets are negative, due to the ANSP holding no liquidity and/or owing expenses that include under-recoveries from previous years.
- The total asset base will increase over RP3, mostly due to a reduction in the negative adjustments.

4.3.A.5 PRB Key Points

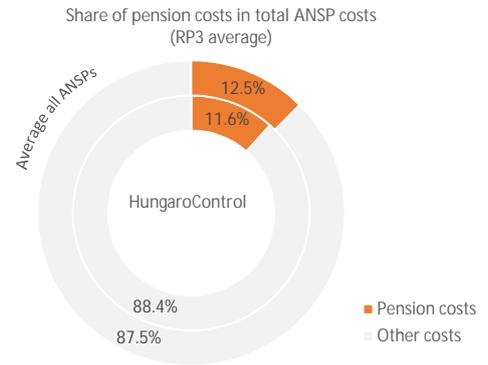
- The reported cost of capital is 9.66M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 5.1%-5.9%).



4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	13.3	14.6	15.8	17.2	18.3
Year on year variation	% change		+9.5%	+8.7%	+8.6%	+6.2%
Share in total ANSP costs	%	11.4%	11.4%	11.4%	11.7%	11.8%
Year on year variation	p.p.		0.0p.p.	0.0p.p.	0.3p.p.	0.1p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Slightly lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **n/a**

No defined benefit pension scheme.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

Social contribution tax - 17,5% of income wages and certain fringe benefits - no expected changes during RP3.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

Contributions for ATCO

- contribution_A1 - 9,3% of yearly base salary
- contribution_A2 - 3,7% of yearly base salary and 326577 Ft fix amount increased by yearly inflation rate
- contribution_A3 - 430700 Ft fix amount increased by yearly inflation rate
- contribution_A4 - 13% of yearly wage cost

Contribution for non-ATCO

- contribution_nA1 - 435400 Ft fix amount increased by yearly inflation rate
- contribution_nA2 - 340-350mFt/year for all non-ATCO employees - terms to be determined in 2019

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

No defined benefit pension scheme.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

None provided in the performance plan. However, in 2013 HungaroControl transitioned their pension scheme from defined benefits to defined contributions which reduced the pension costs and eliminated the risk associated to the obligations of the defined benefits scheme.

4.3.B.4 PRB Key Points

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Hungary did not change the cost allocation methodology with respect to RP2.
 - The methodology for allocation of costs between en route and terminal is based on the division on the type of services (ATM, CNS, SAR, AIS, MET). The criteria provided for allocation of costs between en route and terminal are the following: common costs are allocated using the relation of the average distance flown, where ACC is 100% en route, TWR is 100% terminal. For APP, 50% of distance flown is taken into account in en route and the other half is calculated for terminal services. This allocation methodology results in a ratio of 85.94%-14.06% between en route and terminal. SAR, AIS, met are 100% allocated to en route, while the CNS ratio is also 85.94%-14.06% between en route and terminal.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes If not, what are the issues identified?
 n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
 n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a If, not what are the identified issues?
 n/a

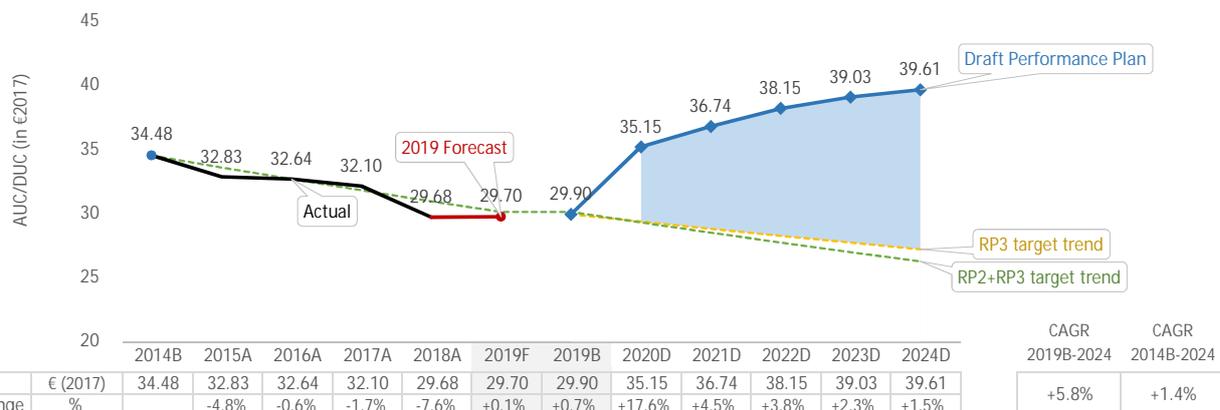
2.3. Is there an impact on the determined costs and/or baseline?

n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
 n/a

4.3.C.3 PRB Key Points ✔

- Hungary did not change the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	+5.8%	Union-wide trend	-1.9%	Difference	+7.7p.p.
PP trend	+1.4%	Union-wide trend	-2.7%	Difference	+4.1p.p.
PP 2019 baseline	29.90	Average comp. group	42.16	Difference	-29.1%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Hungary does not meet the RP3 or the long term trend criteria, with trends (+5.8% and +1.4% p.a., respectively) significantly worse than the Union-wide targets.

It is noted that the 2014 DUC baseline was affected by the start of the Ukrainian crisis, which shifted traffic patterns in South-East Europe and caused a traffic increase in Hungary of +14.6% compared to 2013 and +10.1% higher than the RP1 performance plan. Had the traffic remained in line with the Union-wide, it would have resulted in a DUC of 37.96€2017. This would improve Hungary's long-term trend to +0.4%, however still far from the Union-wide target of -2.7%.

Hungary meets the DUC level assessment criteria with a 2019 DUC baseline -29.1% better than its comparator group. Despite the strong increase during RP3, the DUC would reach 39.61€ in 2024 which is still -1.2% better than its comparator group. The DUC 2019 baseline of 29.9€2017 is calculated using the STATFOR 2019 February high forecast which, as explained in section 4.2.2, is not consistent with the latest available information. Had the base forecast been used, the DUC 2019 baseline would be 30.29€2017, which in any case is -28.2% lower than the comparator group.

Hungary requests approval of the deviation with respect to the target trends based on para. 1.4 (d)(i) of Annex IV to the Performance and Charging Regulation, i.e. in order to achieve the capacity performance targets. However, the capacity targets are not consistent (more details in section 3.2 of this document). Therefore, the deviation from cost-efficiency trends is not analysed.

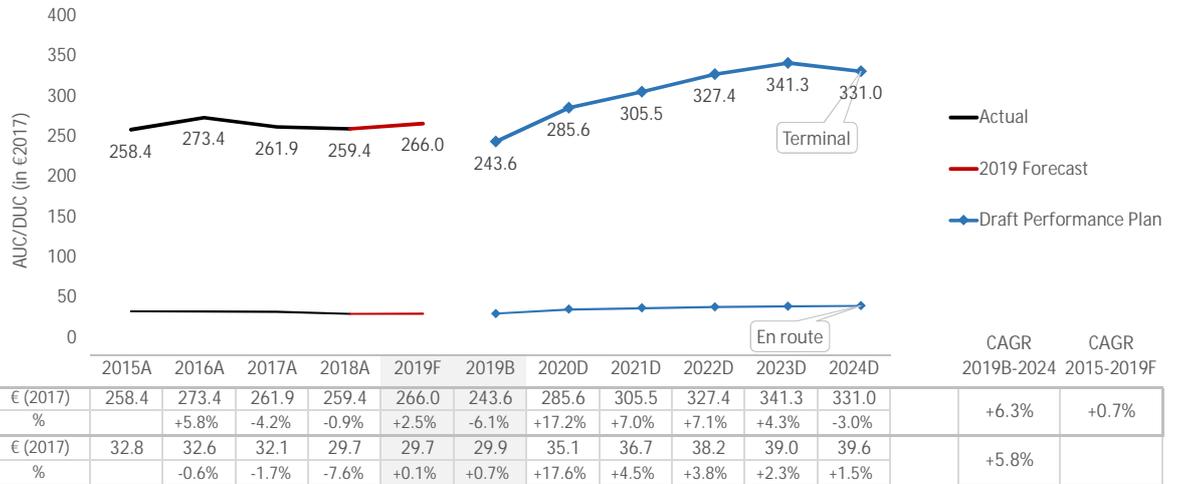
4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group, and one of the lowest Union-wide.
- Capacity targets are not consistent, therefore the cost deviation from cost-efficiency trends is not analysed.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Budapest/ Ferihegy (LHBP)	GROUP III	171.33	263.5	+53.8%	167.4	352.1	+110.3%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

- The average unit cost for Budapest airport in the 2015-2018 period was +53.8% higher than the median of its airport group in the same period.
- If the average DUC for RP3 is compared, the difference is +110.3% higher than the median DUC of the airports in the comparator group.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	78.9			
2019F (STATFOR Feb 19)	L 76.0	B 77.4	H 78.9	+1.9%
2019F (STATFOR Oct 19)	L 78.7	B 79.2	H 79.6	-0.4%

Costs

2019 forecast & baseline review	ME 2017	%
2019 Forecast v. 2018 Actual	+0.7	+3.9%
2019 Forecast v. Avg. 2015-2018 Actual	+3.2	+19.2%
2019 Baseline v. 2019 Forecast	-0.5	-2.5%

TNSUs:

- For en route, Hungary has chosen the STATFOR February 2019 high forecast. The chosen baseline represents a +7.8% traffic increase with respect to 2018 and is in line with the STATFOR October 2019 base scenario, which supports the choice made in the performance plan.

Costs:

- For en route, Hungary has applied the linear regression methodology for the calculation of the 2019 cost baseline resulting in a baseline -2.5% lower than the cost forecast. The baseline is only +3.9% higher than the 2018 actual costs but +19.2% higher than the actual average costs for the 2015-2018 period.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

- Hungary has selected the STATFOR February 2019 high forecast.
- The justifications provided in the performance plan for the choice of forecast are the growing potential of Budapest as a tourist destination together with the fact that Budapest airport is not capacity-constrained, the growth potential of low-cost carriers in the region considering that the market is not yet saturated and the fact that long haul flights with larger aircraft are also continuing to grow.

Review of the PP traffic forecast

- During RP2, the TNSUs growth in Hungary was indeed consistently aligned with the high scenario of the different STATFOR forecasts published during the period.
- Some of the limiting factors that question the choice of forecast for en route (e.g. eNM measures, en route capacity constraints) do not apply to terminal traffic since Budapest airport is not capacity-constrained and there is potential growth in other regional airports.
- However, a potential economic slowdown could affect some of the factors cited for the selection of the high growth scenario like tourism to Budapest and the expansion of low-cost carriers in the region.

Determined costs (terminal)

Is inflation in PP in line with IMF (April 2019 forecast)?

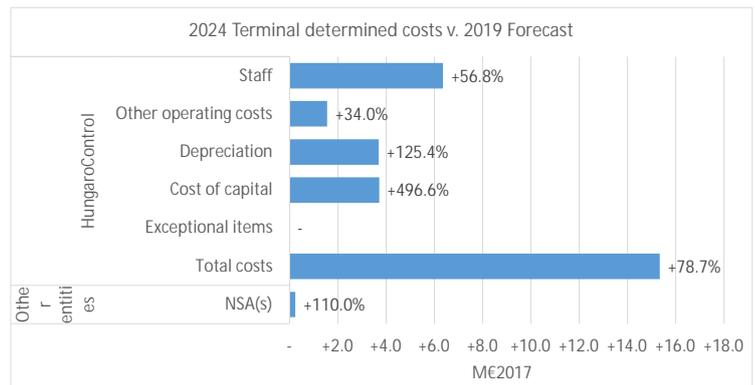
Deviation from index < 1p.p. in 2024

Cost elements - HungaroControl (terminal)

- Investments (see details in 3.5)
- Cost of capital
 - Interest on loans
 - RoE
 - WACC
- Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (24%) is higher than share of terminal costs in the total DC (18%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The RP3 terminal DUC trend is +6.3%, even higher than the en route DUC for the same period (+5.8% p.a.).
- Overall, Hungary plans to increase terminal costs by 78.7% (or 15.3M€2017) over RP3. There are very significant increases in all cost categories with similar justifications as those provided for en route.
- It is notable that, for Hungarocontrol, the share of terminal investments costs with respect to the total investments costs is 24%, whereas, the share of terminal determined costs with respect to total determined costs is only 18%.
- It is also notable that the planned terminal asset base is more than two times higher in 2024 than in 2019 leading an increase in the cost of capital to almost 500%.
- This suggests a very strong terminal investment cycle in RP3, which in the performance plan is justified by the need to keep investing in new technologies to face the traffic increase in RP3.
- More details are provided in the analysis of the terminal incentive scheme in section 3.4.2 of this document.

4.5.4 PRB Key Points

- The Terminal RP3 DUC trend is +6.3%, which is worse than the en route RP3 DUC trend of +5.8%.
- The Terminal RP3 DUC trend is +6.3%, which is worse than the Terminal RP2 DUC trend of +0.7%.
- Hungary used the STATFOR February 2019 high forecast for terminal traffic. The baseline of this forecast is higher (+1.9%) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Budapest, the only airport included in the scope of the performance plan, had a DUC 53.8% higher than the average of its comparator group over RP2. The difference is expected to become +110.3% over RP3.
- Terminal costs increase over the period, mainly due to staff costs. All categories register significant increases.
- The planned terminal asset base is more than two times higher in 2024 than in 2019 leading to an increase in the cost of capital to almost 500%, this suggests a very strong terminal investment cycle in RP3, which is justified by the need to keep investing in new technologies to face the traffic increase in RP3.

PRB Assessment

IRELAND

Draft Performance Plan

Context and scope

Ireland

Performance Plan: Draft performance plan (Article 12) Dated: 21.11.2019
 Documents no: 1641, 1752, 1624, 1627, 1625, 1626, 1249, 1251, 1255, 1266, 1257, 1271, 1264, 1267, 1250, 1253, 1256, 1248, 1268, 1270, 1246, 1258, 1269, 1263, 1259, 1254, 1245, 1252, 1650, 1745, 1746

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.0%
 % Costs V. SES 1.2%

Scope

FAB: UK-Ireland FAB

ANSPs: IAA ANSP
 Met Eireann

ANS Provision
 Meteorological services for ANS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Irish Aviation Authority Safety Regulation Division (NSA)

National Supervisory Authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Ireland	n/a	No	No	No	
Terminal	Ireland - TCZ	3	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group B Other States in the comparator group: Denmark, Finland, Norway, Sweden

Currency: € Exchange rate: 1.00000

1. Safety ✓

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
IAA	Safety policy and objectives	C	C	C	C	C
	Safety risk management	D	D	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Ireland should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The relevant measures demonstrating how the ANSP will improve Safety Risk Management area are sufficiently described.
- The PRB notes that interdependencies between safety and other KPAs are described and it is explained how safety will be addressed when implementing the changes to the ATM Functional system, which may be required to achieve other performance targets.
- The change management processes and transition plans to minimize the network impact of planned changes are described.

2. Environment ✓

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.56%	1.54%	1.53%	1.53%	1.53%

PRB Assessment

The PRB concludes that the environment targets proposed by Ireland should be approved.

- IAA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✓

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.07	0.07	0.07	0.04	0.03
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.25	0.25	0.20	0.20	0.20

PRB Assessment

The PRB concludes that the capacity targets as proposed by Ireland should be approved.

- Existing capacity plans indicate that Ireland has sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes, that terminal capacity incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency ✗

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	29.23	29.78	29.88	29.94	30.17	+1.4%	+2.7%
Target for determined unit cost (DUC) (€2017) - Terminal	169.33	184.46	190.50	189.90	188.84	n/a	+7.7%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Ireland should not be approved.

- Ireland is only consistent with the DUC level of the average of the comparator group.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.
- Ireland does not demonstrate that the deviations from the trend targets due to restructuring costs are providing a net financial benefit to the users. Moreover, the cost of the restructuring measures are not fully justifying the deviations from the cost-efficiency trends.

PRB Recommendations

ENVIRONMENT

- Ireland should continue to support its neighbours in delivering a free route airspace that extends beyond its own borders.

CAPACITY

- Ireland should revise the terminal capacity incentive scheme so that it has a material impact on the revenues and motivates the ANSP to improve its performance.

COST-EFFICIENCY

- Ireland should decrease the RP3 costs in order to meet the cost-efficiency criteria.
- Ireland should clarify the eligibility of the suggested restructuring costs within the RP3 performance plan context.
- Ireland should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends, or should revise terminal RP3 cost-efficiency targets downwards.

IRELAND

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained in 2020.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan describes relevant safety measures, derived from Eurocontrol CANSO Standard of Excellence in Safety Management Systems, in the area of safety risk assessment that needs to be improved in terms of maturity.

1.1.3 Interdependencies and Trade-offs

The draft performance plan describes the mechanism to manage an interdependency between safety and other KPAs, while implementing the changes to ATM Functional system, that are compliant with the Commission Implementing Regulation (EU) 2017/373. The mechanism, as described in the draft performance plan, is adequately explained ensuring that safety will not be deteriorated.

1.1.4 Change Management

The draft performance plan describes the change management practices to ensure minimum impact on network performance. It is considered that the change management practices are explained adequately.

1.1.5 PRB Conclusions

The PRB concludes that the safety targets proposed by Ireland should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The relevant measures demonstrating how the ANSP will improve Safety Risk Management area are sufficiently described.

The PRB notes that interdependencies between safety and other KPAs are described and it is explained how safety will be addressed when implementing the changes to the ATM Functional system, which may be required to achieve other performance targets. The change management processes and transition plans to minimize the network impact of planned changes are described.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
IAA	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	D	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained already in 2020.

The draft performance plan argues that IAA has a very mature safety management system. Indeed, IAA has already reached the RP3 safety targets in four out of five management objectives. During the RP3 period, only safety risk management area requires an improvement. The ANSP intends to maintain the safety levels and the safety action plan which has been already developed based on Eurocontrol CANSO Standard of Excellence in Safety Management Systems. The relevant measures in risk assessment are quoted: the acquisition of the ASMT, enhancements in safety performance monitoring and analysis capabilities. Moreover, additional measures in remaining management objectives are provided giving assurance of improvement to safety management system in general.

1.3.1 Interdependencies and Trade-offs

The draft performance plan provides the detailed description of the consideration given to the relevant interdependencies between the various Union-wide targets. An implementation of ANS changes is accompanied by the safety assessment to demonstrate that hazards have been identified, safety requirements derived, and mitigation implemented to ensure that any associated residual operational risks are tolerable. The trade-off between safety and other KPAs are being reviewed as a part of safety management practices.

Moreover, the NSA has assessed the resources required to support the current safety management system activities and resources needed to meet RP3 targets with respect to the Commission Implementing Regulation (EU) 2017/373 regulatory compliance requirements.

1.3.2 Change Management Practices

The change management protocols, compliant with the Commission Implementing Regulation (EU) 2017/373 are described. The protocols, developed in co-operation with Eurocontrol and NATS, consider network and the cross-border impact of significant changes.

IRELAND

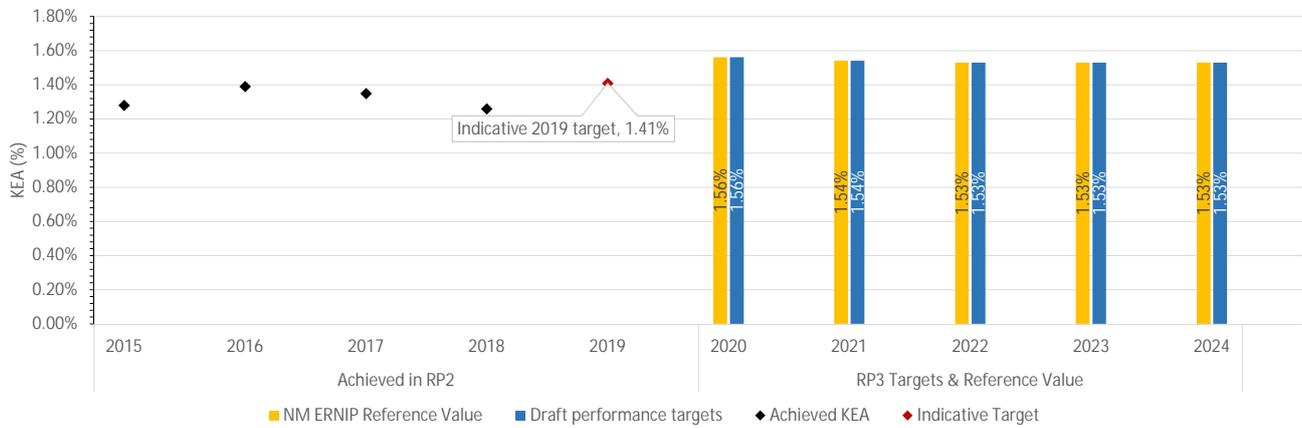
Environment KPA

2.1 Summary of environment key data and assessment results

Ireland

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.56%	1.54%	1.53%	1.53%	1.53%
Draft performance targets	1.56%	1.54%	1.53%	1.53%	1.53%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Ireland should be approved.
 - IAA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓
Free Route Airspace was implemented in Irish airspace above FL245 in 2009. Currently it is available from FL075.	
Major ERNIP Recommended Measures:	2
Measure included within performance plan?	
Cross-border UK-IE FAB project	✓
Cross-FAB FRA (Borealis)	✓
FUA Implementation according to latest LLSIP	Implementation
1	✓
2	✓
3	✓

Reference in PP	Reference in LSSIP
Annex P	Page 41

Reference in PP	Reference in ERNIP
Annex P	Page 14
Annex P	Page 14

The chart in section 2.1.1 shows that Ireland achieved a KEA of 1.23% in 2019, which is a good performance going into RP3 and could make a positive contribution towards achieving the Union-wide targets.

The IAA has already implemented FRA in both the upper and lower airspaces and commits to implementing all the ERNIP measures including the support of cross-border FRA and encouraging neighbouring Member States to achieve the same.

Ireland acknowledged that further improvements are dependent on the introduction of FRA in neighbouring countries and it is promising that the performance plan commits to working with regional partners to implement this before the end of 2022.

Other measures that Ireland foresees and beneficial to the environmental performance are:

- Additional runway at Dublin airport and associated terminal airspace re-organisation.
- Commitment to implementing the "Joint Action Plan on Continuous Climb and Descent Operation" under development by the Eurocontrol taskforce.
- Improving oceanic and continental transfers.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Ireland plan for an environmental incentive scheme?	✗
Ireland does not intend to apply an optional incentive scheme for the environment KPA.	

IRELAND

Capacity KPA

3.1.1 En route ATFM delay

Targets defined in the performance plan are consistent with the local reference values during RP3 and below the NOP 2019-2024 (June 2019 edition) delay forecast.

Analysis of the current capacity plans indicate that Ireland has sufficient capacity to cope with the traffic demand during RP3.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

The target set for Dublin, the only of the three airports in the performance plan expected to produce terminal delays and main driver with 83% of terminal traffic, is set at the level of the worst past performance for the first two years of RP3, followed by some improvements as of 2022 due to diverse measures. The performance of Irish airports and the proposed targets, in comparison with similar airports, still remain below the delays shown by similar airports in the past. The proposed targets are realistic.

3.1.3 Incentives

En route: the pivot value will be based on the updated reference values published annually in the NOP and further modulated on percentage of the CRSTMP-only delays (attributed by ANSP) in the previous year. Delay forecasts in the NOP show that the ANSP is expected to achieve the performance plan targets for all years in RP3 (0.01 minutes of delay per flight, all causes), and this is likely to result in bonuses. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors by the ANSP in the attribution of cause of delay could impact financial incentive.

Terminal incentives: the scheme contemplates maximum penalties of 0.50% and no possible bonus. The chosen pivot value for CRSTMP causes represents, based on the target, a much higher CRSTMP share than the one observed in RP2. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

A new tower (complementing new parallel runwat and improved operational procedures) is expected to improve arrival delays and capacity at Dublin.

Major investment project related to the upgrade of ATM system is planned for a different date (2023) then it has been simulated in the NOP (2021). More information would be needed to evaluate added value of some investments to the capacity goals achievement.

3.1.5 PRB conclusions ✓

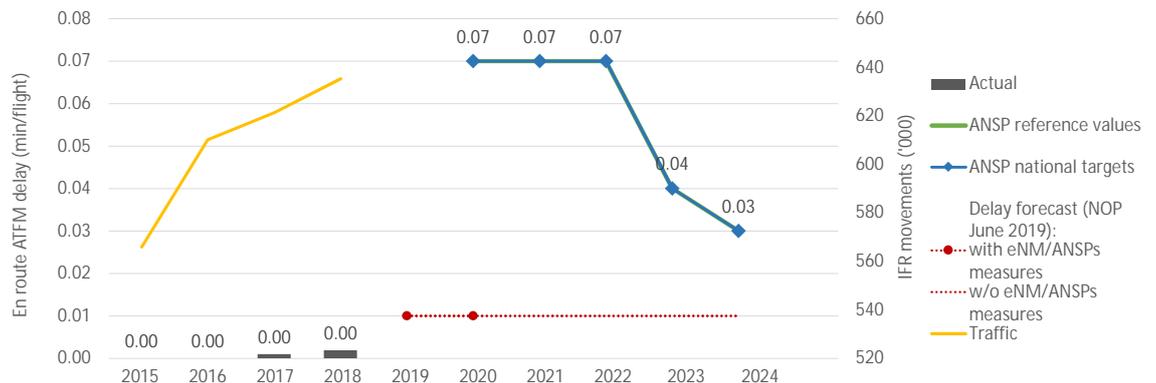
The PRB concludes that the capacity targets as proposed by Ireland should be approved.

- Existing capacity plans indicate that Ireland has sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes, that terminal capacity incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

3.2 En route ATFM delay per flight

Ireland

3.2.1 Overview of en route ATFM delay per flight ✓



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+5.4%	+7.8%	+1.8%	+2.3%						
Actual ATFM delay per flight	0.00	0.00	0.00	0.00		0.07	0.07	0.07	0.04	0.03
ANSP reference values						0.07	0.07	0.07	0.04	0.03
ANSP national targets						0.07	0.07	0.07	0.04	0.03
Forecast with eNM/ANSPs measures*					0.01	0.01				
Forecast w/o eNM/ANSPs measures*					0.01	0.01		0.01		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? **Yes**

Capacity target in the year 2024 is less than or equal to the 2024 reference value? **Yes**

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- Continue the "crew to workload" initiative;
- Commission the new en route contingency centre "CEROC";
- Expand the CPDLC message set as necessary;
- Continue to deploy COOPANS builds as required;
- Continue to review and improve internal dynamic sectorisation;
- Implement all necessary procedures and airspace changes at Dublin to facilitate parallel runway operations.

The performance plan capacity enhancement measures are considered appropriate to achieve the national target.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Shannon ACC (EISN)	Additional ATCOs in OPS to start working in the OPS room	0	6	7	5	2	0	4
	ATCOs in OPS to stop working in the OPS room	0	1	2	2	1	0	0
	ATCOs in OPS to be operational at year-end	132	137	142	145	146	146	150
Dublin ACC (EIDW)	Additional ATCOs in OPS to start working in the OPS room	0	3	1	3	3	0	2
	ATCOs in OPS to stop working in the OPS room	0	3	1	3	3	0	0
	ATCOs in OPS to be operational at year-end	42	42	42	42	42	42	44
Total - IAA (en route)	Additional ATCOs in OPS to start working in the OPS room	0	9	8	8	5	0	6
	ATCOs in OPS to stop working in the OPS room	0	4	3	5	4	0	0
	ATCOs in OPS to be operational at year-end	174	179	184	187	188	188	194

2024 (end) - 2020 (beg.)

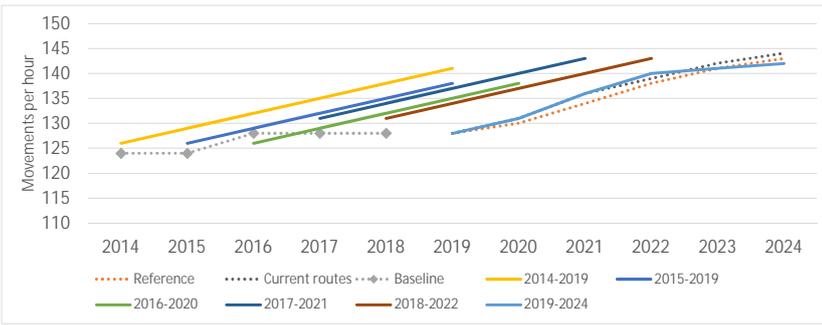
+13

+2

+15

3.2.3 Existing and previous ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Shannon ACC (EISN)



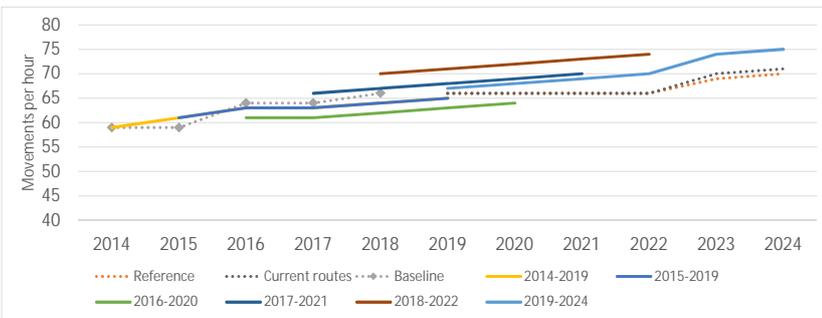
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						128	130	134	138	141	143
Current routes						128	131	136	139	142	144
Baseline	124	124	128	128	128						
2014-2019	126	129	132	135	138	141					
2015-2019		126	129	132	135	138					
2016-2020			126	129	132	135	138				
2017-2021				131	134	137	140	143			
2018-2022					131	134	137	140	143		
2019-2024						128	131	136	140	141	142

- Historical data shows that as from 2016 to 2018 there was a flat baseline value at Shannon ACC (i.e. no growth). The RP2 capacity plans had higher values than the actual baseline.

- The latest capacity plans show annual increase of capacity profiles between 1% and 4% during RP3. The planned capacity profiles are higher than the reference route scenario for all years during RP3, except for 2024 (i.e. less than 1%). When assessing the planned capacity profiles against the current route scenario, there is a minor capacity gap in 2023 and 2024 (i.e. around 1%).

- Even though Shannon represents a complex airspace due to the variable North Atlantic traffic flow, the NOP 2019-2024 (June 2019 edition) notes that no capacity issues are foreseen for Shannon ACC during RP3.

Dublin ACC (EIDW)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						66	66	66	66	69	70
Current routes						66	66	66	66	70	71
Baseline	59	59	64	64	66						
2014-2019	59	61	63	63	64	65					
2015-2019		61	63	63	64	65					
2016-2020			61	61	62	63	64				
2017-2021				66	67	68	69	70			
2018-2022					70	71	72	73	74		
2019-2024						67	68	69	70	74	75

- Historical data shows a baseline increase during RP2, on an annual basis between 3% and 8%. Between 2016 and 2017, the baseline did not increase. The capacity plans during RP3 have foreseen lower values than the actual baseline values, except for 2018, whereas the capacity plan was slightly higher than the 2018 baseline value.

- The latest capacity plan forecasts increase capacity profiles by 1% annually during RP3. The planned capacity profiles are above both current route scenario and reference scenario, presenting an adequate level of capacity.

- With the existing capacity plan and information provided in the NOP 2019-2024 (June 2019 edition) it is envisaged that no capacity issues are foreseen for Dublin ACC during RP3.

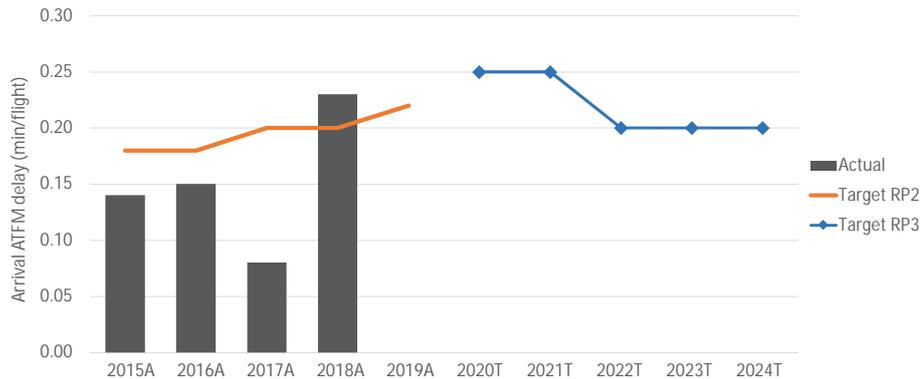
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- National targets are equal to national reference values and above the NOP 2019-2024 (June 2019 edition) delay forecast values.
- Capacity plans indicate that Ireland has sufficient capacity and is positively contributing to the Union-wide capacity target.
- The presented ATCO numbers and the NOP capacity forecast provide evidence that Ireland has sufficient capacity to cope with the expected traffic growth during the planning period.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.14	0.15	0.08	0.23	-	0.25	0.25	0.20	0.20	0.20
Dublin (EIDW)	0.17	0.19	0.10	0.27	-	0.25	0.25	0.20	0.20	0.20
Cork (EICK)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Shannon (EINN)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00

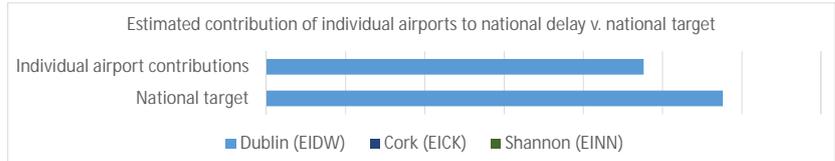
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Dublin is the only airport expected to produce terminal delays. Dublin airport experienced a significant traffic increase during RP2, reaching the worst delays at Dublin in 2018. The STATFOR February 2019 base forecast is chosen for the performance plan, expecting a CAGR in IFR movements in Ireland TCZ of 2.0% in 2019-2024. The proposed targets are in line with the worst observed performance in RP2, and are taking into account the expected improvements thanks to a new parallel runway as of end of 2021, new control tower and airspace modifications, as well as XMAN and TBS implementation.

The performance plan also argues that the main sources of delays are the airport ground infrastructure and weather, our of IAA control. Cork and Shannon are not expected to generate delays, maintaining the performance observed in RP2.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Dublin (EIDW)	0.22
Cork (EICK)	0.00
Shannon (EINN)	0.00
National Target	0.22



The only contributor to delays associated to the national target is Dublin airport, due to the combination of a higher target and traffic (Dublin represents about 83% of the traffic at these three airports). Nevertheless, the targets at the national level and at Dublin airport are the same, which is inconsistent, as the national level must also include the traffic at Shannon and Cork.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Dublin (EIDW)	GROUP III	0.25	0.18	-0.06	0.22	-0.03
Cork (EICK)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Shannon (EINN)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

During RP2, the performance of the Irish airports, in comparison with similar airports, was better than the median. The targets set for RP3, although slightly higher, still represent better performance than the past delays at similar airports.

3.3.5 PRB Key Points

- The target set for Dublin, the only of the three airports in the performance plan expected to produce terminal delays, and main driver with 83% of terminal traffic, is set at the level of the worst past performance for the first two years of RP3, followed by some improvements as of 2022 due to diverse measures.
- The performance of Irish airports and the proposed targets, in comparison with similar airports, still remain below the delays shown by similar airports in the past.
- The proposed targets are realistic.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±50.0%	0.500%	1.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.07	0.07	0.07	0.04	0.03
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.07	0.07	0.07	0.04	0.03
Pivot values for RP3	0.07	0.07	0.07	0.04	0.03

Threshold review

The threshold is symmetrical around the pivot value which is based on the reference value published in the NOP.

Modulation review

Several modulations in force:

- initial modulation of pivot value informed by update of reference value published in November release of the NOP from previous year;
- additional modulation of pivot value according to share of CRSTMP delay causes (as attributed by ANSP) in previous year.

Review of financial advantages/disadvantages

Maximum bonus of 0.5% of revenue is countered with a potential maximum penalty fixed at 1.0% of revenue. Delay forecast in the NOP shows that the ANSP is expected to easily achieve the performance plan targets for all years in RP3 (0.01 minutes of delay per flight, all causes), and is likely to earn bonuses. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors by the ANSP in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±30.0%	0.000%	0.500%
	✓	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.025	±0.025	±0.025	±0.025	±0.025
Performance Plan targets	0.25	0.25	0.20	0.20	0.20
Pivot values for RP3	0.05	0.05	0.05	0.05	0.05

Threshold review

The terminal incentive scheme includes a dead band of ±30% of the CRSTMP pivot value (dead band: 0.035-0.065 minutes per arrival). The 30% dead band seems enough to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Ireland has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is the same for each year of RP3: 0.05 minute per arrival. This value corresponds to an ADF (Attributable Delay Factor) of 25% of the Arrival ATFM delay-All Causes, which is much higher than the ADF observed during RP2 (2% in 2015-2018) or the highest observed in 2018 (4.6%).

Review of financial advantages/disadvantages

The scheme does not contemplate any bonuses, while it stipulates maximum penalties of 0.5%.

According to the pivot value chosen for CRSTMP target, the worst performance in RP2 (2018: Arrival ATFM delay CRSTM causes equals to 0.01 minute per arrival, would have obtained the maximum bonus (although that would be 0% in this case).

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

⚠

En route:

- The pivot value will be based on the updated reference values published annually in the NOP and further modulated on percentage of CRSTMP-only delays (attributed by ANSP) in the previous year.
- Delay forecasts in the NOP show that the ANSP is expected to achieve the performance plan targets for all years in RP3 (0.01 minutes of delay per flight - all causes), and this is likely to result in bonuses. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors by the ANSP in the attribution of cause of delay could impact financial incentive.

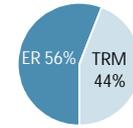
Terminal incentives:

- The scheme comprises a maximum penalty of 0.50% and no possible bonus.
- The chosen pivot value for CRSTMP causes represents - based on the target - a much higher CRSTMP share than the one observed in RP2.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

RP3 investment ratio ER/TRM

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	25.5	30.5	33.5	34.3	35.4	159.3
En route	M€ (nominal)	15.7	17.0	18.0	18.7	19.6	89.0
Terminal	M€ (nominal)	9.8	13.5	15.5	15.6	15.9	70.3



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Extension of Build 3 COOPANS	COOPANS Flight Data Processing ATM systems operated in Dublin and Shannon ATCC.	6.5	Yes	Yes	4.2	1.4
2	North Dublin RADAR - Building & RADAR	New off airfield Radar in North County Dublin	6.3	Yes	No	2.7	0.9
3	ILS & IRVR Replacements	National Nav aids and IRVR Replacement Programme	6.5	Yes	No	0.0	3.2
4	Dublin Tower - Building	New Control Tower Dublin Airport	36.5	Yes	Yes	0.0	20.8
5	Dublin Tower - Equipment	New Control Tower Dublin Airport	19.7	Yes	Yes	2.0	12.4
6	COOPANS Next Generation	COOPANS Flight Data Processing ATM systems operated in Dublin and Shannon ATCC.	5.2	Yes	Yes	1.0	0.3
7	Woodcock Hill Radar Replacement	Woodcock Hill Radar	5.1	Yes	No	0.8	0.0
8	Plant & Equipment Replacement	Replacement programme for end of life critical plant and equipment which supports IAA Operations. Plant and equipment includes AHUs, Chiller Units, VSDs, Heat Pumps and internal mechanical and electrical equipment.	9.3	No	No	2.9	0.9
9	Capital Costs of IAA Restructure	Provision of a suitable new Head Office for the ANSP following the restructure process. The costs related to the professional fees, design costs, civil works and fit out of an alternative premises. The costs include all legal, relocation, building branding and related costs with the provision of a new premises.	12.0	No	No	10.2	2.1
Total:						23.7	41.9

Airspace user feedback regarding major investments

Airspace users noted that IAA is behind on its RP2 investment plan and that the investments reported in RP3 should include clear links with RP2 actual developments. The planned investments were considered lacking enough detail, in particular related to benefits, missing a detailed breakdown of the cost of past investments, depreciation, deployment dates and benefits. IAA was required to ensure that the CAPEX planned and financed (but not implemented) during RP2 is not going to be double charged in PR3. Airspace users' comments have been addressed by Ireland in the submitted performance plan and its annexes.

Review of investments

New major investments represent 41% of the total determined costs over RP3. However, 2015-2018 actual CAPEX delivery reaches 35% of planned for the same period and the underspend amounts to 60.83M€. Annex E of the performance plan justifies this underdelivery by stating that "traffic in RP2 grew much more quickly than anticipated and the ANSP had to utilise more resources than initially planned on day-to-day activity at the expense of resource allocation to project delivery. The NSA highlighted this in the annual monitoring reports and has prioritised CAPEX delivery in RP3. It also means that there are a heavy volume of obsolescence projects and catch up projects for RP3, hence the forecast increase of CAPEX for RP3 over and above RP2." IAA has therefore decided to return 24.6M€ to airspace users (i.e. unspent depreciation and cost of capital of unspent CAPEX in RP2) through the adjustment in unit rates for 2020 and 2021".

It is important to note that Investments #6 and #7 start at the end of the period (2023 and 2024). Moreover, the determined costs of Investment #4 do not seem to be proportionate to the lifecycle and asset value.

Investment #9 is the provision for restructuring costs (the Irish Government signalled its intention to separate the safety regulatory functions of the IAA from its air traffic control functions) and the sum of the determined cost for investments for RP3 is higher than its ANS asset value.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
8	Plant & Equipment Replacement	Local	Environment, Capacity, Cost efficiency	Replacement programme for end of life critical plant and equipment which supports IAA Operations. Plant and equipment includes AHUs, Chiller Units, VSDs, Heat Pumps and internal mechanical and electrical equipment.
9	Capital Costs of IAA Restructure	Local	Environment, Cost efficiency	Provision of a suitable new Head Office for the ANSP following the restructure process. The costs related to the professional fees, design costs, civil works and fit out of an alternative premises. The costs include all legal, relocation, building branding and related costs with the provision of a new premises.

Additional information

- Investment #8 on the local level addresses obsolescence issues. The current life critical plant and equipment which supports IAA operations causes potential risk to IAA operational equipment, operations rooms and personnel, therefore the replacement is deemed necessary.
- Investment #9 is the provision for the incremental impact of the restructuring cost on the ANSP determined costs regarding the depreciation and cost of capital for en route and terminal as stated in Annex H of the performance plan. The sum of the determined cost for investments for RP3 (12.24M€) is higher than the value of the assets allocated to ANS (10.56M€) and the total value of the asset (12M€). Moreover, these values are different from the justification of the restructuring costs in the Annex H of the performance plan (12.16M€).

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	59.6	59.6	3.4	4.9	7.1	9.9	12.0	37.2
Existing investments			15.3	13.9	11.7	9.2	6.4	56.5

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 23% of the total determined costs of investments over RP3, while existing investments represent the 35%. There are no details in the performance plan about which investments are new and which are existing, however Ireland provides a full list of investments in Annex E to the performance plan.
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand ✔

In RP2, Ireland achieved a good performance in the capacity KPA in terms of meeting the targets. No capacity issues are foreseen for Dublin and Shannon ACC during the planning period. The capacity plans for both ACC will deliver required capacity for the entire RP3 with minor surplus for Shannon and bigger for Dublin. The investments are in line with the NOP 2019-2024 and will support capacity enhancements measures presented in the NOP. There is a traffic peak-jump expected in between 2020 and 2021 which could be associated with investments related to the Dublin airport capacity extensions.

Investment #1 and #6 are directly presented as the capacity enhancement measures, while the other investments will just support other measures related more to ATC operations and airspace management. Contribution of some investments is difficult to properly evaluate from the text provided by the performance plan.

Investments #2, #3, #7 and #8 related to radars and ILS could be viewed as neutral contributors as they aim either at replacing of old equipment or at reinforcing the capability of existing equipment.

Investments #4 and #5 related to the Dublin tower could be viewed as positive contributors improving the Dublin airport capacity especially in the light of increasing arrival delays at Dublin in the past. On the other hand, the investment itself may create some constraints to the traffic which may negatively impact the capacity. More details would be needed to assess the contribution to the capacity.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ✔

The investments support the capacity enhancement measures introduced in the NOP 2019-2024 delivering required capacity buffers as simulated by the NM. However, the timing of the investments presented by the performance plan is slightly different to the one presented by the NOP. For instance, the NOP and the capacity simulation expected the new ATM system (#6) in 2021, while the performance plan declares the operational entry date as the 2023. The impact of the investment deployment time shift is difficult to assess. In general, however, the sequencing of investments seems to be logical.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ✔

Expenditures related to the investments seem to start with initial date of each project entry into operations. Investments #1 and #6 may deliver benefits to airspace user in the second half of RP3.

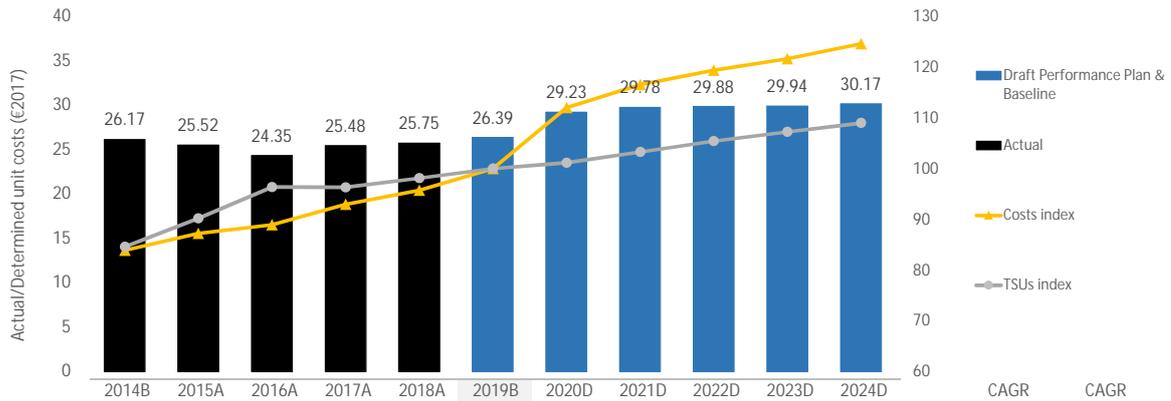
3.5.4 PRB Key Points !

- Investment #9 is the provision for restructuring costs (the Irish Government signalled its intention to separate the safety regulatory functions of the IAA from its air traffic control functions).
- The increase in the total determined costs of the investments is mostly due to an increase in major new investments. The CAPEX delivery between 2015-2018 reached 35% of the plan. Ireland indicated its focus on CAPEX delivery in RP3.
- The ANSP will return to airspace users the cost of capital and depreciation related with the CAPEX unspent in RP2, which amounts to 24.6M€.
- Ireland is estimated to deliver required capacity in RP3.
- New tower (complementing new parallel RWY and improved operational procedures) is expected to improve arrival delays and capacity at Dublin.
- The major investment related to the upgrade of ATM system is planned for a different date (2023) than it has been simulated in the NOP (2021).
- More information would be needed to evaluate added value of some investments to the capacity goals achievement.

IRELAND

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	103	107	109	114	118	-	141	148	154	159	166	-	+4.9%
Total costs	M€ (2017)	103	107	109	114	117	122	137	143	146	149	152	+4.5%	+4.0%
TSU	'000	3,922	4,182	4,468	4,465	4,550	4,636	4,689	4,790	4,890	4,972	5,054	+1.7%	+2.6%
AUC/DUC	€ (2017)	26.17	25.52	24.35	25.48	25.75	26.39	29.23	29.78	29.88	29.94	30.17		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	26.17	25.52	24.35	25.48	25.75	26.39	29.23	29.78	29.88	29.94	30.17	+2.7%	+1.4%
Annual change	%		-2.5%	-4.6%	+4.6%	+1.0%	+2.5%	+10.8%	+1.9%	+0.3%	+0.2%	+0.8%		

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	26.39 €2017	✗
<p>- The 2019 traffic baseline corresponds to STATFOR February base scenario but with the M2 model (based on flight plan distances) while for the purpose of calculating the RP3 baseline, the M3 forecast (based on actual route distances) should have been used. If correcting this issue, the 2019 DUC would be slightly higher (26.59€). The impact on the DUC trend would be marginal (+2.6% instead of +2.7%).</p> <p>- The 2019 costs forecast is +4.4% higher than the 2018 actual costs. However, this forecast remains -1.2% lower than the than the RP2 2019 determined costs, although the actual service units in 2018 were +8.7% above RP2 plans.</p>		

4.1.3 Summary of cost-efficiency assessment results

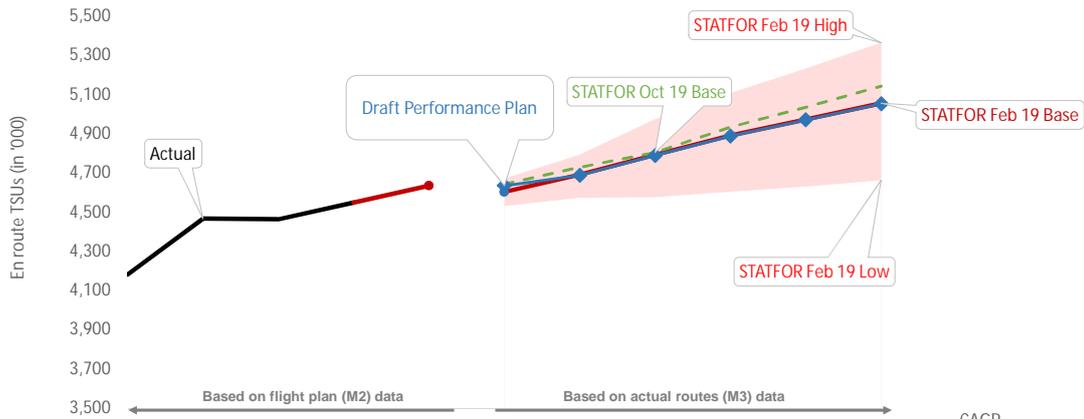
- a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? 2.7% ✗
 The RP3 DUC trend of +2.7% p.a. is higher than the Union-wide target pf -1.9% p.a.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? 1.4% ✗
 The RP2 and RP3 DUC trend of +1.4% p.a. is higher than the Union-wide target pf -1.9% p.a.
- c) DUC level (2019 baseline) lower than the average of comparator group (B) average (53.77 €2017)? -50.9% ✓
 The 2019 DUC baseline for Ireland is -50.9% below its comparators' average and the DUC is planned to remain lower throughout RP3 (-41.6% in 2024). It is also noteworthy that Ireland 2019 DUC is the third lowest among the SES States (and is planned to be the fifth lowest by 2024).
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? ✗
 The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend is +119.6M€2017 (+214.5M€2017 from the long-term trend). The cost deviations are not exclusively considered related to capacity measures.
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? ✗
 Firstly, the Commission has found that the proposed restructuring costs for establishing the new regulator do not relate to the costs of service provision but rather to the costs of regulation and oversight, and therefore do not qualify as restructuring costs within the meaning of Article 2(18) of Implementing Regulation (EU) 2019/317. It is understood that the "restructuring measures" are of an institutional nature and have not a direct impact on the operational efficiency of the ANSP. Annex H of the performance plan presents potential benefits in a qualitative manner only as it is not possible to quantify the longer term financial impact of the new institutional setup. The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend amounts to 119.6M€2017, which is far above the 37.1M€2017 presented as restructuring costs over RP3. The deviation is therefore not exclusively due to those restructuring costs.

4.1.4 PRB Conclusions ✗

The PRB concludes that the cost-efficiency targets proposed by Ireland should not be approved.

- Ireland is only consistent with the DUC level of the average of the comparator group.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.
- Ireland does not demonstrate that the deviations from the trend targets due to restructuring costs are providing a net financial benefit to the users. Moreover, the cost of the restructuring measures are not fully justifying the deviations from the cost-efficiency trends.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	4,182	4,468	4,465	4,550								
Annual change	%		+6.8%	-0.1%	+1.9%								
STATFOR Feb 19 Base	'000 TSUs					4,636	4,604	4,692	4,793	4,893	4,975	5,057	+1.9%
Annual change	%					+1.9%	+1.2%	+1.9%	+2.2%	+2.1%	+1.7%	+1.7%	
STATFOR Oct 19 Base	'000 TSUs					-	4,644	4,730	4,806	4,935	5,037	5,145	+2.1%
Annual change	%					-	+2.1%	+1.8%	+1.6%	+2.7%	+2.1%	+2.1%	
Performance Plan	'000 TSUs					4,636	4,689	4,790	4,890	4,972	5,054		+1.7%
Annual change	%					+1.9%	+1.1%	+2.2%	+2.1%	+1.7%	+1.7%		

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months
2019B (PP baseline, M3)	4,636		
2019F (as in the Reporting tables, M2)	4,636		
2019B/ 2019F	0.00%	-0.68%	-0.74%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	4,636			
2019F (STATFOR Feb 19, M3)	L 4,532	B 4,604	H 4,671	+0.70%
2019F (STATFOR Oct 19, M3)	L 4,630	B 4,644	H 4,657	-0.17%

Ireland reports a 2019 traffic baseline corresponding to STATFOR February base forecast. However, the reported value is that of the M2 forecast (based on flight plan distances) while for the purpose of calculating the RP3 baseline, the M3 forecast (based on actual route distances) should have been used. This issue was flagged during the completeness verification but Ireland did not update its traffic baseline. In order to be consistent with the coefficient used by Ireland (i.e. -0.74%, corresponding to the CRCO 12-month coefficient) for the 2020-2024 period, the 2019 traffic baseline should be 4,602 TSUs.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 base forecast
n/a

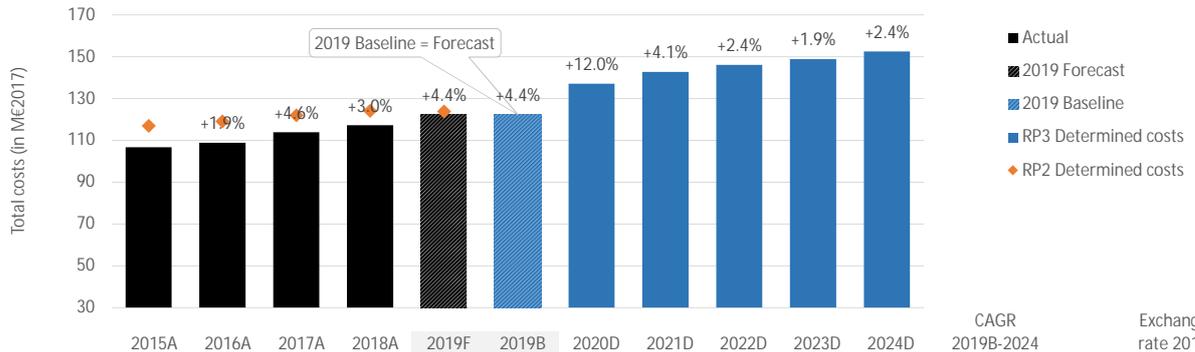
Review of the PP traffic forecast

The performance plan traffic forecast for the years 2020-2024 are in line with the STATFOR February base forecast when applying the CRCO 12-month correction coefficient. The table in section 4.2.1 above shows STATFOR forecast with application of the 3-month coefficient, which explains the observed difference.

4.2.4 PRB Key Points

- The 2019 baseline is not consistent with the 2020-2024 assumptions, however, the impact on the DUC trend can be considered negligible.
- Traffic evolution during 2020-2024 is in line with the STATFOR 2019 February base forecast.

4.3.1 Overview of en route costs in RP2 and RP3

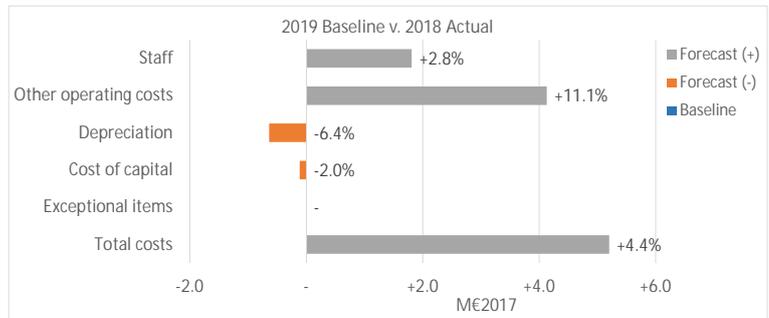


		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	107	109	114	118	124	-	141	148	154	159	166	-	€:€
Annual change	%	-	+1.8%	+4.8%	+3.5%	+5.4%	-	-	+5.4%	+3.9%	+3.4%	+4.0%	+1.8%	1.00000
Inflation index	2017 = 100	99.9	99.7	100.0	100.7	101.9	101.9	103.4	105.2	107.2	109.3	111.5	-	-
Total costs	M€ (2017)	107	109	114	117	122	122	137	143	146	149	152	+4.5%	-
Annual change	%	-	+1.9%	+4.6%	+3.0%	+4.4%	+4.4%	+12.0%	+4.1%	+2.4%	+1.9%	+2.4%	+4.5%	-
Total costs	M€ (2017)	107	109	114	117	122	122	137	143	146	149	152	+4.5%	-

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+5.2	+4.4%
2019F v. 2019 RP2 DC	-1.4	-1.2%
2019F v. average 2015-2018	+10.7	+9.6%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 costs forecast is +4.4% higher than the 2018 actual costs mainly due to higher other operating costs (+11.1% or +4.1M€2017) and higher staff costs (+2.8% or +1.8M€2017). However, this forecast remains -1.2% lower than the than the RP2 2019 determined costs, although the actual service units in 2018 were +8.7% above RP2 plans.

2019 baseline analysis

Annex F of the performance plan indicates that the 2019 cost baseline aggregates the latest budget forecasts of the different entities. Indeed, as noted in the above table, the 2019 cost baseline is in line with the forecast. Annex F also lists some important issues impacting the costs from 2019 onwards, such as new paid parental leave and benefits announced by the Irish government, uncertainties on the operating environment in respect of FAB arrangements in case of Brexit; institutional separation; and the new Dublin tower project.

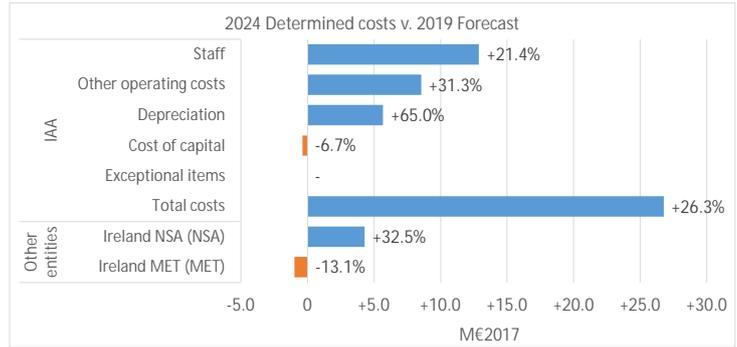
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 📌 Investments (see details in 3.5)
- ✅ Cost of capital (see details in 4.3.1)
- ✅ Pension costs (see details in 4.3.2)
- ✅ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



The 2024 determined costs for IAA are planned to be +26.8M€2017 (or +26.3%) higher than the 2019 forecast mainly due to increases in staff costs (+12.9M€2017 or +21.4%), other operating costs (+8.6M€2017 or +31.3%) and depreciation costs (+5.7M€2017 or +65.0%).

Annex R of the performance plan shows that RP3 costs are not directly comparable to previous years because of the institutional restructuring planned to be implemented as of 01 January 2020 (separation of the ANSP and the regulatory functions into two stand-alone entities). Annex R also quantifies the financial impact of this restructuring project. For the year 2019, it represents an additional cost of +7.4M€2017 (+4.3M€2017 for the ANSP and +3.0M€2017 for the NSA).

While this project is clearly the main driver for the planned increase in NSA costs (+3.0M€ out of a total increase of +4.3M€2017) it is not the case for the ANSP where an increase of +22.0% would still be observed even if excluding the "restructuring" costs from the 2024 determined costs.

Annex R of the performance plan explains that the planned increase in ANSP staff costs are mainly due to additional staff numbers (+13%) in order to "meet the operational requirement to support increasing traffic, provide operational resilience and meet the demand for a new parallel runway at Dublin airport". The additional staff are not only ATCOs (+15 at ACC level) but also engineers, data assistants and operational support staff mainly in support to the new Dublin airport control tower, new parallel runway, new ILS system, etc. While it is understood that most of these additional costs are allocated to the terminal cost base a fraction of these costs might also be allocated to en route. Finally, Annex R also stresses that the RP3 performance plan "massively reduces the dependence on overtime [...] while overtime is a valuable option to address short-term capacity issues, it is not sustainable in the medium term".

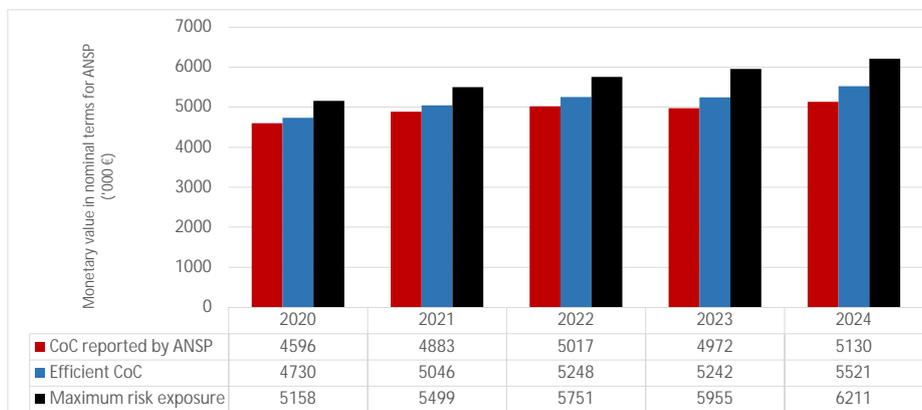
4.3.4 PRB Key Points

- Although, the restructuring project affects the level of costs in RP3, it is not the main cost driver for the ANSP.
- The increase in staff costs during RP3 is driven mainly by an increase in operational staff which it is claimed to reduce the currently high use of overtime for ATCOs.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	117,218	124,982	130,712	135,348	141,161
Monetary value of Return on Equity	4,596	4,883	5,017	4,972	5,130
Ratio RoE/DC (%)	3.9%	3.9%	3.8%	3.7%	3.6%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.0%	8.6%	7.2%	8.9%	7.5%	9.2%	7.6%	9.4%	7.6%	9.5%
Interest on debts	2.5%	2.2%	2.5%	2.5%	2.5%	2.7%	2.5%	2.9%	2.5%	3.0%
Capital structure (% debt)	10.0%	29.4%	10.0%	29.6%	10.0%	29.6%	10.0%	29.5%	10.0%	29.5%
WACC	6.5%	6.7%	6.8%	7.0%	7.0%	7.3%	7.1%	7.4%	7.1%	7.6%

Is the interest on debts in line with the market? **Yes**

- IAA does not have any loans at the moment. However, the cost of debt has been calculated by an external consultant based on the CAPM model assuming 10% financing via debt. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.
- The efficient cost of capital is computed in line with competitive market practices and with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	70,199	72,310	72,098	70,411	72,648
Net current assets	0	0	0	0	0
Adjustments total assets	0	0	0	0	0
Total asset base	70,199	72,310	72,098	70,411	72,648

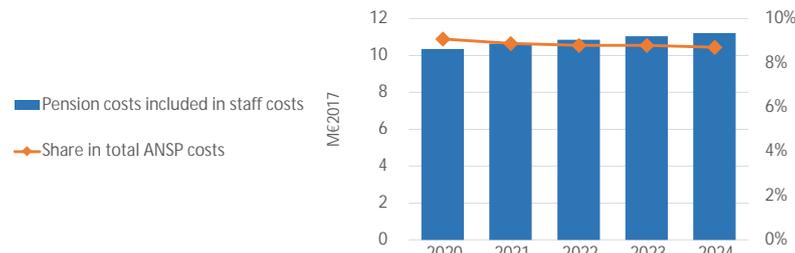
- The fixed asset base will remain almost constant over the period. This is in line with the increase of new major investments neutralised by the decrease of existing investments ("heavy volume of obsolescence projects") as described in section 3.5 of this document.
- The RAB does not include neither net current assets, nor adjustments to the total asset base.
- The total asset base is aligned to the fixed asset base.

4.3.A.5 PRB Key Points

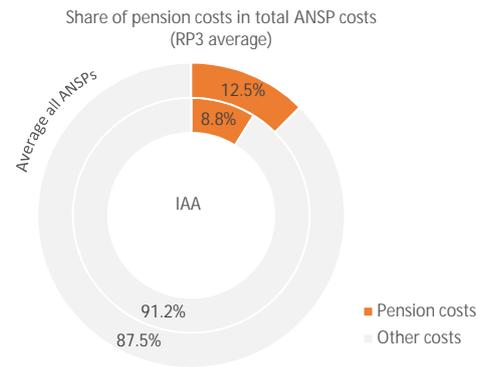
- The cost of capital is in line with the maximum risk exposure and does not present major issues.



4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	10.3	10.6	10.8	11.0	11.2
Year on year variation	% change		+2.9%	+1.9%	+1.8%	+1.5%
Share in total ANSP costs	%	9.1%	8.9%	8.8%	8.8%	8.7%
Year on year variation	p.p.		-0.2p.p.	-0.1p.p.	0.0p.p.	-0.1p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight decrease**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

n/a

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

n/a

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

Information was "redacted" and not available at the time of drafting this analysis.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **Yes**

- The discount rate is planned to increase from 1.21% in 2020 to 1.88% in 2024.
- The expected return on plan assets is expected to increase from 1.42% in 2020 to 1.48% in 2024.
- These planned changes contribute to reduce the net present value of future liabilities.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

The performance plan states that "The main defined benefit pension scheme has been closed to new entrants since 01 January 2012. The latest funding proposal, which ended on 31 December 2018, included provisions whereby recent pay increases were not pensionable. Contribution rates since 2011 have included a contribution of 6% per annum from employees. The Board of the IAA decided, and communicated to all staff and pension trustees, that there would be no further increases granted on pensions payable under the scheme with effect from 01 January 2015"

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Ireland did not mention a change to the allocation methodology with respect to RP2.
 - Determined costs are allocated to en route and terminal activities as they are incurred in the provision of those activities. Approach services are allocated 100% to en route where those services are provided beyond 20km of the respective aerodrome. For CAPEX, where the facilities provided are not 100% for en route or terminal activities but are mainly for en route activities, then an allocation of 75% of the costs is applied to en route services. Where the facilities apply equally to en route and terminal services an allocation of 50% applies to each and where the facilities provided are fully for terminal services then there is no cost allocation to en route services. Costs for meteorological services are allocated 80% to en route and 20% to terminal. For the NSA costs, these are directly attributable to the current restructuring process, which are allocated 100% to en route. State subscription costs are allocated 100% to en route activities.

1.2. Are the criteria for cost allocation clearly defined and justified? **Yes** If not, what are the issues identified?
 n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? **No** If yes, description and justification of the changes from RP2 to RP3 specified in the PP
 n/a

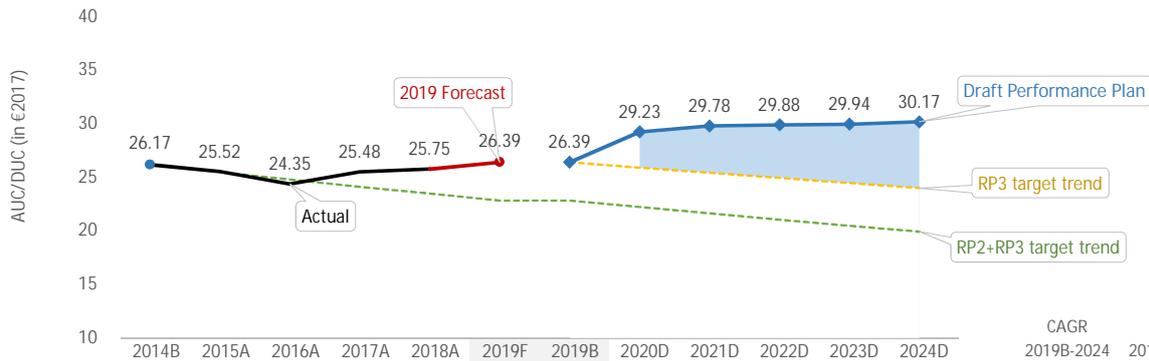
2.2. Are these changes in cost allocation duly described and justified? **n/a** If, not what are the identified issues?
 n/a

2.3. Is there an impact on the determined costs and/or baseline? **n/a** If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
 n/a

4.3.C.3 PRB Key Points ✓

- Ireland did not change the allocation methodology with respect to RP2.
 - The cost allocation methodology is clearly described.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	
AUC/DUC	€2017	26.17	25.52	24.35	25.48	25.75	26.39	26.39	29.23	29.78	29.88	29.94	30.17
Annual Change	%		-2.5%	-4.6%	+4.6%	+1.0%	+2.5%	+2.5%	+10.8%	+1.9%	+0.3%	+0.2%	+0.8%

CAGR	CAGR
2019B-2024	2014B-2024
+2.7%	+1.4%

4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	+2.7%	Union-wide trend	-1.9%	Difference	+4.6p.p.
PP trend	+1.4%	Union-wide trend	-2.7%	Difference	+4.1p.p.
PP 2019 baseline	26.39	Average comp. group	53.77	Difference	-50.9%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	Yes
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	No

The RP3 and the long-term (RP2+RP3) DUC trends for Ireland are worse than the Union-wide target (+2.7% vs. -1.9% for RP3 and +1.4% vs. -2.7% for RP2+RP3). Excluding the "restructuring costs" from the 2024 determined cost would reduce the gap but Ireland would still miss the two targets (+1.7% for RP3 and +0.9% for RP2+RP3).

The 2019 DUC baseline for Ireland is -50.9% below its comparators' average and the DUC is planned to remain lower throughout RP3 (-41.6% in 2024). It is also noteworthy that Ireland 2019 DUC is the third lowest among the SES States (and it is planned to be the fifth lowest by 2024).

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +119.6 v. RP2+RP3 trend over the period 2020-2024 +214.5

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+38.5	Additional ATCO costs (M€2017)*	+5.9
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€2017)	23.7	of which, related to capacity (see Section 3.5 for details)	7.2
---	------	---	-----

Analysis

Ireland is estimated to deviate from the RP3 DUC trend by 119.6M€2017. At the same time, the deviation from the long-term DUC trend of -2.7% is 214.5M€2017.

In order to provide an estimation of whether the deviation of 119.6M€2017 is proportionate to the measures taken to achieve the capacity targets, the two following cost items can be considered:

- The cumulative additional costs for ATCOs planned to start working in the ACC, which can be estimated at around 5.9M€2017 based on the average unit cost for ATCO in OPS reported in the ACE 2017 report. This does not include training costs.
- The costs of capacity-related investments (mainly the flight data processing system COOPANS Build 3, see section 3.5 of this document for more details) which amount to 7.2M€2017.

Therefore, a total of 13.1M€2017 can be directly attributed to capacity-related measures. Even if this calculation may underestimate the actual costs related to capacity improvement measures, it is not commensurate with a deviation of 119.6M€2017 (even when accounting for the restructuring costs of 37.1M€2017 discussed in the analysis below).

- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs



Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +119.6 v. RP2+RP3 trend over the period 2020-2024 +214.5

Restructuring costs from previous periods to be recovered in RP3 (in M€2017)

2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
-	-	-	-	-	-

Restructuring costs planned for RP3 (in M€2017)

	2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
Staff	0.5	0.5	0.5	0.5	0.5	2.4
of which, pension costs	0.0	0.0	0.0	0.0	0.0	0.0
Other operating costs	2.5	2.5	2.3	2.3	2.5	12.1
Depreciation	1.3	1.8	1.8	1.8	1.8	8.3
Cost of capital	0.4	0.5	0.4	0.3	0.2	1.8
Exceptional items	2.5	2.5	2.5	2.5	2.5	12.5
Total restructuring costs	7.2	7.7	7.4	7.4	7.4	37.1

Summary of restructuring measures presented in the PP

Annexes H and H1 of the performance plan provide a detailed description of the restructuring costs reported above, which mainly relate to the creation of two new corporate entities: one dedicated to the ANSP function and one dedicated to the regulatory function (merging the current Safety Regulatory Division - SRD of the IAA and the Commission for Aviation Regulation). The main elements of justification presented in the Annexes of the performance plan are the following:

- Each new entity will require their own new accommodations as the ANSP staff will not continue to share the current premises with the future regulatory entity. These are permanent new costs.
- Corporate support services were previously shared between the ANSP and the SRD, but with the separation, these costs will be fully allocated to the ANSP. These are also permanent new costs.
- Other costs related to the transition such as rebranding and consultancy services, which are one-off costs.
- At the request of the State, the NSA also included some 2.5M€ per year in the above table to cover transition costs for the new SRD. In this respect, it mentioned that "The NSA understands that the €2.5m p.a. relates to non-ANS activities. The NSA has not carried out any validation or assessment exercises on this item."

Analysis

It is understood that the "restructuring measures" are of an institutional nature and have not a direct impact on the operational efficiency of the ANSP.

Annex H of the performance plan presents potential benefits in a qualitative manner only as it is not possible to quantify the longer term financial impact of the new institutional setup.

The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend amounts to 119.6M€2017, which is far above the 37.1M€2017 presented as restructuring costs over RP3. The deviation is therefore not exclusively due to those restructuring costs.

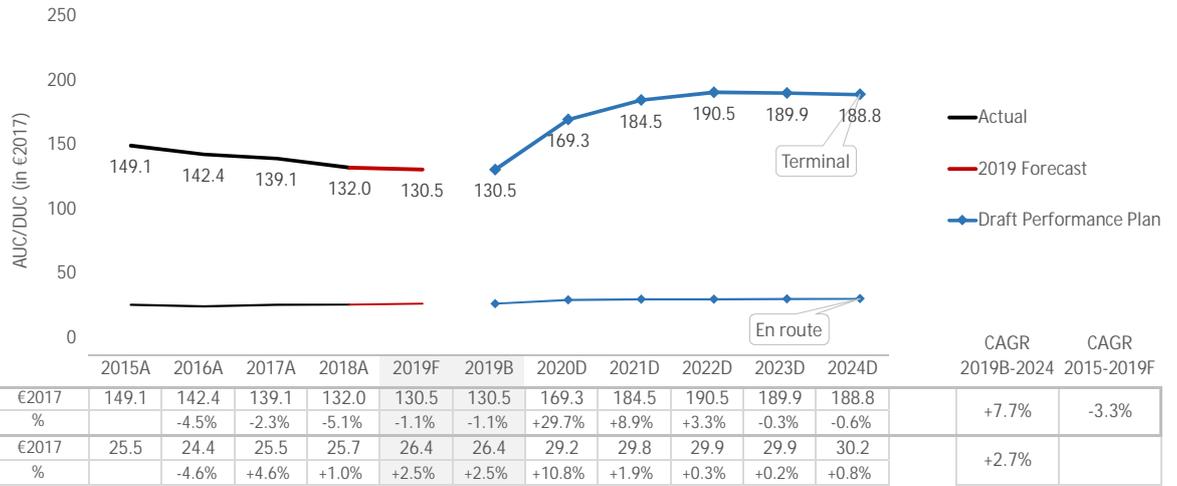
✘ Can it be considered that the deviation is <u>exclusively</u> due to restructuring costs?	No
✘ Is it demonstrated that measures will deliver a net financial benefit to airspace users at the latest in RP4?	No

4.4.5 PRB Key Points



- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group, and one of the lowest Union-wide.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.
- Ireland invokes a deviation from the trends due to restructuring costs. However, the restructuring costs are not demonstrating a quantified benefit to users. Moreover, the deviation from the cost-efficiency trend is not exclusively due to restructuring measures.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Ireland provided the terminal costs at aggregated level only, without any breakdown at airport level. It is therefore not possible to undertake a comparison with similar airports.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	187.7			
2019F (STATFOR Feb 19)	L 184.4	B 187.7	H 189.4	=B
2019F (STATFOR Oct 19)	L 187.1	B 188.0	H 188.7	-0.16%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+0.4	+1.6%
2019 Forecast v. Avg. 2015-2018 Actual	+1.1	+4.7%
2019 Baseline v. 2019 Forecast	0.0	+0%

- The 2019 traffic baseline is in line with STATFOR February base forecast.
- The 2019 cost baseline is similar to the forecast, which is +1.6% above 2018 actual costs.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

Review of the PP traffic forecast

The performance plan traffic forecast for the years 2020-2024 is in line with the STATFOR February base forecast.

Determined costs (terminal)

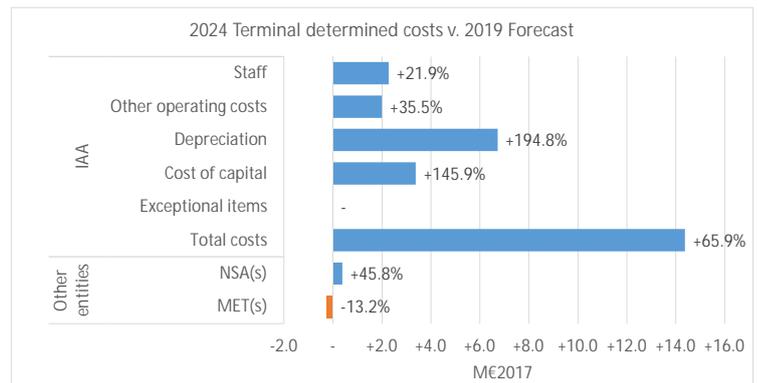
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - IAA (terminal)

- 📌 Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (44%) is higher than the share of terminal total costs (22%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The 2024 determined costs for IAA are planned to be +14.4M€2017 (or +65.9%) higher than the 2019 forecast mainly due to increases in depreciation costs (+6.7M€2017 or +194.8%) and cost of capital (+3.4M€2017 or +145.9%). It is understood that these costs are mainly related to the new Dublin tower and new runway projects.
- As for en route, the restructuring costs have an impact on the RP3 terminal costs but constitute only a small fraction of the observed increase (i.e. 0.9M€'000 in 2024).

4.5.4 PRB Key Points ✖

- The Terminal RP3 DUC trend is +7.7%, which is worse than the en route RP3 DUC trend of +2.7%.
- The Terminal RP3 DUC trend is +7.7%, which is worse than the Terminal RP2 DUC trend of -3.3% p.a.
- Ireland did not provide a breakdown of costs at airport level.
- Ireland used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with the STATFOR February 2019 base forecast, for all years from 2020 to 2024.
- Terminal costs increase over the period, mainly due to depreciation and cost of capital. These increases are mainly related to the new Dublin tower and runway projects.

PRB Assessment

ITALY

Draft Performance Plan

Context and scope

Italy

Performance Plan: Draft performance plan (Article 12) Dated: 21.11.2019
 Documents no: 1274, 1738, 1276, 1281, 1275, 1278, 1284, 1277, 1280, 1279, 1739, 1740

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 5.3%
 % Costs V. SES 5.8%

Scope

FAB: BLUE MED FAB

ANSPs: ENAV
 ITAF

ANSP
 ANSP

Other entities (as per Article 1(2) last para. of Regulation 2019/317): ENAC

NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Italy	n/a	No	No	no	
Terminal	Italy - Zone 1	1	No	No	no	
	Italy - Zone 2	4	No	No	no	
Changes in the CZs from RP2	no					

Comparator group: Group A Other States in the comparator group: France
 Germany
 Spain
 United Kingdom

Currency: € Exchange rate: 1.00000

1. Safety ✔

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
ENAV	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	B	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Italy should be approved.
 -The EoSM safety targets are in line with the Union-wide performance targets.
 -The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management and Safety Culture areas.

The PRB notes that interdependencies between safety and other KPAs are described and it is explained how safety will be addressed when implementing changes, which may be required to achieve other performance targets.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment ✔

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	2.83%	2.80%	2.77%	2.77%	2.77%

PRB Assessment

The PRB concludes that the environment targets proposed by Italy should be approved.
 - ENAV's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✔

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.25	0.25	0.19	0.14	0.14
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.41	0.41	0.39	0.39	0.38

PRB Assessment

The PRB concludes that the capacity targets proposed by Italy should be approved. The existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Italy will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.

4. Cost-efficiency ✘

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024	
Target for determined unit cost (DUC) (€2017) - En route	64.78	63.67	62.06	61.06	59.80	-2.9%	-2.1%	
Target for determined unit cost (DUC) (€2017) - Terminal						n/a	-1.5%	
	CZ1	167.28	164.71	162.20	160.03	157.50		
	CZ2	180.24	178.15	175.74	174.30	171.93	n/a	-1.3%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Italy should not be approved.
 - The DUC trend 2019-2024 (RP3) is biased by an artificially high 2019 baseline. This is caused by an incorrect consideration of the cost of capital parameters. This is the reason why the RP3 trend is not consistent with the cost-efficiency criteria.

PRB Recommendations

SAFETY

- Italy should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management and Safety Culture area.

ENVIRONMENT

- Italy should revise its commitment to improving its FRA availability in co-ordination with the Italian Air Force seeing as no concrete proposals were provided to explain how Italy will achieve this.

- Italy should work with its other BLUE MED FAB partners to ensure cross-FAB FRA is implemented. Although other BLUE MED States have yet to establish national FRA, greater effort in establishing regional coordination would potentially benefit all FAB states.

CAPACITY

- Italy should consider a penalty-only incentive scheme, or at least ensure, that significant bonuses can only be earned if extra efforts are made by the ANSP and performance is better than delay forecast values.

- Italy should justify the terminal RP3 capacity targets with respect to RP2 actual performance and with respect to similar airports, or should revise terminal RP3 capacity targets downwards.

COST-EFFICIENCY

- Italy should correct the value of the 2019 cost of capital (i.e. the determined RP2 RoE) and, accordingly, to adjust the costs over RP3 in order to meet the cost-efficiency criteria.

- Italy should reduce the cost of capital proposed aligning it to the market risk exposure.

- Italy should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

ITALY

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are achieved at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

No specific measures are provided despite that ANSP requires to improve safety risk management and safety culture areas. Relevant measures in these two management objectives should be provided.

1.1.3 Interdependencies and Trade-offs

A standard safety process is applied to identify the interdependencies between safety and other KPAs targets during implementation of the changes to the ATM Functional system. Procedures at required EoSM levels and compliant with the Commission Implementing Regulation (EU) 2017/373 should be sufficient to control impact on safety and as part of the regular safety oversight.

1.1.4 Change Management

The performance plan describes the change management practices to ensure minimum impact on network performance. It is considered that the practices are explained adequately.

1.1.5 PRB Conclusions 

The PRB concludes that the safety targets proposed by Italy should be approved.

-The EoSM safety targets are consistent with the Union-wide performance targets.

-The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management and Safety Culture areas.

-The PRB will closely monitor the implementation of proposed measures derived from CANSO Standard of Excellence in Safety Management Systems during RP3 in its "RP3 watchlist".

The PRB notes that interdependencies between safety and other KPAs are described and it is explained how safety will be addressed when implementing changes, which may be required to achieve other performance targets.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
ENAV	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	B	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are achieved at the end of RP3. The starting targets are set higher than RP2 2018.

The performance plan argues that no specific measures are required as the ANSP expects to reach the targets with currently applied measures (compliant with the Commission Implementing Regulation (EU) 1035/2011) and specific actions derived from CANSO Standard of Excellence in Safety Management Systems. Considering the current ANSP levels, the relevant measures in safety risk management and safety culture should be provided.

1.3.1 Interdependencies and Trade-offs

Any change applied to ATM Functional system is accompanied by the safety assessment pre-specified by the Commission Implementing Regulation (EU) 2017/373. The safety level shall not be deteriorated to satisfy other KPA targets. Safety is considered as paramount and the resources are planned to ensure safety activities are maintained.

1.3.2 Change Management Practices

The change management procedures are developed by ANSP in cooperation with NSA. The procedures include several steps including risk and mitigation assessments and various validation activities. The procedures, if compliant with the Commission Implementing Regulation (EU) 2017/373, should be sufficient to ensure minimal negative impact of the change on the network performance.

ITALY

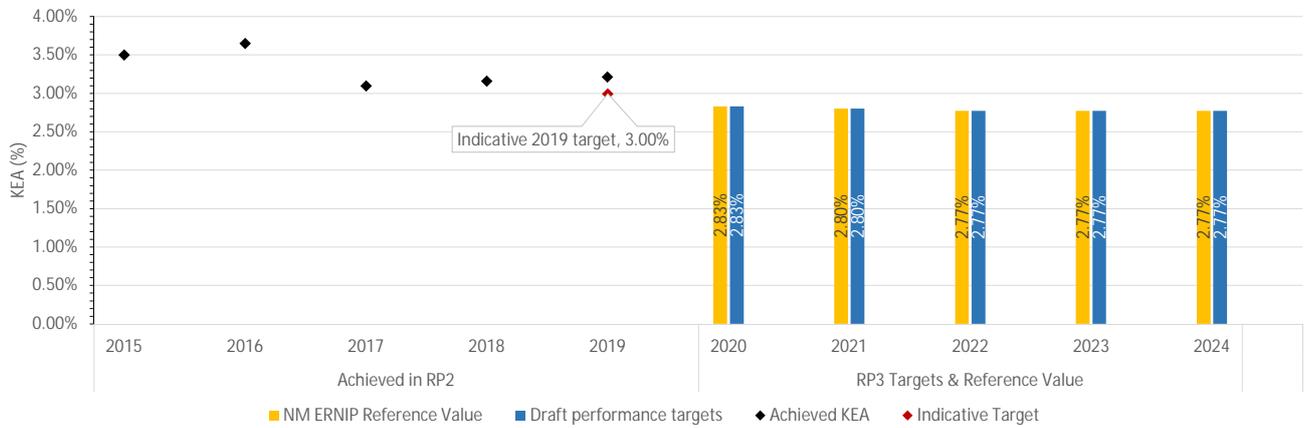
Environment KPA

2.1 Summary of environment key data and assessment results

Italy

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	2.83%	2.80%	2.77%	2.77%	2.77%
Draft performance targets	2.83%	2.80%	2.77%	2.77%	2.77%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Italy should be approved.
 - ENAV's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? ENAV has implemented FRA above FL305.	✓	Reference in PP 3.2.1(c)	Reference in LSSIP Page 57
Major ERNIP Recommended Measures: Measure included within performance plan?	3	Reference in PP Implemented	Reference in ERNIP Page 12
Implementation of FRAIT - IT FL305	✓	None	Page 12
Cross-border FRA within Blue Med	✗	3.2.1(c)	Page 12
Improving the utilisation of FRAIT	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Italy achieved a KEA of 3.21% in 2019 and it needs to meet an indicative target of 3.00% in 2019 to achieve the planned target of 2.83% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

ENAV offers airspace users FRA above FL305. As such, Italy has implemented FRA according to the PCP but could further improve its application (i.e. lower available limits) and review waypoints. The latter is something that Italy committed to implement in its performance plan. However, it does not plan to offer FRA below FL305, instead relying on ATS route network optimisations to drive horizontal efficiencies in RP3.

Despite being an ERNIP measure, Italy has not commented on the possibility of cross-border cooperation to offer FRA across the Blue Med FAB as a bloc, which may impact its ability to achieve the targets.

With regards to military coordination, Italy plans to enhance the application of flexible use of airspace, although no concrete proposals were provided. At the same time, the PRB notes that Italy does not offer procedure three of ASM level two that enhances FUA, since no data was provided in past annual monitoring submissions.

2.3.1 Annex IV 2.1(f): Measures for achievement of targets

Does Italy plan for an environmental incentive scheme? Italy does not plan to apply an optional incentive scheme for the environment KPA.	✗
--	---

ITALY

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The targets defined in the performance plan are consistent with the national reference values during RP3 and the NOP delay forecast is lower during RP3, indicating that Italy has sufficient capacity to meet the demand.

Analysis of the Italy planned capacity profiles indicates that they are in line with the capacity enhancement measures and the trend set by the national targets. Presented capacity enhancement measures and capacity plans are coherent, and show that the targets are realistic.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

The national targets for RP3 is considerably higher than the observed past performance and the delays associated to the national targets do not correspond to the delays associated with the breakdown values per airport.

3.1.3 Incentives

En route incentives:

The information provided in the performance plan is inconsistent. The dead band is indicated between 0.05-0.02 minutes, whereas the bonus range is stated as being 0.04 minutes (which falls within the dead band). The following analysis is based on assumption, that the dead band is ± 0.15 minutes around the pivot value for 2020 (0.20 minutes per flight). Full bonus is paid at 0.04 minutes, full penalty is paid at 0.36 minutes delay. Based on these figures and the delay forecasts in the NOP, it appears that the bonus of 2% will most likely be paid out at least once over the reference period and that it is practically impossible for the ANSP to be subject to the penalty of 2%.

Terminal Incentives:

Italy has modulated the pivot values to cover only CRSTMP targets, but these values are well above the observed past performance, which was nearly zero CRSTMP delays. The low risk of penalty does not seem to incentivise improving or even maintaining the current performance, and it would actually very likely end up in a maximum bonus (1%).

3.1.4 Investments

Italy introduces major investments, which may substantially affect capacity. As stated in the performance plan, "all investments are clustering a number of projects, therefore it is not possible to define a quantitative value" of impact on the capacity.

3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets proposed by Italy should be approved. The existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Italy will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.

3.2 En route ATFM delay per flight

Italy

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual ATFM delay per flight	0.01	0.00	0.01	0.03						
ANSP reference values						0.25	0.25	0.19	0.14	0.14
ANSP national targets						0.25	0.25	0.19	0.14	0.14
Forecast with eNM/ANSPs measures*					0.05	0.08				
Forecast w/o eNM/ANSPs measures*					0.05	0.08		0.03-0.06		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

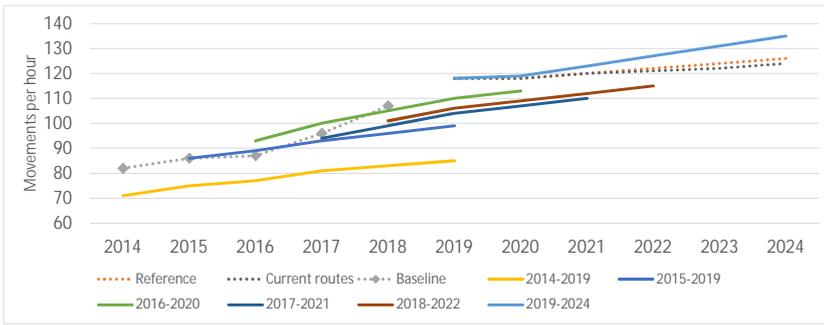
Description of capacity enhancement measures

The performance plan refers to the application of Flexible Configuration Concept (FCC) and further airspace organisation measures in all ACCs that would be flight efficiency oriented. The performance plan is referring to the NOP 2019-2024 (June 2019 edition).

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Brindisi ACC (LIBB)	Additional ATCOs in OPS to start working in the OPS room	0	20	70	70	20	10	10	+120
	ATCOs in OPS to stop working in the OPS room	0	10	20	20	10	5	5	
	ATCOs in OPS to be operational at year-end	868.89	878.89	928.89	978.89	988.89	993.89	998.89	
Milano ACC (LIMM)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	+0
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	0	0	0	0	0	0	0	
Padova ACC (LIPP)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	+0
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	0	0	0	0	0	0	0	
Rome ACC (LIRR)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	+0
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	0	0	0	0	0	0	0	
Total - ENAV (en route)	Additional ATCOs in OPS to start working in the OPS room	0	20	70	70	20	10	10	+120
	ATCOs in OPS to stop working in the OPS room	0	10	20	20	10	5	5	
	ATCOs in OPS to be operational at year-end	868.89	878.89	928.89	978.89	988.89	993.89	998.89	

Brindisi ACC (LIBB)



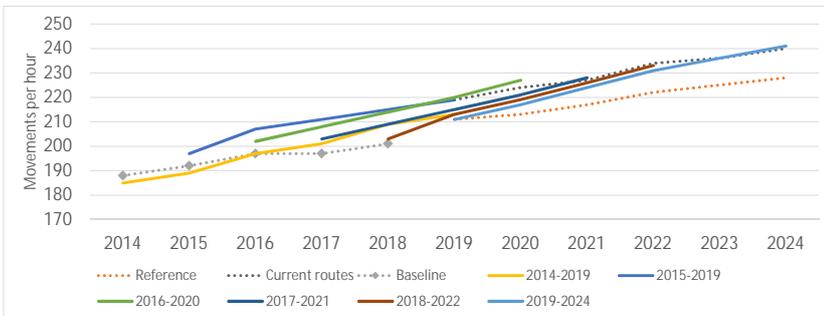
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						118	118	120	122	124	126
Current routes						118	118	120	121	122	124
Baseline	82	86	87	96	107						
2014-2019	71	75	77	81	83	85					
2015-2019		86	89	93	96	99					
2016-2020			93	100	105	110	113				
2017-2021				94	99	104	107	110			
2018-2022					101	106	109	112	115		
2019-2024						118	119	123	127	131	135

- Historical data shows that baseline values were increasing constantly during RP2, with significant growth of baseline value (11%) in 2018.

- Current capacity plan indicates annual capacity increase between 1% and 3% during RP3. Current capacity plans are higher than both the reference and current route scenarios, which indicates sufficient capacity during RP3.

- As indicated in the NOP 2019-2024 (June 2019 edition) capacity enhancement measures planned for Brindisi are in the order of fine-tuning the already existing capacity and to support any possible improvement in flight efficiency.

Milano ACC (LIMM)



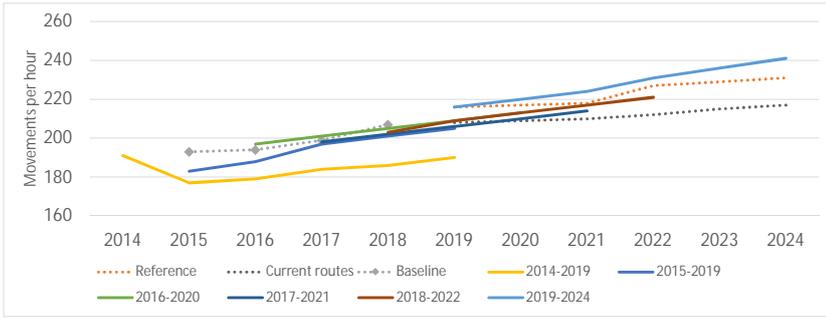
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						211	213	217	222	225	228
Current routes						219	224	227	234	236	240
Baseline	188	192	197	197	201						
2014-2019	185	189	197	201	209	213					
2015-2019		197	207	211	215	219					
2016-2020			202	208	214	220	227				
2017-2021				203	209	215	221	228			
2018-2022					203	213	219	226	233		
2019-2024						211	217	224	231	236	241

- Historical data shows a baseline value annual growth around 2%. Between 2016 and 2017, the baseline value remained at the same levels. The baseline values remained below the planned capacity values during the observed period.

- Current capacity plan indicates an annual capacity increase between 2% and 3% during RP3. Planned capacity profiles are above the reference route scenario between 1.9% and 5.7% annually, during RP3. In the first three years of RP3, planned capacity profiles are below current route scenario, while for 2023 and 2024 they are matching the values or are slightly above the current route scenario.

- The NOP indicates that current route profile is influenced by the NM measures and other disruptive events, and that the plan is based on the shortest route option (i.e. reference value). Thus, no capacity issues are foreseen for Milan ACC during RP3.

Padova ACC (LIPP)



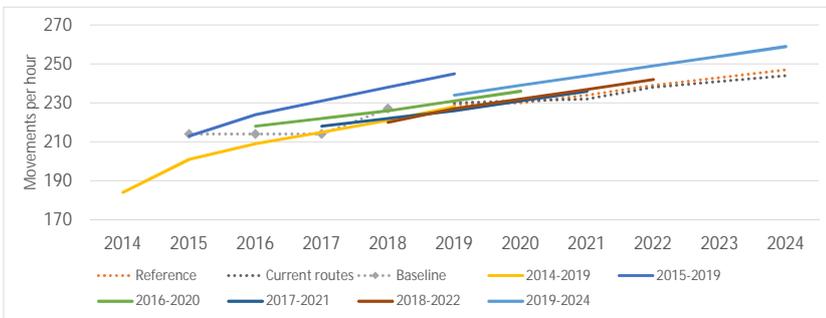
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						216	217	218	227	229	231
Current routes						208	209	210	212	215	217
Baseline		193	194	199	207						
2014-2019	191	177	179	184	186	190					
2015-2019		183	188	197	201	205					
2016-2020			197	201	205	209	213				
2017-2021				198	202	206	210	214			
2018-2022					203	209	213	217	221		
2019-2024						216	220	224	231	236	241

- Historical data shows that baseline values during the observed period grew each year, with most significant annual growth in 2018.

- Current capacity plans show annual capacity increase between 2% and 3% during RP3. Planned capacity profiles are above the current route and reference scenarios for each year of RP3. With foreseen capacity increase, Padova ACC would provide sufficient capacity to handle the traffic demand.

- The NOP 2019-2024 (June 2019 edition) indicates that no problems are foreseen for Padova ACC during RP3. The planned capacity enhancement measures are in the order of fine-tuning the already existing capacity.

Rome ACC (LIRR)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						229	230	234	239	243	247
Current routes						230	231	232	238	241	244
Baseline		214	214	214	227						
2014-2019	184	201	209	215	221	228					
2015-2019		213	224	231	238	245					
2016-2020			218	222	226	231	236				
2017-2021				218	222	226	231	236			
2018-2022					220	227	232	237	242		
2019-2024						234	239	244	249	254	259

- Historical data shows that the baseline value remained flat between 2015 and 2017, with significant annual growth of 6% in 2018.

- Current capacity plan indicates an annual capacity increase by 2%, during the RP3. Planned capacity profiles are above the current route scenario and reference scenario for each year of RP3. With foreseen capacity increase, Rome ACC would provide sufficient capacity to handle the traffic demand.

- The NOP 2019-2024 (June 2019 edition) indicates that no problems are foreseen for Rome ACC during RP3. The planned capacity enhancement measures are in the order of fine-tuning the already existing capacity.

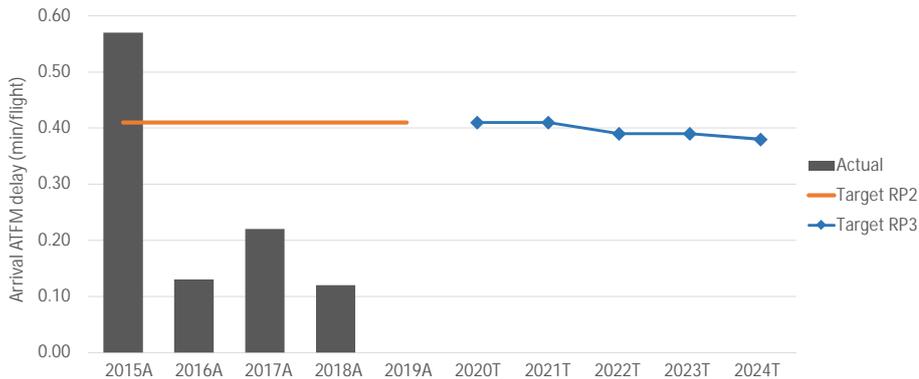
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- The proposed capacity targets are in line with the respective reference delay values, contributing to the achievement of the Union-wide capacity target.
- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Italy will have sufficient capacity to meet the forecasted demand and to reach the target.
- Presented ATCO numbers and the NOP capacity forecast provide evidence that Italy has sufficient capacity to cope with the expected traffic growth during RP3.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.57	0.13	0.22	0.12	-	0.41	0.41	0.39	0.39	0.38
Milan/ Malpensa (LIMC)	0.02	0.02	0.03	0.09	-	0.10	0.10	0.08	0.08	0.08
Bergamo (LIME)	0.03	0.01	0.05	0.07	-	0.03	0.03	0.03	0.03	0.03
Milan/ Linate (LIML)	0.06	0.02	0.10	0.04	-	0.50	0.50	0.48	0.48	0.46
Venice (LIPZ)	0.39	0.27	0.45	0.44	-	0.40	0.40	0.38	0.38	0.36
Rome/Fiumicino (LIRF)	1.22	0.23	0.36	0.10	-	0.50	0.50	0.48	0.48	0.46

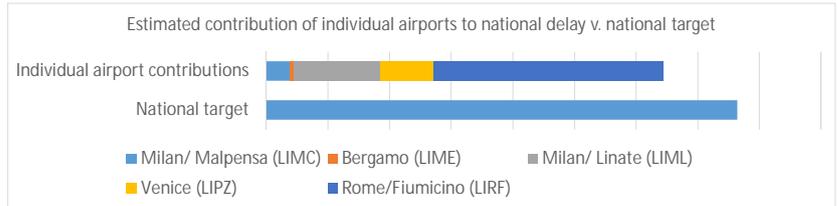
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

The proposed targets for RP3 represent a minor improvement compared to the targets for RP2 with progressive improvement along the reference period. These targets, however, are still considerably higher than the observed performance in 2016-2018.

When looking at the breakdown per airport, the new target for Milan Linate is especially striking with more than ten times the observed delay in 2018.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Milan/ Malpensa (LIMC)	0.09
Bergamo (LIME)	0.03
Milan/ Linate (LIML)	0.48
Venice (LIPZ)	0.38
Rome/Fiumicino (LIRF)	0.48
National Target	0.40



The main contributor to Italian capacity performance in terms of delays is Rome, followed by Milan Linate, Venice and Malpensa. The breakdown of the targets per airport does not correspond to the national target, assuming the same traffic share. That is, the potential delay associated to the target of the individual airports is 20% lower than the delay associated to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Milan/ Malpensa (LIMC)	GROUP III	0.25	0.04	-0.21	0.09	-0.16
Bergamo (LIME)	GROUP III	0.25	0.04	-0.21	0.03	-0.22
Milan/ Linate (LIML)	GROUP III	0.25	0.05	-0.19	0.48	+0.24
Venice (LIPZ)	GROUP II	0.22	0.39	+0.16	0.38	+0.16
Rome/Fiumicino (LIRF)	GROUP I	0.87	0.48	-0.39	0.48	-0.39

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

All Italian airports included in the performance plan, except for Venice, show better performance than similar airports. The RP3 targets per airport follow the same lines, except for Milan Linate, where the new target would represent a significant worsening with respect to the observed performance during RP2, and also worse performance compared to the similar airports.

3.3.5 PRB Key Points

- The national targets for RP3 are considerably higher than observed past performance, and the delays associated to the national targets do not correspond to the delays associated with the breakdown values per airport.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
?	2.000%	2.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.25	0.25	0.19	0.14	0.14
Alert threshold (Δ Ref. value in fraction of min)	± 0.050				
Performance Plan targets	0.25	0.25	0.19	0.14	0.14
Pivot values for RP3	0.20	0.20	0.19	0.14	0.14

Threshold review

The dead band range is given as values for each year of the reference period (0.05, 0.05, 0.04, 0.02, 0.02 minutes respectively). Pivot values are more ambitious in the first two years of the reference period than the NOP reference values. The full bonus is paid out at 0.04 minutes per flight and that the full penalty is paid out at 0.36 minutes per flight. Based on the NOP delay forecast values, the incentive scheme is likely to generate partial or even full bonuses in each year of the reference period.

Modulation review

No additional modulation is applied.

Review of financial advantages/disadvantages

Full bonus of 2% and full penalty of 2% delay forecasts from the NOP show Italy achieving 0.08 minutes per flight delay in 2020 and between 0.03 and 0.06 minutes per flight delay for the remainder of RP3. Such performance is likely to result in full bonus for at least one year in RP3, whilst making it practically impossible to result in any form of delay penalty.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
± 0.002 min	1.000%	1.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	± 0.030				
Performance Plan targets	0.41	0.41	0.39	0.39	0.38
Pivot values for RP3	0.05	0.05	0.04	0.04	0.04

Threshold review

The terminal incentive scheme includes a dead band of ± 0.002 min ($\pm 4\%$) of the CRSTMP pivot value (dead band: 0.048-0.052 minutes per arrival). The 4% dead band might be too small to be able to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Italy has chosen to modulate the pivot values according to CRSTMP causes. The pivot value (0.05 minutes per arrival), although low, is still higher than the observed performance in any of the years of RP2 (average CRSTMP delays in 2015-2018 were zero).

Review of financial advantages/disadvantages

The terminal incentive scheme is symmetric, with a maximum bonus/penalty of 1%. The proposed scheme would very likely result in maximum bonus given the pivot value, even showing deterioration in performance with respect to RP2.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✓

En route Incentives:

- Full bonus is paid at 0.04, full penalty is paid at 0.36 minutes delay. Based on these figures, and the delay forecasts in the NOP, it appears that the bonus of 2% will most likely be paid out at least once over the reference period, and that it is practically impossible for the ANSP to be liable for the penalty of 2%.

Terminal Incentives:

- Italy has modulated the pivot values to cover only CRSTMP targets, but these values are well above the observed past performance, that was nearly zero CRSTMP delays. The low risk of penalty does not seem to incentivise improving or even maintaining the current performance, and it would actually very likely end up in a maximum bonus (1%).

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0
En route	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0
Terminal	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	AMPLIAMENTI E RISTR. ACC	This project is related to the construction of a new building for the Area Control center of Milan, replacing the current one that has achieved its expansion capability in term of air traffic controller positions. Additional minor works are also foreseen in Padua in order to prepare to the consolidation of the ACCs enclosed within the ENAV Industrial Plan. Considering the expected traffic grow, a new building for Milan ACC is required in order to cope with the capacity to be accommodated. The new building will be constructed in the Linate Airport Area, with an operational room of over 1500 m2, able to integrate the Milan and Padua ACC's, with additional room for further expansion for the next 20 years.	62.3	Yes	Yes	44.5	0.0
2	NUOVO SISTEMA ATM ACC	Coflight is a fundamental component for the new generation ATM ACC platform, and will be integrated into the 4flight system, implementing the Flight Data processing functions, that is the continuous computation of the predicted trajectories of all flights, with highly precise algorithms modeling the aircraft behavior, taking into account the constraint of the airspace structure, controller directives and coordination with other controllers in the center and with other ACC's. In this project, other minor ATM ACC improvements will be developed.	74.0	Yes	Yes	41.7	0.0
3	NUOVE TWR/BT	Towers and tower equipment will be subject to a replacement programme, in order to ensure compliance of the infrastructures with the developments foreseen for the next future in terms of safety, efficiency and capacity and in order to cope with the new functionalities developed at central level.	49.9	Yes	No	0.0	40.9
4	AUTOMAZIONE OPERATIVA ACC	ENAV plans to consolidate a number of Approach Centres, currently located within local Control Towers, into the Area Control Center. This initiative will enable defragmentation and consolidation of Systems and Infrastructures deployed in major Airports. The same will apply for consolidation of Area Control Centers, that will enable to have the Brindisi ACC consolidated within the Rome ACC, and the Padua ACC consolidated within the Milan ACC. optimisation of infrastructures will be achieved at ACC level. Additionally, automated tools will be implemented in order to improve ATC performances.	76.1	Yes	Yes	33.0	0.0
5	RADAR	This project implements the replacement of approach radars, operational in major Italian airports, as soon as they reach the end of operational life, generally considered around 20 years. The project covers the procurement of the equipment, the installation and, if required, the modifications to the hosting civil infrastructure.	66.8	No	No	3.2	28.4
6	TORRI REMOTE	Following the recently approved ENAV Industrial Plan, 26 towers services will be delivered in a remote-tower configuration in the next decade, using the Padua and Brindisi building as hubs. This project, lasting up to 2028, covers the deployment of hardware and software components required for the implementation of remote tower services, essentially cameras, poles, video acquisition and transmission, video presentation and processing at the remote tower center. The project will start with the southern Italy airports, converging in Brindisi RTCC, then (after 2025) will cover northern Italy airports, converging in Padua RTCC.	129.8	No	No	0.0	23.8
7	CENTRI RADIO TBT DEGLI ACC	This project covers the progressive replacement of Voice Control Switches and radios with new models offering a native IP connection capability, replacing older standards in use in ATC in last decades. The adjustment of TBT equipment to 8.33 KHz is also foreseen. Specific emphasis will be given to Emergency communications and supporting infrastructure.	35.6	Yes	No	22.7	0.0
8	MANUTENZIONE EVOLUTIVA	The project encompasses evolutionary maintenance of all relevant ENAV ATM Systems in order to ensure a continuous performance improvement of Systems and Tools deployed over the whole Italian territory.	37.3	Yes	No	18.6	0.0
9	AMPLIAMENTI E RISTR. EDIFICI	This project covers the building expansion in Rome ACC, in order to be able to incorporate the functions of a number of APPs and Brindisi ACC. The consolidation process involving Rome ACC requires a building expansion of the site, with new offices, parking space, a new equipment room and a new area for centralized maintenance and monitoring. Additional interventions are foreseen in the central offices in order to optimise resources and space.	43.7	No	Yes	13.0	1.4
10	RADIOASSISTENZE ROTTA/APT	Nav Equipment is a fundamental enabler for daily operations and is a prerequisite for all SES related interventions. This project has the target to replace at the end of their own lifecycle, relevant APT and en-Route NAV infrastructures.	28.6	No	No	6.9	6.9

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
13	MULTILATERAZIONE	This initiative aims at delivering upgraded Surveillance systems and increased situational awareness through Wide Area Multilateration, thus avoiding redundancy and use of SSRs. This project will enable optimisation of ground infrastructure and better performances.	42.9	No	No	0.0	10.3
14	SISTEMI METEO CENTRALI	The project aims at the implementation of a flexible and cost-effective interoperable exchange of MET information for Italian airports, TMAS (Terminal manoeuvring Areas) and ACC (Air Control Centres), Airspace Users, Military and Network Manager compliant with the iSWIM (System Wide Information Management) data formats and interfaces. It will also upgrade the meteorological service to provide reliable actual and forecast meteorological data, wherever required across the ATM network, in WXXM format. The programme will also enable the issuance of Italian OPMET data in IWXXM format for airports to ensure conformity with the envisaged Amendment 77 to ICAO Annex 3.	18.1	Yes	No	8.5	0.0
15	ALLESTIMENTO TBT DEGLI APT	Communication is a fundamental enabler for ATC Operations. A very important role is played by communications infrastructure deployed at Airport level, which are allowing a smooth transition of the Air Traffic from the Approach to the Airport domain, providing a fundamental enabler for safety. Renewal and enhancement of the COM infrastructure over relevant Italian airports is tackled by this investment.	9.9	No	No	0.0	8.1
Total:						192.1	120.0

Airspace user feedback regarding major investments

Airspace users had concerns regarding a near constant level of depreciation despite some significant CAPEX projects, such as a new ACC facility for Milano ACC. The concerns also regarded what elements of the CAPEX plan are being carried over from RP2 and have, therefore, already been funded by users.

Review of investments

New major investments represent 55% of the total determined costs of investments over RP3. Due to the lack of information regarding the investments, it is unclear whether there are investments that will continue from RP2. In line with this, 2015-2018 actual CAPEX reaches 70% of the planned values for the same period and the amount underspent is 184M€. It is unclear if this amount will be reimbursed to the airspace users.

Moreover, the determined costs of investment are not consistent with the lifecycle of all the investment. The sum of the determined costs for investments over RP3 is equal to the total value of the assets allocated to ANS, even though the lifecycle of the investments is longer. Finally, the reporting tables (i.e. Annex A of the performance plan) are not correctly filled.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
5	RADAR	Local	No information	"This project implements the replacement of approach radars, operational in major Italian airports, as soon as they reach the end of operational life, generally considered around 20 years."
6	TORRI REMOTE	Local	No information	"Following the recently approved ENAV Industrial Plan, 26 towers services will be delivered in a remote-tower configuration in the next decade, using the Padua and Brindisi building as hubs."
9	AMPLIAMENTI E RISTR. EDIFICI	Network	No information	"This project covers the building expansion in Rome ACC, in order to be able to incorporate the functions of a number of APPs and Brindisi ACC. "
10	RADIOASSISTENZE ROTTA/APT	Network	No information	"Nav Equipment is a fundamental enabler for daily operations and is a prerequisite for all SES related interventions. This project has the target to replace at the end of their own lifecycle, relevant APT and en-Route NAV infrastructures."
12	INTERVENTI NON PROGR. CNS/ATM	Network	No information	"This set of investments is allowing to cover measures and interventions at airport and at ACC level not originally comprised within the set of investments planned in the previous reference period and which are due in order to correct and mitigate problems and issues raised at local level."
13	MULTILATERAZIONE	Local	No information	"This initiative aims at delivering upgraded Surveillance systems and increased situational awareness through Wide Area Multilateration, thus avoiding redundancy and use of SSRs. This project will enable optimisation of ground infrastructure and better performances."
15	ALLESTIMENTO TBT DEGLI APT	Local	No information	"Renewal and enhancement of the COM infrastructure over relevant Italian airports is tackled by this investment."

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	266.0	129.8	30.0	28.9	31.1	20.9	18.9	129.8
Existing investments			45.7	38.9	28.9	20.2	17.8	151.5

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 21% of the total determined costs of investments over RP3, while existing investments represent 24%. No information regarding other new investments and existing investments have been provided.
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand ✔

Italy performed well in the capacity KPA during the last reference period and it is expected to continue so in RP3 by delivering required capacity, according to the NOP 2019-2024. Some of the investments enlisted in the performance plan could be linked to the measures introduced in the NOP, thus positively contributing to the achievement to the capacity targets. Assessment of the investments regarding the level of contribution to the capacity targets as well as relevance to the capacity is very difficult due to little information provided in the descriptions of the investments and due to clustering of sub-projects into the major investments as chosen by the ANSP.

It is believed that some of the investments marked as having 'no justified link with measures to achieve capacity targets' in the table 3.5.2.1 above (e.g. #5, #7, #10, #11, etc.), could actually have a link due to providing enablers for other investments. It seems that the weight of the capacity enhancement measures is put on the consolidation of the services (APP and ACC), which is in line with copying with the staffing issues. More information is needed to make the proper assessment.

In general, however, some investments could be linked to the NOP 2019-2024 capacity enhancement measures, which promise to deliver required capacity in all Italian ACCs as simulated by the NM. Many of the investments will support other capacity enhancement measures in operational and airspace domains.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ⓘ

The investments include many sub-activities and sub-projects that are clustered by the technical domain (e.g. radars, radios, TWRs, etc.), without detail on where and how they are planned to be deployed. If the investments are implemented within timeframes indicated in the NOP, they will deliver requested capacity. Although the investments seem to be sequenced reasonably, the limited description does not allow an evaluation of the matter.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ⓘ

Due to the limited level of description of the investments and selected clustering of the investments by the technical domains (see in part b above), it is not possible to perform a proper assessment. The expenditures to all investments are spread along the entire RP3 from start to end. It is not clear whether individual expenditures start even prior a given implementation. Some of the capacity related investments such as #1 and #2 (and others) are planned to enter the operations at the end of RP3 (2024) respectively at the beginning of the RP4 (2025) providing thus benefits outside the RP3.

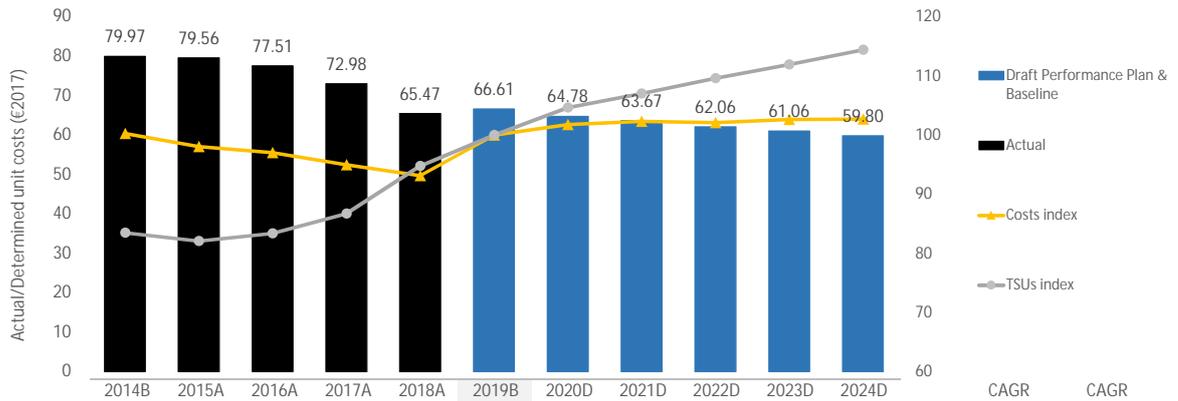
3.5.4 PRB Key Points ✘

- The determined costs of investment are not consistent with the lifecycle of all the investment.
- Very little information regarding the investments have been provided.
- As stated in the performance plan, "all investments are clustering a number of projects, therefore it is not possible to define a quantitative value of impact on the capacity". The chosen way of investment description does not allow a proper assessment of questions in 3.5.3.

ITALY

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	659	645	638	630	623	-	689	699	704	715	724	-	+0.9%
Total costs	M€ (2017)	665	650	643	630	618	663	675	679	677	681	681	+0.5%	+0.2%
TSU	'000	8,314	8,172	8,300	8,632	9,434	9,958	10,417	10,657	10,912	11,146	11,391	+2.7%	+3.2%
AUC/DUC	€ (2017)	79.97	79.56	77.51	72.98	65.47	66.61	64.78	63.67	62.06	61.06	59.80		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	79.97	79.56	77.51	72.98	65.47	66.61	64.78	63.67	62.06	61.06	59.80		
Annual change	%		-0.5%	-2.6%	-5.8%	-10.3%	+1.7%	-2.7%	-1.7%	-2.5%	-1.6%	-2.1%	-2.1%	-2.9%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	66.61 €2017	✘
<p>- The 2019 baseline TSUs selected in the performance plan are, in principle, in line with STATFOR February 2019 base forecast, however, the baseline TSUs are expressed in M2 methodology, whereas M3 methodology should be used.</p> <p>- Considering the CRCO adjustment coefficients (+0.17% for 3 months and +0.14% for 12 months), the impact of this discrepancy on the 2019 baseline TSUs is limited.</p> <p>- Baseline 2019 costs are +7.4% above 2018 actual costs.</p> <p>- The baseline costs for the main ANSP, ENAV include an amount of cost of capital calculated on the basis of a much higher rate of return on equity than that included in the RP2 performance plan for 2019 (9.22% instead of 6.49%). If the RP2 rate of return on equity was considered in the calculation of the baseline costs, these costs would be some 22.1M€2017 below those currently reported. This reporting issue affects the RP3 DUC trend and DUC level for Italy.</p>		

4.1.3 Summary of cost-efficiency assessment results

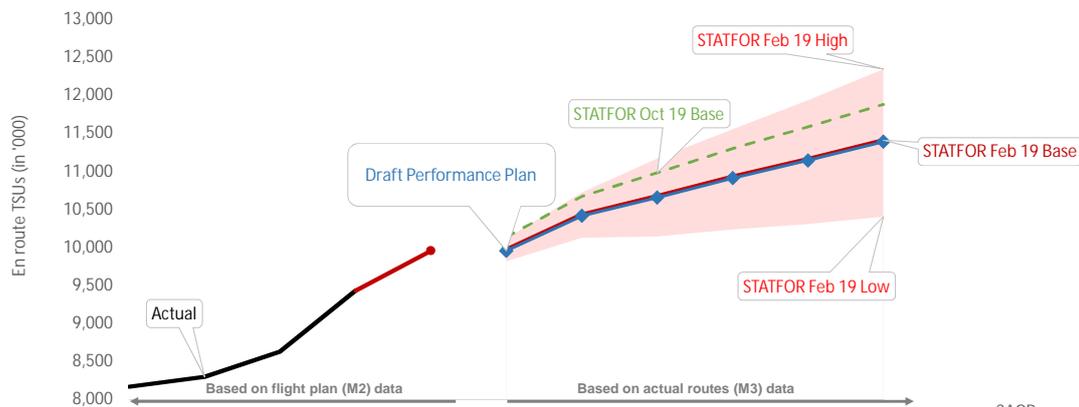
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-2.1%	ⓘ
<p>- The RP3 DUC trend of -2.1% p.a. planned for Italy is consistent with the the Union-wide target trend. However, it should be highlighted, that if the baseline 2019 costs are adjusted for the cost of capital issue (see section 4.3.2 for more detail), resulting RP3 DUC trend for Italy would be -1.5% p.a., which is +0.4 p.p. above the Union-wide target.</p>		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-2.9%	✔
<p>- The long-term DUC trend (RP2+RP3) of -2.9% p.a. exceeds the long-term Union-wide target trend.</p>		
c) DUC level (2019 baseline) lower than the average of comparator group (A) average (61.18 €2017)?	+8.9%	✘
<p>- Italian 2019 baseline DUC is +8.9% above the comparator group average and is planned to remain above the average by the end of the RP3.</p> <p>- It is noted that the adjustment to the baseline 2019 costs for cost of capital reporting issue would positively affect the level of baseline DUC (decrease), however, if implemented, Italian DUC for 2019 would still be +5.1% above the group average.</p>		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Italy should not be approved.

- The DUC trend 2019-2024 (RP3) is biased by an artificially high 2019 baseline. This is caused by an incorrect consideration of the cost of capital parameters. This is the reason why the RP3 trend is not consistent with the cost-efficiency criteria.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	8,172	8,300	8,632	9,434								
Annual change	%		+1.6%	+4.0%	+9.3%								
STATFOR Feb 19 Base	'000 TSUs					9,958	9,975	10,435	10,675	10,931	11,165	11,411	+2.7%
Annual change	%					+5.6%	+5.7%	+4.6%	+2.3%	+2.4%	+2.1%	+2.2%	
STATFOR Oct 19 Base	'000 TSUs					-	10,140	10,674	10,983	11,303	11,589	11,882	+3.2%
Annual change	%					-	+7.5%	+5.3%	+2.9%	+2.9%	+2.5%	+2.5%	
Performance Plan	'000 TSUs					9,958	10,417	10,657	10,912	11,146	11,391		+2.7%
Annual change	%						+5.6%	+4.6%	+2.3%	+2.4%	+2.1%	+2.2%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	9,958		
2019F (as in the Reporting tables, M2)	9,958		
2019B/ 2019F	0.00%	+0.17%	+0.14%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	9,958			
2019F (STATFOR Feb 19, M3)	L 9,820	B 9,975	H 10,123	-0.17%
2019F (STATFOR Oct 19, M3)	L 10,107	B 10,140	H 10,169	-1.79%

The baseline TSUs selected in the performance plan are, in principle, in line with STATFOR February 2019 base TSU growth forecast for 2019. However, it is highlighted that the baseline TSUs are expressed in M2 methodology whereas it should reflect the M3 methodology. Considering the CRCO adjustment coefficients (+0.17% for 3 months and +0.14% for 12 months), the impact of this discrepancy on the 2019 baseline TSUs is limited.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 base forecast, for every year 2020-2024? **No**

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 base forecast

In principle, Italy has adopted the STATFOR February 2019 TSU forecast for the entire RP3 period, including baseline. However, it is highlighted that the forecast is expressed in M2 methodology, whereas, it should reflect M3. Considering the CRCO adjustment coefficients (+0.17% for 3 months and +0.14% for 12 months), the impact of this discrepancy on the 2019 baseline TSUs and the overall TSU forecast for the RP3 is limited.

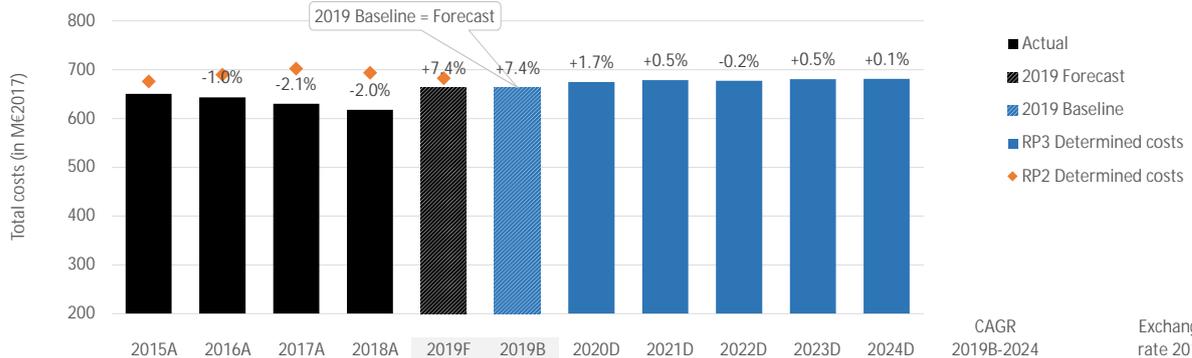
Review of the PP traffic forecast

As described above, in principle, the TSU forecast underlying the proposed cost-efficiency targets for the RP3 is in line with STATFOR February 2019 base TSU growth scenario.

4.2.4 PRB Key Points

- Both baseline and forecast TSUs for RP3 reflect STATFOR February 2019 base TSU growth scenario, however, they are expressed in M2 methodology, whereas these figures should reflect the M3 methodology. However, the impact of this discrepancy is limited since the CRCO adjustment coefficients for Italy are minimal (i.e. <0.2%).

4.3.1 Overview of en route costs in RP2 and RP3



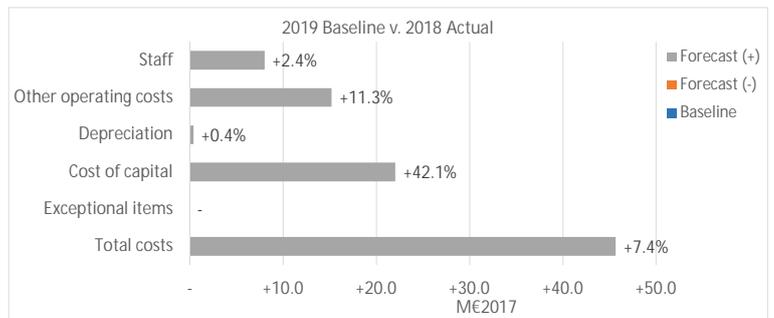
	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017	
Total costs	M€ (nom)	645	638	630	623	672	-	689	699	704	715	724	-	€:€
Annual change	%		-1.1%	-1.2%	-1.2%	+7.9%	-	-	+1.4%	+0.8%	+1.6%	+1.2%	1.00000	
Inflation index	2017 = 100	98.8	98.7	100.0	101.2	102.0	103.2	104.5	106.0	107.6	109.3	+1.4%		
Total costs	M€ (2017)	650	643	630	618	663	663	675	679	677	681	681	+0.5%	
Annual change	%		-1.0%	-2.1%	-2.0%	+7.4%	+7.4%	+1.7%	+0.5%	-0.2%	+0.5%	+0.1%		
Total costs	M€ (2017)	650	643	630	618	663	663	675	679	677	681	681	+0.5%	

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+45.7	+7.4%
2019F v. 2019 RP2 DC	-19.2	-2.8%
2019F v. average 2015-2018	+28.0	+4.4%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 cost forecast is +7.4% above 2018 actual costs.

Considering the alignment between the baseline and forecasted costs for 2019, it is noted that for cost of capital, (only charged by the main ANSP, ENAV), the figure reported considers a rate of return on equity of 9.22% (ENAV is entirely financed through equity, therefore, weighted average cost of capital is equal to RoE). However, the RoE included in the RP2 performance plan for the year 2019 is 6.49%. What concerns the 2019 forecast cost of capital, the applicable RoE considered in the calculation should be the one set in the adopted performance plan for the RP2 (i.e. 6.49%). When considering the RoE of 6.49%, the cost of capital figure for ENAV amounts to some 52.4M€, which is 22.1M€ below the forecast cost of capital currently reported for 2019 (i.e. 74.4M€). If the cost of capital reported for ENAV were corrected for the issue detailed above, the 2019 cost forecast for Italy would be +3.8% above 2018 actual costs. This reporting issue affects the RP3 DUC trend and DUC level, as further detailed in section 4.4.2.

The forecasted cost increase in 2019 primarily results from increases in staff costs (+2.4%, or +8.0M€2017), other operating costs (+11.3%, or +15.2M€2017) and cost of capital (+42.1%, or +22.1M€2017). What concerns the cost of capital, the nature of this increase results entirely from issue described above. At the same time, the forecast increase in staff costs for 2019 is primarily driven by i) the adjustment to staff costs for inflation, ii) the additional overtime payments to operational staff and iii) the payments related to ad-hoc labour agreements signed in 2017 and 2019 addressing productivity improvements following significant traffic growth observed since 2017. The forecast significantly increases in other operating costs, which is not explained in the information provided.

During RP2, a trend of continuously reducing en route costs, in real terms, has been observed for Italy between 2015 and 2018 with annual decrease in costs of -1.7%, on average. To that end, the 2019 forecast costs are much above the 2015 actual costs, in real terms, effectively cancelling-out cost savings demonstrated throughout the RP2.

2019 baseline analysis

The 2019 baseline costs are in line with 2019 forecast costs, in real terms. Please see box above for detailed analysis, especially for what concerns the reporting of cost of capital.

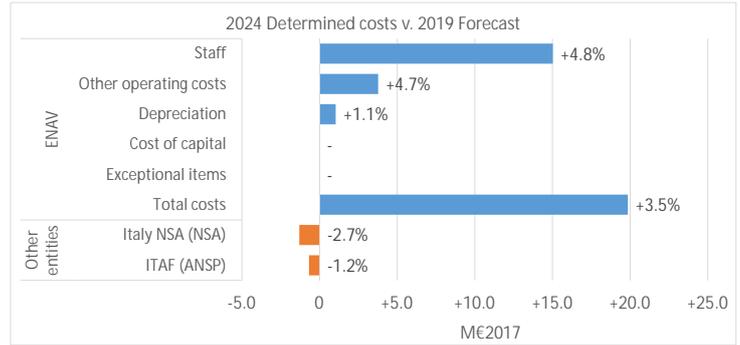
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✗ Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ✗ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	2.00%
Maximum penalty (% of determined costs)	2.00%
Additional incentives?	No



Between 2019 forecast and 2024, costs are planned to increase by +0.5% annually (or +1.2% p.a. if considering the adjustment to the baseline/forecast costs resulting from cost of capital reporting issue). This planned increase in costs results primarily from cost increases for ENAV (+3.5%, or +19.9M€2017 over the period), while costs for the other ANSP (Italian Air Force, ITAF) and the Italian NSA are planned to decrease (-1.2% and -2.7% respectively).

For ENAV, the cost increase is driven primarily by increase in staff costs over the period (+4.8%, or +15.0M€2017), while other cost categories are also expected to grow, albeit to a lesser extent: other operating costs (+4.7%, or +3.8M€2017) and depreciation costs (+1.1%, or +1.0M€2017). The planned increase in staff costs for ENAV results primarily from: i) adjustments for inflation, ii) labour contracts and their renewals and iii) intake of additional staff, primarily for ACCs. It is understood that these increases are slightly balanced by reduction of administrative staff, limits for travel and transportation allowances as well as periodic closures of offices to reduce accrued vacations days.

While the chart above shows no planned change in cost of capital, this is entirely due to the reporting issue described in detail above. If the adjustment to 2019 forecast cost of capital is considered, the figure would show an increase of +42.1%, or +22.1M€2017. For more details on cost of capital, please see section 4.3.A of this document.

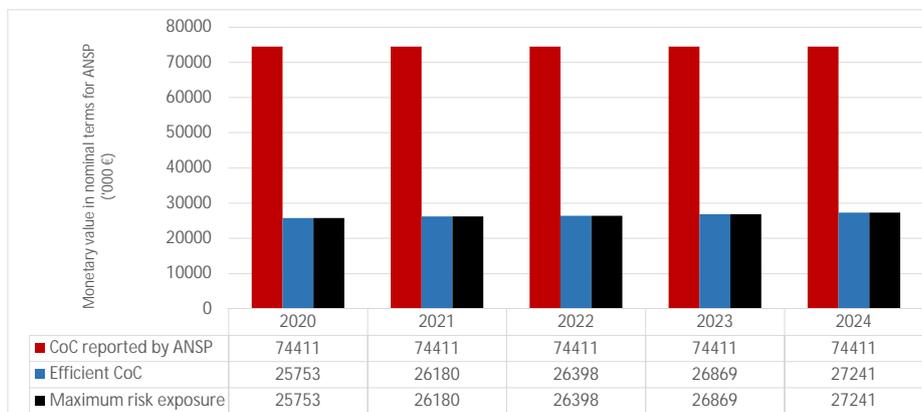
4.3.4 PRB Key Points

- The 2019 baseline costs for the main ANSP, ENAV include the cost of capital calculated on the basis of the RoE included in the RP3 performance plan, whereas it should reflect the RoE set in the RP2 for 2019. ENAV is entirely financed through equity and the proposed RoE for the RP3 is much higher than that included in the RP2 performance plan.
- The impact of this reporting issue results in the baseline 2019 costs for Italy being overestimated by some 22.1M€2017, which affects the proposed RP3 DUC trend and DUC level.
- The increase in costs forecasted for 2019 cancel out the cost savings achieved during RP2. The main increase in 2019 forecasted costs, a part from the cost of capital, regards the other operating costs (+15.2M€2017 not fully justified).
- Over RP3, costs for Italy are planned to increase primarily resulting from growth in staff costs for ENAV explained by adjustment for inflation, labour contracts and their renewals, as well as intake of additional staff (primarily for ACCs).

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	585,288	595,006	599,959	610,664	619,116
Monetary value of Return on Equity	74,411	74,411	74,411	74,411	74,411
Ratio RoE/DC (%)	12.7%	12.5%	12.4%	12.2%	12.0%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	48658	48231	48013	47542	47170

Total 2020-2024	239,613
-----------------	---------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	9.2%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	9.2%	3.2%	9.2%	3.2%	9.2%	3.3%	9.2%	3.3%	9.2%	3.4%

Is the interest on debts in line with the market?	n/a
---	-----

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 239.61M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 12% and 12.7%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	730,469	730,469	730,469	730,469	730,469
Net current assets	76,500	76,500	76,500	76,500	76,500
Adjustments total assets	0	0	0	0	0
Total asset base	806,968	806,968	806,968	806,968	806,968

- The fixed asset base will remain artificially constant over the period. This is also observed in the investments described in section 3.5 of this document. The real evolution of the fixed asset base is not reflected and a in-depth assessment cannot be performed.
- The net current assets are in line with the expected cash flow. However, it will remain artificially constant over the period and this may not reflect the real evolution of the net current assets.
- The RAB does not include adjustments to the total asset base.
- The total asset base will remain artificially constant over the period.

4.3.A.5 PRB Key Points



- The reported cost of capital is 239.61M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 12%-12.7%).
- The total asset base remains artificially constant over the entire RP3 period.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables) n/a

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables?	n/a
--	-----

Italy did not report any figures for pension costs or assumptions regarding these costs in the en route and terminal reporting tables or the body of the performance plan. According to Italy, as described in Annex T of the performance plan: "Pension costs are not reported since they fall within the scope of national law and are not paid by the Company."

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024?	n/a
--	-----

See above for description of reporting issues related to pension costs.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024?	n/a
--	-----

See above for description of reporting issues related to pension costs.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024?	n/a
--	-----

See above for description of reporting issues related to pension costs.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

n/a

4.3.B.4 PRB Key Points 🔴

- Italy did not report any figure for pension costs. Italy claims that pension costs are not reported since they are in the scope of the national law and are not paid by ENAV.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Italy did not mention changing the cost allocation methodology with respect to RP2.
- Italy uses an analytical counting model to determine the costs and revenues of en route and terminal services. The system gathers the costs and revenues and allocates them to en route or terminal services. Whenever an operational site provides at the same time services for both en route and terminal, costs are allocated between the two services based on specific features of the site, such as for example, the proportion of the managed airspace within a radius of 20 km from the airport, the type of service provided, the technology used, personnel allocation etc.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?

n/a

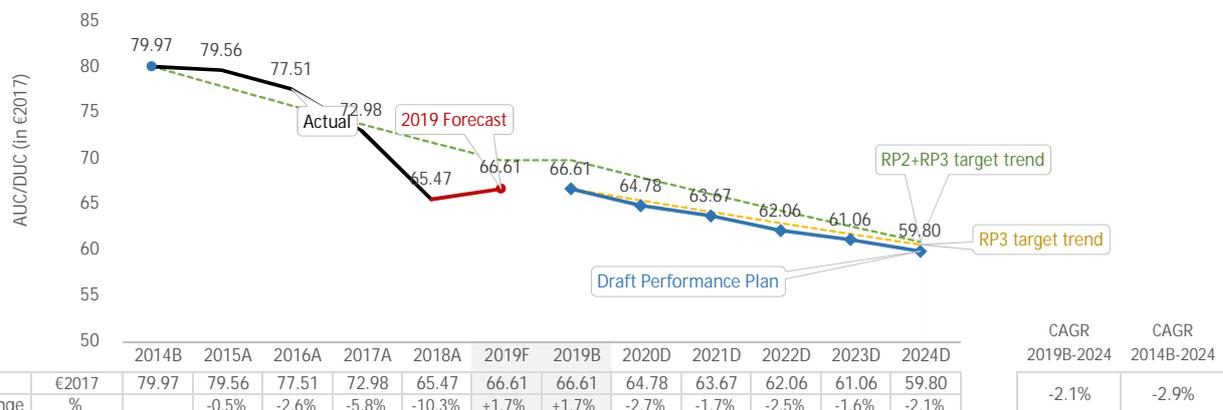
2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points ✔

- Italy did not mention changing the cost allocation methodology with respect to RP2.
- No major issues have been identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ⓘ DUC consistency with the Union-wide RP3 DUC trend
- ✓ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-2.1%	Union-wide trend	-1.9%	Difference	-0.2p.p.
PP trend	-2.9%	Union-wide trend	-2.7%	Difference	-0.2p.p.
PP 2019 baseline	66.61	Average comp. group	61.18	Difference	+8.9%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 DUC trend of -2.1% p.a. planned for Italy exceeds the Union-wide target trend. However, it should be highlighted, that if the baseline 2019 costs are adjusted for the cost of capital issue (see section 4.3.2 of this document for more detail), the resulting RP3 DUC trend for Italy would be -1.5%, which is +0.4 p.p. above the Union-wide RP3 trend.

The long-term DUC trend (RP2+RP3) of -2.9% p.a. also exceeds the long-term Union-wide target trend.

At the same time, the baseline 2019 DUC is +8.9% above the comparator group average. To this end, it is noted that the adjustment for cost of capital would positively affect the level of 2019 DUC (decrease), however, if implemented, the Italian DUC for 2019 would still be +5.1% above the group

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs

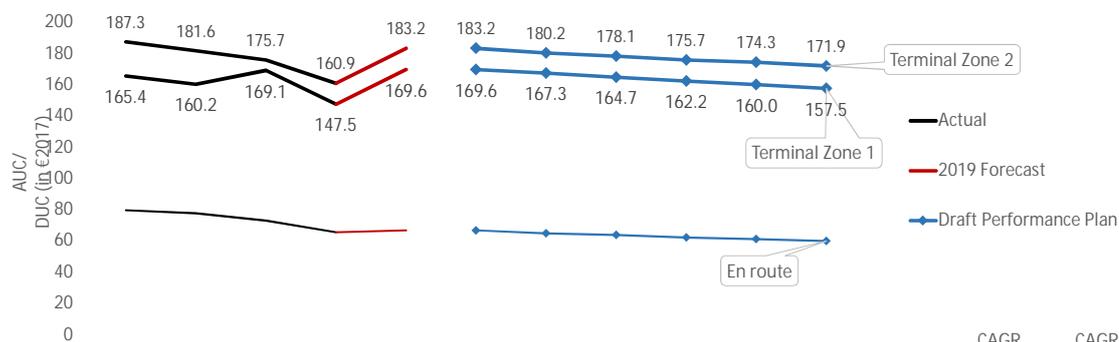
n/a

4.4.5 PRB Key Points

✗

- While the proposed RP3 DUC trend for Italy exceeds the Union-wide RP3 DUC target, if the baseline 2019 costs were adjusted for the cost of capital issue described in the section 4.3 of this document, the resulting DUC trend would not achieve the RP3 Union-wide trend.
- The long-term (RP2 and RP3) DUC trend for Italy exceeds the Union-wide target trend, regardless of the adjustment to the baseline costs.
- Italian 2019 baseline DUC is above the comparator group average, regardless of the adjustment to the baseline costs.

4.5.1 Overview and trends of the terminal DUC



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F
AUC/DUC - Terminal Zone 1	€2017	165.4	160.2	169.1	147.5	169.6	169.6	167.3	164.7	162.2	160.0	157.5	-1.5%	+0.6%
Annual Change	%		-3.1%	+5.5%	-12.8%	+15.0%	+15.0%	-1.4%	-1.5%	-1.5%	-1.3%	-1.6%		
AUC/DUC - Terminal Zone 2	€2017	187.3	181.6	175.7	160.9	183.2	183.2	180.2	178.1	175.7	174.3	171.9	-1.3%	-0.6%
Annual Change	%		-3.1%	-3.2%	-8.5%	+13.9%	+13.9%	-1.6%	-1.2%	-1.3%	-0.8%	-1.4%		
AUC/DUC - En route	€2017	79.6	77.5	73.0	65.5	66.6	66.6	64.8	63.7	62.1	61.1	59.8	-2.1%	
Annual Change	%		-2.6%	-5.8%	-10.3%	+1.7%	+1.7%	-2.7%	-1.7%	-2.5%	-1.6%	-2.1%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Milan/ Malpensa (LIMC)	GROUP III	171.3	165.2	-3.6%	167.4	154.6	-7.6%
Bergamo (LIME)	GROUP III	171.3	201.7	+17.7%	167.4	199.9	+19.4%
Milan/ Linate (LIML)	GROUP III	171.3	226.2	+32.0%	167.4	248.4	+48.4%
Venice (LIPZ)	GROUP II	157.2	126.2	-19.7%	148.9	135.8	-8.8%
Rome/Fiumicino (LIRF)	GROUP I	139.5	160.5	+15.1%	130.5	161.3	+23.7%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

- Average DUC for Roma Fiumicino airport (single airport in TCZ1) is planned to be some +15.1% above median DUCs of its comparator group over 2015-2018 and +23.7% above median DUCs of its comparator group over RP3.
- Average DUCs of the four airports comprising TCZ2 are planned to range from -8.8% below to some +54.2% above the median DUCs of their respective comparator groups over RP3.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline) - TCZ1	239.0			
2019F (STATFOR Feb 19)	L 237.4	B 240.5	H 243.4	-0.62%
2019F (STATFOR Oct 19)	L 240.2	B 241.3	H 242.1	-0.95%
2019B (PP baseline) - TCZ2	344			
2019F (STATFOR Feb 19)	L 341	B 347	H 351	-0.69%
2019F (STATFOR Oct 19)	L 344	B 345	H 346	-0.26%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual - TCZ1	+6.6	+19.5%
2019 Forecast v. Avg. 2015-2018 Actual	+4.6	+12.9%
2019 Baseline v. 2019 Forecast	0.0	+0%
2019 Forecast v. 2018 Actual - TCZ2	+9.9	+18.7%
2019 Forecast v. Avg. 2015-2018 Actual	+8.9	+16.5%
2019 Baseline v. 2019 Forecast	0.0	+0%

TNSU baseline:

- For TCZ1, the baseline TNSUs are slightly below (-0.6%) the STATFOR February 2019 base forecast.
- For TCZ2, the baseline TNSUs are also slightly below (-0.7%) the STATFOR February 2019 base forecast.
- See below for an explanation of discrepancy provided by Italy in the performance plan.

Terminal cost baseline:

- For TCZ1, the 2019 baseline costs are +19.5% above 2018 actual costs.
- For TCZ2, the 2019 baseline costs are +18.7% above 2018 actual costs.
- Identically to the en route, the rate of return on equity employed for ENAV to calculate the cost of capital for 2019 baseline is not in line with the determined rate of return on equity set in the RP2 performance plan for 2019. The employed rate is consistent between the two terminal charging zones (i.e. 9.22%), while, based on the RP2 performance plan, different rates should be applied for TCZ1 (i.e. 8.03%) and TCZ2 (i.e. 5.77%) for 2019. The application of these different rates would lead to a lower amount of cost of capital and lower 2019 baseline costs compared to current figures: -2.4% for TCZ1 and -5.8% for TCZ2.
- If the abovementioned adjustment for cost of capital was implemented for 2019 baseline costs for both terminal charging zone, the TCZ1 costs would be +16.6%, while TCZ2 costs would be +11.8% above 2018 actuals.
- Same as detailed in the en route cost analysis, this reporting issue affects the RP3 DUC trends for both terminal charging zones (please see below for details).

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?	I Z1	I Z2
	No	No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

- According to the information provided in the RP3 performance plan: "For what concerns terminal (both TCZ1 and TCZ2), Italy has adopted for the period 2020-2024 the growth rate provided by STATFOR for the base case scenario. The differences that might be highlighted are referred to absolute values for 2018. Consider that Italy has adopted for 2018 the actual SUs values reported in ENAV certified balance sheet. These values are slightly different from the values reported by STATFOR for 2018 actual. Such difference has been attributed to the effect of what stated in STATFOR 2019 forecast: "The historical values up to 2018 have been reconstructed based on CRCO data with the TCZ definitions and the exponent used to compute the TNSU as applicable by states according to their RP1 performance plans up to 2014 and to the definition of RP2 from 2015 with a 0.7 exponent."
- However, the exact rationale for the above-mentioned discrepancy in 2018 actual TNSUs and the resulting difference in 2019 baseline are not detailed in the corresponding section of the performance plan.

Review of the PP traffic forecast

- As described above, the TNSU forecasts for both Italian terminal charging zones slightly differ from those provided in STATFOR February 2019 base TNSU forecast. Indeed, just as described, Italy has adopted the same growth rates (in %) as those included in STATFOR forecast for the years 2020-24, but on a slightly lower base TNSUs for 2019.
- Cumulatively over 2019-24 period the TNSUs included in the performance plan for TCZ1 are -0.6% below those reported by STATFOR, while for TCZ2 they are -0.7% below. As such, the impact of this discrepancy is limited.

Determined costs (terminal)

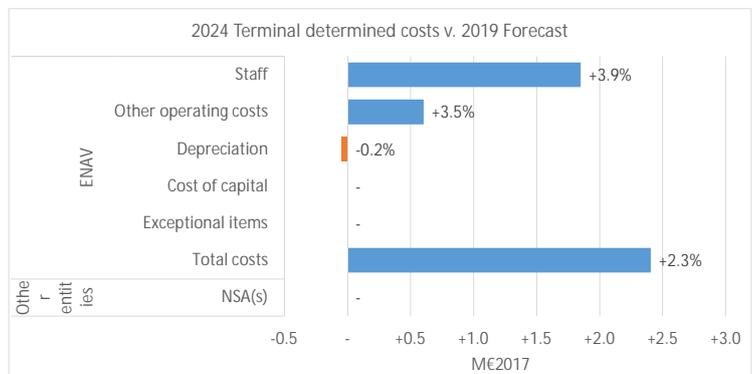
✓ Is inflation in PP in line with IMF (April 2019 forecast)?	Yes
--	-----

Cost elements - ENAV (terminal)

- ⓘ Investments (see details in 3.5)
- ✗ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✗ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	1.00%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



- Terminal WACC and its parameters are equal to the ones applied for en route.
- The terminal DUC trend over the RP3 for TCZ1 is -1.5% p.a. and -1.3% p.a. for TCZ2. Trends for both of these TCZs are slightly worse than that for en route DUC (-2.1% p.a.)
- If the costs of capital for 2019 baseline/forecast were adjusted as described above, the DUC trend for TCZ1 would be -1.0% p.a., while DUC trend for TCZ2 would be -0.1% p.a. between 2019 baseline and 2024, instead of the currently reported rates of -1.5% p.a. and -1.3% p.a. respectively.
- Between 2019 and 2024, the terminal costs are planned to increase by some +2.3%, or +2.4M€2017, when considering both terminal charging zones together. The main driver for this planned increase is the growth in staff costs for the main ANSP - ENAV (+3.9%, or +1.9M€2017).
- While no detailed information regarding these planned cost increases are provided in the performance plan or the supporting material, it is inferred, at least for what concerns the drivers behind staff cost increase, that they are similar to the ones detailed in the en route analysis.

4.5.4 PRB Key Points ✗

- The Terminal RP3 DUC trend is -1.5% for TCZ1 and -1.3%, which is worse than the en route RP3 DUC trend of -2.1%.
- The Terminal RP3 DUC is -1.5% for TCZ 1, which is better than the Terminal RP2 DUC of +0.6%. Terminal RP3 DUC trend is -1.3%, which is better than the Terminal RP2 DUC trend of -0.6%.
- Rome Fumicino Airport, the main airport (included in TCZ1), had a DUC higher (+15.1%) than the median of its comparator group over RP2. The difference is expected to be +23.7% over RP3. The airports included in TCZ2 had a DUC ranging from 19.7% lower to 32.0% higher than the average of their comparator groups over RP2. The differences are expected to range from 8.8% lower to 48.4% higher over RP3.
- Italy used the STATFOR February 2019 base forecast for terminal traffic (although with M2 methodology). The baseline, using this methodology is slightly lower (-0.62% for TCZ1 and -0.69% for TCZ2) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024 for any of the terminal charging zones.
- Terminal costs increase over the period, mainly due to an increase in staff costs. The baseline value is affected by the same issues identified in the en route one.

PRB Assessment

LATVIA

Draft Performance Plan

Context and scope

Latvia

Performance Plan: Draft performance plan (Article 12) Dated: 21.11.2019
 Documents no: 1715, 1716, 1706, 1709, 1707, 1710, 1708

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.3%
 % Costs V. SES 0.2%

Scope

FAB: NEFAB

ANSPs: LGS
 LVGMC

ATS, CNS, MET, AIS
 MET forecasting

Other entities (as per Article 1(2) last para. of Regulation 2019/317): -

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Latvia	n/a	No	No	No	
Terminal	Latvia - TCZ	4	No	No	No	
Changes in the CZs from RP2	no					

Comparator group: Group D Other States in the comparator group: Cyprus, Estonia, Greece, Lithuania, Malta

Currency: € Exchange rate: 1.00000

1. Safety 

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
LGS	Safety policy and objectives	C	C	C	D	D
	Safety risk management	C	C	C	D	D
	Safety assurance	C	C	C	D	D
	Safety promotion	C	C	C	D	D
	Safety culture	C	C	C	D	D

PRB Assessment

The PRB concludes that the safety targets proposed by Latvia should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

The PRB understands that no investments are required to ensure that performance targets are achieved, this would also include investments needed to improve EoSM levels.

The PRB understands that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment 

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.30%	1.30%	1.29%	1.29%	1.29%

PRB Assessment

The PRB concludes that the environment targets proposed by Latvia should be approved.

- LGS's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity 

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.06	0.06	0.05	0.04	0.04
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.02	0.02	0.02	0.02	0.02

PRB Assessment

The PRB concludes that the capacity targets proposed by Latvia should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Latvia will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that the terminal capacity incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency 

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	27.98	28.99	28.05	28.71	29.83	+0.7%	+3.5%
Target for determined unit cost (DUC) (€2017) - Terminal	142.85	145.75	133.94	134.41	133.59	n/a	+0.1%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Latvia should not be approved.

- Latvia does not meet neither the Union-wide RP3 DUC trend nor the Union-wide long term trend criteria.
- Latvia DUC level in 2019 is below the average of the comparator group.
- Only part of the deviation from the Union-wide RP3 DUC trend can be justified by capacity related measures.

PRB Recommendations

SAFETY

- Latvia should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.

CAPACITY

- Latvia should revise the terminal capacity incentive scheme so that it has a material impact on the revenues and motivates the ANSP to improve its performance.

COST-EFFICIENCY

- Latvia should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.

- Latvia should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

LATVIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The ANSP intends to exceed the RP3 targets and general measures for all safety objectives described. No specific measures for safety risk management are listed, however the ANSP will implement all the measures required by the Commission Implementing Regulation (EU) 2017/373.

1.1.3 Interdependencies and Trade-offs

No new implementation is required to achieve the RP3 safety targets. The safety level is expected to be maintained with standard procedures of safety management system. The safety level will not be deteriorated.

1.1.4 Change Management

'The draft performance plan declares: "All changes implemented by the ANSP are in line with the approved SMS and in line with the European Network Improvement Plan guidance". The procedures, if compliant with the Commission Implementing Regulation (EU) 2017/373, should be sufficient means to ensure minimal negative impact of the change on the network performance.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Latvia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.
- The PRB will closely monitor the implementation of measures derived from Commission Implementing Regulation (EU) 2017/373 during RP3 in its "RP3 watchlist".

The PRB understands that no investments are required to ensure that performance targets are achieved, this would also include investments needed to improve EoSM levels.

The PRB understands that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
LGS	Safety policy and objectives	C	C	C	D	D	✓	
	Safety risk management	C	C	C	D	D	✓	
	Safety assurance	C	C	C	D	D	✓	
	Safety promotion	C	C	C	D	D	✓	
	Safety culture	C	C	C	D	D	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

LGS has already reached the RP3 safety targets in four out of five management objectives. During the RP3 period, the LGS intend to exceed the RP3 safety target and achieve level D in all management objectives.

The draft performance plan declares that the ANSP will implement all the required measures to be compliant with the Commission Implementing Regulation (EU) 2017/373. The measures described are in the area of safety culture, promotion of safety management systems, enhanced implementation of safety management into global business planning. None of the measures directly relates to safety risk management area that requires improvements as per regulation.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

No new implementation is required to achieve the RP3 safety targets. The safety level is expected to be maintained with standard procedures of safety management system. The resources for safety activities are planned. The NSA reviews the resources available for safety as a part of oversight activity.

1.3.2 Change Management Practices

The draft performance plan declares: "All changes implemented by the ANSP are in line with the approved SMS and in line with the European Network Improvement Plan guidance". The procedures, if compliant with the Commission Implementing Regulation (EU) 2017/373, should be sufficient means to ensure minimal negative impact of the change on the network performance.

LATVIA

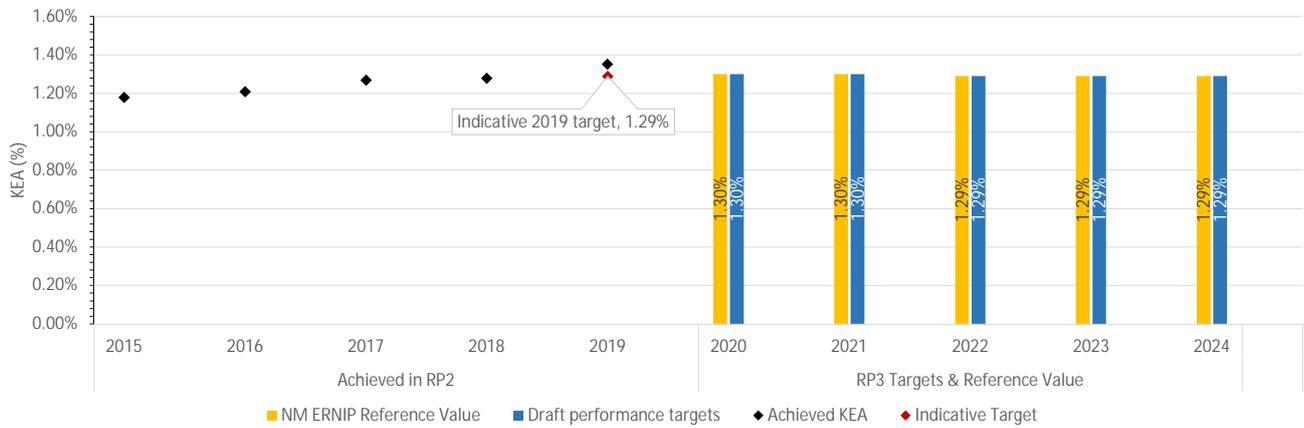
Environment KPA

2.1 Summary of environment key data and assessment results

Latvia

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.30%	1.30%	1.29%	1.29%	1.29%
Draft performance targets	1.30%	1.30%	1.29%	1.29%	1.29%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Latvia should be approved.
 - LGS's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
LGS has implemented free route airspace above FL095 and offers cross-border FRA along with NEFAB since November 2015.		None	Page 43
Major ERNIP Recommended Measures:	1	Reference in PP	Reference in ERNIP
Measure included within performance plan?		None	Page 141
FIR boundary points Riga FIR - Minsk FIR	✗		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Latvia achieved a KEA 1.35% in 2019 and needed to meet an indicative target of 1.29% in 2019 to achieve the planned target of 1.30% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

FRA is available in Latvia since 2015. The NM recommends that Latvia could improve the implementation of its FRA i.e. intermediate waypoints with Belarus. To ensure airspace users can route efficiently through European airspace, it is important that this is acted upon.

Limited information was provided in the performance plan for the PRB to assess and it does not extend the transparency that is expected.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Latvia plan for an environmental incentive scheme?	✗
Latvia does not plan to apply an optional incentive scheme for the environment KPA.	

LATVIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Targets defined in the performance plan are consistent with the national reference values during the RP3, and NOP delay forecast is lower during the RP3, indicating that Latvia has sufficient capacity to meet the demand.

Analysis of planned capacity profiles indicates that capacity profiles are in line with the capacity enhancement measures and the trend set by the national targets. Presented capacity enhancement measures and capacity plans are coherent, and show that the targets are realistic.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

Latvia proposes a reduction of the national target for arrival ATFM delay of 50% with respect to the RP2. The historic performance shows almost no delays, except for one month in 2018. The target seems both ambitious and realistic enough. Latvia includes Ventspils and Jumala as part of the target setting, however, these airports do not even have ATC services.

3.1.3 Incentives

En route: Threshold is symmetrical around national targets, which are equal to reference values published in NOP. Maximum bonus equals maximum penalty: 2% of revenue. Delay forecast in NOP shows that ANSP expected to easily achieve targets and bonus (0.01 minutes per flight annually between 2020-2024).

Terminal incentives: The incentive scheme is symmetric and does not modulate the pivot values. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

The investment project related to Modernisation of Thales surveillance radars 2024+ is not going to bring benefits to airspace users in RP3. Other major investment projects are related to the tower modernisation in Riga.

3.1.5 PRB conclusions

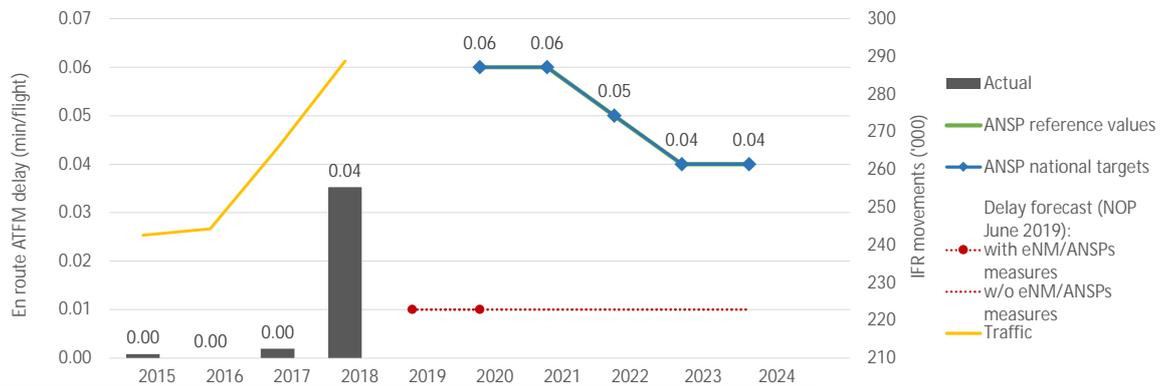


The PRB concludes that the capacity targets proposed by Latvia should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Latvia will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that the terminal capacity incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	+0.8%	+0.7%	+8.8%	+8.6%						
Actual ATFM delay per flight (movements)	0.00	0.00	0.00	0.04						
ANSP reference values						0.06	0.06	0.05	0.04	0.04
ANSP national targets						0.06	0.06	0.05	0.04	0.04
Forecast with eNM/ANSPs measures*					0.01	0.01				
Forecast w/o eNM/ANSPs measures*					0.01	0.01		0.01		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

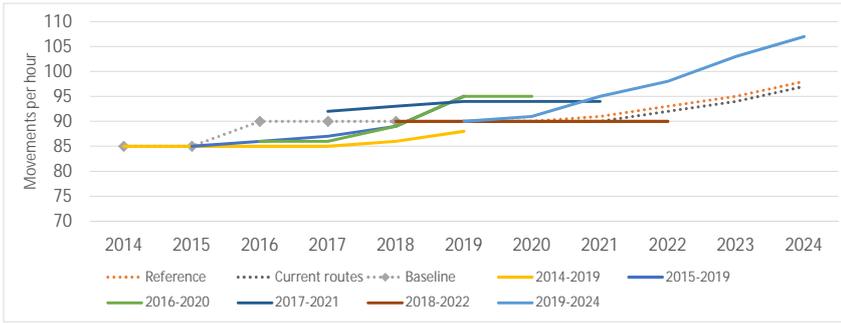
The performance plan refers to new ATCO training programme and possible changes in the airspace structure.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Riga ACC (EVRR)	Additional ATCOs in OPS to start working in the OPS room	56	1	5	8	1	2	2	+10
	ATCOs in OPS to stop working in the OPS room	0	1	1	3	2	1	1	
	ATCOs in OPS to be operational at year-end	56	56	60	65	64	65	66	
Total - LGS (en route)	Additional ATCOs in OPS to start working in the OPS room	56	1	5	8	1	2	2	+10
	ATCOs in OPS to stop working in the OPS room	0	1	1	3	2	1	1	
	ATCOs in OPS to be operational at year-end	56	56	60	65	64	65	66	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Riga ACC (EVRR)



- Historical data shows the increase of baseline value by around 6% in 2016, while the remaining period baseline value remained flat.

- Current capacity plans indicate annual capacity increase between 1% and 3%. Planned capacity profiles are above current route and reference scenario for each year of the RP3. This information provides evidence that Riga ACC would have sufficient capacity to cope with traffic demand.

- NOP 2019-2024 (June 2019 edition) indicates that no problems are foreseen for Riga ACC during the RP3.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						90	90	91	93	95	98
Current routes						90	90	90	92	94	97
Baseline	85	85	90	90	90						
2014-2019	85	85	85	85	86	88					
2015-2019		85	86	87	89	95					
2016-2020			86	86	89	95	95				
2017-2021				92	93	94	94	94			
2018-2022					90	90	90	90	90		
2019-2024						90	91	95	98	103	107

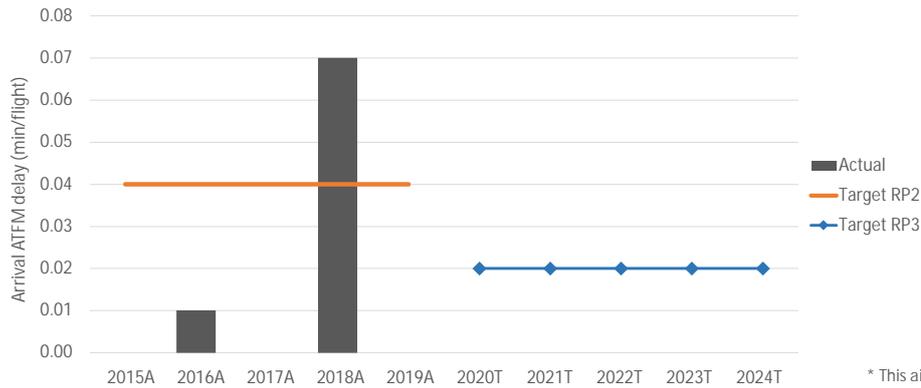
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- The proposed capacity targets are in line with the respective reference delay values, contributing to the achievement of the Union-wide capacity target.
- The existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Latvia will have sufficient capacity to meet the forecasted demand and to reach the target.
- Presented ATCO numbers and NOP capacity forecast provide evidence that Latvia has sufficient capacity to cope with the expected traffic growth during the RP3.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.00	0.01	0.00	0.07	-	0.02	0.02	0.02	0.02	0.02
Liepaja (EVLA)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Riga (EVRA)	0.00	0.01	0.00	0.07	-	0.02	0.02	0.02	0.02	0.02
Ventspils (EVVA)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Jurmala (EVJA)*	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00

* This airport was not in the scope of RP2 so its past performance is not reflected in the graphic above for 2015-2018.

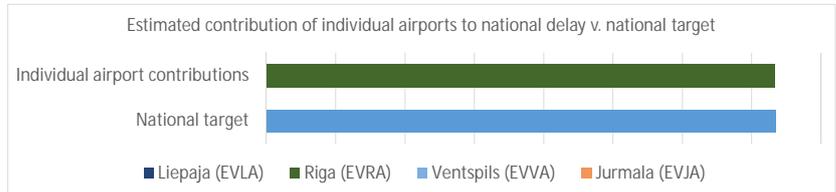
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Although Latvia includes four airports in the charging zone affected by the performance plan, traffic at Riga represents more than 99.5% of the terminal traffic, therefore driving the national performance. During RP2, there were almost no arrival ATFM delays registered at Riga, except in July 2018 when some more regulations affected the airport that made the national performance miss the target. Preliminary data shows, that in 2019, no delays at all have been observed.

The proposed targets for the RP3 are in line with this absence of delays, and represent a decrease with respect to the RP2 targets by 50%. Ventspils and Jumala do not even have ATC services.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Liepaja (EVLA)	0.00
Riga (EVRA)	0.02
Ventspils (EVVA)	0.00
Jurmala (EVJA)	0.00
National Target	0.02



Riga is the main contributor in terms of delay (as it is in terms of IFR movements), so the potential delay associated to the target of this airport corresponds to the delay associated to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Liepaja (EVLA)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Riga (EVRA)	GROUP IV	0.01	0.02	+0.02	0.02	+0.01
Ventspils (EVVA)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Jurmala (EVJA)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Riga, due to the delays observed in July 2018, shows slightly worse performance than similar airports during the RP2. The other three airports did not generate any delays at all.

3.3.5 PRB Key Points

- Latvia proposes a reduction of the national target for arrival ATFM delay of 50% with respect to the RP2. The historic performance shows almost no delays, except for one month in 2018. The target seems both ambitious and realistic enough.
- Latvia includes Ventspils and Jumala as part of the target setting, however, these airports do not even have ATC services.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	2.000%	2.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.06	0.06	0.05	0.04	0.04
Alert threshold (Δ Ref. value in fraction of min)	±0.060	±0.060	±0.050	±0.040	±0.040
Performance Plan targets	0.06	0.06	0.05	0.04	0.04
Pivot values for RP3	0.06	0.06	0.05	0.04	0.04

Threshold review

Threshold is symmetrical around national targets, which are equal to reference values published in NOP.

Modulation review

No modulation should be applied.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty are fixed at 2% of revenue. Delay forecast in NOP shows that ANSP expected to easily achieve targets and partial bonus (0.01 minutes per flight annually 2020-2024).

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	0.020%	0.020%
	✓	!

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.010	±0.010	±0.010	±0.010	±0.010
Performance Plan targets	0.02	0.02	0.02	0.02	0.02
Pivot values for RP3	0.02	0.02	0.02	0.02	0.02

Threshold review

The terminal incentive scheme includes a deadband of ±0.01 min/arr (±50%) that might be just enough to allow small variations in the arrival ATFM delay with no resulting bonuses or penalties.

Modulation review

Latvia has opted for pivot values based on the performance targets (not modulated).

Review of financial advantages/disadvantages

The scheme is symmetric with extremely low maximum bonuses and penalties (0.02%) making this an incentive scheme with almost no impact.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✗

En route:

- Threshold is symmetrical around national targets, which are equal to reference values published in NOP. Maximum bonus equals maximum penalty: 2% of revenue. Delay forecast in NOP shows that ANSP expected to easily achieve targets and bonus (0.01 minutes per flight annually 2020-2024).

Terminal incentives:

- The incentive scheme is symmetric and does not modulate the pivot values.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

RP3 investment ratio ER/TRM

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	5.3	6.0	5.2	6.3	7.2	30.0
En route	M€ (nominal)	3.7	4.2	3.6	4.3	4.9	20.6
Terminal	M€ (nominal)	1.6	1.9	1.6	2.0	2.2	9.3



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State. The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	New technical and tower building	Construction of the new technical building together with ATC Tower is one of the most important projects of the LGS infrastructure within the next 5 years. The construction works will be started at the end of the 2020.	14.9	No	No	4.5	10.4
2	Integration of new tower systems	The investment assumes deployment of new TWR working positions integrating air traffic data and other advanced tower systems. The new systems will be developed and implemented in line with new ATC Tower configuration.	8.0	No	No	2.4	5.6
3	ATM and ATM support system modernization	The ATM system development implies a modernisation of the system adding new functionalities to comply with the legislation and airspace users' requirements. It covers also an improvement of cybersecurity and design a solution for the main system back-up. Modernization of the surface movement guidance and control system (A-SMGCS) considers closer integration between air traffic control and surface movement control. It shall provide an integrated management of both processes and maximum coordination. More details can be found in section 2.1 of the performance plan.	8.4	Yes	Yes	6.3	2.1
4	Modernization of Thales surveillance radars 2024+	The project comprises a modernization of the Riga primary and secondary surveillance radar "STAR 2000/RSM-970S". It implies purchasing and installation of new equipment, data processing devices and software. Modernization of the secondary surveillance radars "RSM-970S" at the sites Ērgļi and Ģirava will be carried out within the 2nd and 3rd stages of the project. The modernised surveillance system shall provide 3NM horizontal separation in Riga TMA area right after 2026.	5.0	No	No	1.9	0.1
Total:						15.0	18.2

Airspace user feedback regarding major investments

Airspace users appreciated the number of investment programs planned and noted that the construction of the new technical building together with ATC Tower are the main projects as investment. Airspace users requested a complete and detailed project plan of the investments to be made and any risk assessment regarding potential delays that may render impossible to complete the project within the reference period.

Review of investments

Major investments represent 66% of the total determined costs over RP3. These investments for RP3 are justified and the ANSP does not expect to roll the RP2 investment projects to RP3. In fact, Latvia delivered 85% of their planned CAPEX in 2015-2018 and the underspend amounts to 3.82M€. The performance plan does not mention the potential reimbursement of the unspent CAPEX to the airspace users nor the commitment to complete RP2 investment plan. Moreover, the determined costs of investment #1 and #2 do not seem to be proportionate to the lifecycle and asset value.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	New technical and tower building	local	safety, environment, capacity	No details provided
2	Integration of new tower systems	local	safety, environment, capacity	No details provided
4	Modernization of Thales surveillance radars 2024+	local	safety	No details provided

Additional information

Latvia did not provide details regarding expected impact and benefits of the reported investments.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	17.1	17.1	8.3	4.2	1.7	1.6	1.3	17.1
Existing investments			0.0	0.0	0.0	0.0	0.0	0.0

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 34% of the total determined costs of investments over RP3. Latvia does not report any existing investments. There are no direct investments for provision of services in NINTA-ADAXA. ANSP of Latvia does not bear any additional costs. Investments shown in this table are calculated as a proportion of total investment of LGS multiplied by allocation to en route.
--	--

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand i
- In RP2, Latvia performed well in most KPAs with marginal miss in KEA. The State contributed positively to the FAB performance and reached its national reference values. This could be the reason why Latvia has not introduced any capacity enhancement measure in the NOP 2019-2024 nor in the performance plan (apart from maintenance of ATCO levels). It is therefore difficult to identify a justifiable link to measures to achieve the capacity objectives as required by the table 3.5.2.1 above.
- The traffic in Latvian FIR is going to grow steadily. The NM advised to plan according to high traffic capacity profile scenario. Although no measures have been provided in the NOP, Latvia will provide sufficient capacity with reasonable surplus. None of the investment projects is primarily focused on achievement of the capacity targets however all of them could contribute to the capacity increase in future to certain extent. The level of contribution of each investment project could be evaluated only if more details are provided on all investments. Each of the investment defines a group of unknown sub-projects with unknown interdependencies, knowledge of which could make the assessment of capacity contribution level possible.
- Investments #1 - #3 seemed to be linked to modernisation of the ATM at Riga (no details provided). The benefits of the investment #4 are going to materialise outside of the RP3 period.
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan x
- The performance plan provided information on how and when the projects are to be implemented. However, since the projects are not linked to any defined capacity measure, it is difficult to assess whether the necessity of the investment has been assessed on the traffic needs (demand). The performance plan only generally indicates the need to maintain sufficient number of ATCOs, which could be perceived more like a statement than a measure. Within the performance plan, Latvia claims that necessary improvements in the arrival capacity is linked to airport capacity as well (e.g. adding new taxiways), which is the responsibility of the airport operator. Without any details other than provided by the NOP, it seems that necessity of investments is driven more by the ANSP's business plan and requirements of the ATM Master Plan.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented i
- Due to limited details provided in descriptions of the investment projects, it is not clear what portion of the capital expenditure is related to the capacity. On the other hand, the performance plan provides clear information on progress of the expenditures along the performance plan and information on when the project is expected to enter operations. Investment #4 will become operational in 2027 with expenditures starting in 2024. The benefits of the investment are going to materialise outside of the RP3 period.

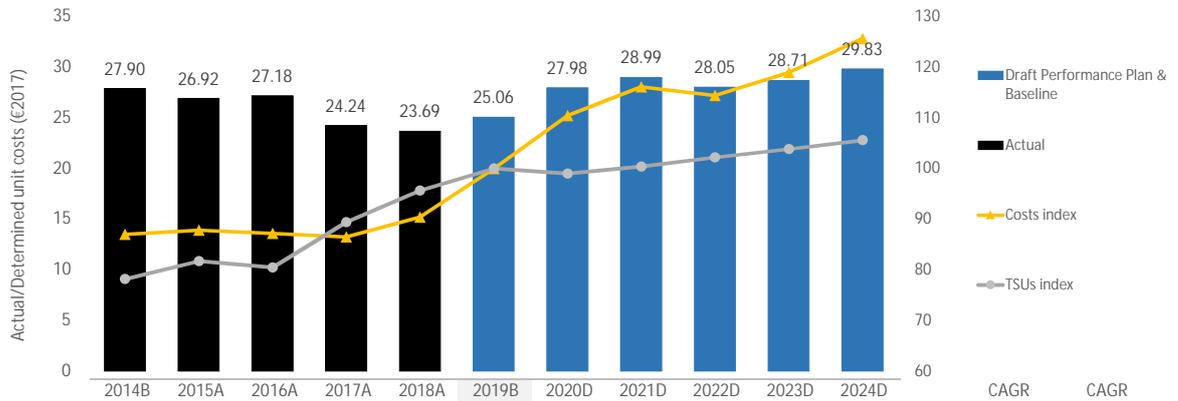
3.5.4 PRB Key Points x

- The ANSP does not expect to roll forward RP2 investment projects to RP3.
- All investments reported in RP3 are missing explanations of the expected benefits.
- Latvia introduced no capacity enhancement measures in their capacity plan (NOP 2019-2024), however the NOP expects the State to meet the capacity reference values and provide sufficient capacity even without any specific measure.
- The investment projects #1 - #3 seem to be related only to modernisation of the TWR at Riga airport.
- The investment project #4 is not probably going to bring benefits to airspace users in RP3.

LATVIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	21.0	21.2	21.0	21.3	22.7	0.0	28.8	30.7	30.8	32.5	34.9	-	+5.2%
Total costs	M€ (2017)	21.4	21.6	21.4	21.3	22.2	24.6	27.2	28.6	28.1	29.3	30.9	+4.7%	+3.7%
TSU	'000	767	802	789	877	938	981	971	985	1,003	1,019	1,036	+1.1%	+3.1%
DUC	€ (2017)	27.90	26.92	27.18	24.24	23.69	25.06	27.98	28.99	28.05	28.71	29.83		
Exchange rate	€:€				1.000									
DUC	€ (2017)	27.90	26.92	27.18	24.24	23.69	25.06	27.98	28.99	28.05	28.71	29.83		
Annual change	%		-3.5%	+0.9%	-10.8%	-2.3%	+5.8%	+11.6%	+3.6%	-3.3%	+2.4%	+3.9%	+3.5%	+0.7%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	25.06 €2017	ⓘ
<p>The 2019 baseline TSU forecast is higher than both the STATFOR February (+0.72%) and October 2019 (+3.37%) base forecast. It is in line with the 2019 forecast, which is based on the M2 method of computing TSUs (flight plan). It should be noted that 2019 differs from 2020-2024 as the segment NINTA-ADAXA is only included from 2020 onwards (circa 19,000 TSUs added annually for Latvia).</p> <p>The 2019 en route baseline costs amount to 25M€2017 which is in line with the 2019 forecast costs and +10.6% above the 2018 actual costs.</p>		

4.1.3 Summary of cost-efficiency assessment results

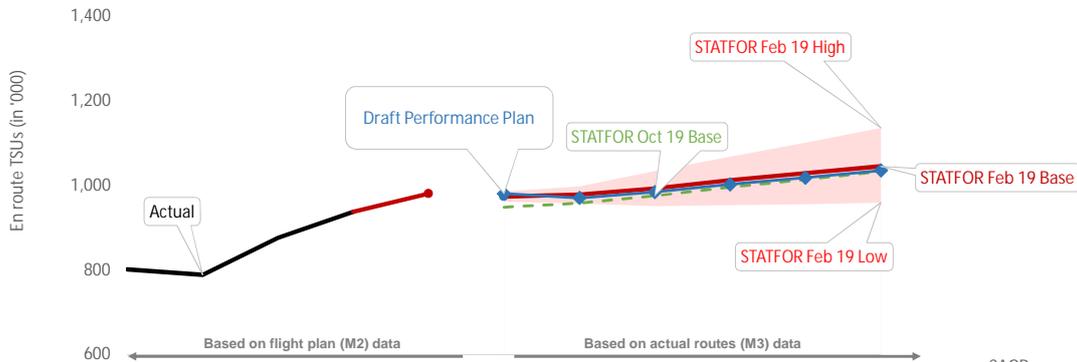
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	3.5%	✗
The RP3 en route DUC trend is +3.5% on average, which is worse than the Union-wide RP3 DUC target trend (-1.9%) over 2019 baseline - 2024.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	0.7%	✗
The long term en route DUC trend is +0.7% on average, which is worse than the Union-wide Latvia DUC target trend (-2.7%) over 2014 baseline - 2024.		
c) DUC level (2019 baseline) lower than the average of comparator group (D) average (31.28 €2017)?	-19.9%	✓
The 2019 baseline en-route DUC (25.06€2017) is -19.9% lower than the average of the comparators' group (31.28€2017).		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		✗
The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend is +25.4M€2017. When considering the estimated cumulative additional costs for ATCOs planned to be working in the ACC by the end of RP3 (+2.1M€2017) and the determined costs of new major investments (+15M€2017) over RP3 for en route (total 2.1+15=17.7M€2017). Even if the rough estimation calculated above may be incomplete, the cost deviation with regard to the RP3 cost efficiency target is too large to be exclusively due to capacity related measures.		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Latvia should not be approved.

- Latvia does not meet neither the Union-wide RP3 DUC trend nor the Union-wide long term trend criteria.
- Latvia DUC level in 2019 is below the average of the comparator group.
- Only part of the deviation from the Union-wide RP3 DUC trend can be justified by capacity related measures.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	802	789	877	938								
Annual change	%		-1.6%	+11.2%	+7.0%								
STATFOR Feb 19 Base	'000 TSUs					981	974	979	993	1,013	1,029	1,046	+1.4%
Annual change	%					+4.6%	+3.8%	+0.5%	+1.4%	+2.0%	+1.7%	+1.6%	
STATFOR Oct 19 Base	'000 TSUs					-	949	959	976	996	1,015	1,034	+1.7%
Annual change	%					-	+1.1%	+1.0%	+1.8%	+2.1%	+1.8%	+1.9%	
Performance Plan	'000 TSUs					981	971	985	1,003	1,019	1,036		+1.1%
Annual change	%						+4.6%	-1.0%	+1.4%	+1.8%	+1.6%	+1.7%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient		Comparison vs. STATFOR forecasts			'000 TSUs			Δ(B) (%)
		3 months	12 months							
2019B (PP baseline, M3)	981			2019B (PP baseline, M3)	981					
2019F (as in the Reporting tables, M2)	981			2019F (STATFOR Feb 19, M3)	L 962	B 974	H 987			+0.72%
2019B/ 2019F	0.00%	-0.69%	-0.64%	2019F (STATFOR Oct 19, M3)	L 943	B 949	H 955			+3.37%

The 2019 baseline TSU forecast is higher than both the STATFOR February 2019 (+0.72%) and October 2019 (+3.37%) base forecast. The 2019 baseline is in line with the STATFOR February 2019 base forecast based on the M2 method of computing TSUs (flight plan). It should be noted that 2019 differs from 2020-2024 as the segment NINTA-ADAXA is only included from 2020 onwards (around 19,000 TSUs added annually for Latvia).

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? **No**

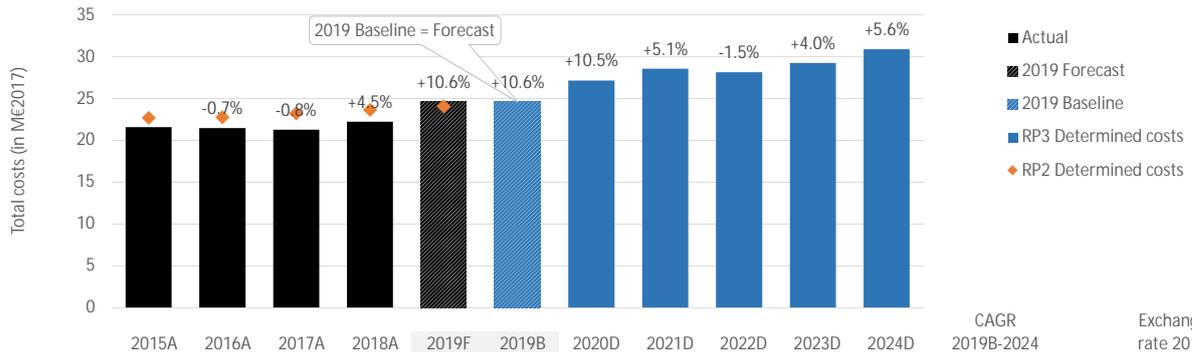
Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast
 Latvia reports a forecast for en route TSUs lower than STATFOR February 2019 base forecast and higher than STATFOR October 2019 base forecast from 2020 to 2024. The difference between the +1.1% increase on average per year of the traffic selected in the performance plan against the +1.4% increase on average per year of the STATFOR February 2019 and the +1.7% increase on average per year of STATFOR October 2019 is due to:
 - the impact of the NINTA-ADAXA segment that increases the number of TSU for Lithuania and decreases it for Latvia;
 - the change from M2 to M3 (the base scenario of 2020-2024 is adjusted by the CRCO estimated adjustment factor of -0.69%; Annex 4 of February 2019 forecast);
 - the STATFOR February 2019 forecast would be highly influenced by the 2017-2019 half year data, that should be considered as an exception according to the performance plan.

Review of the PP traffic forecast
 The selected traffic forecasts is lower than STATFOR February 2019 base forecast and higher than STATFOR October 2019 base forecast for all years of RP3 (2020-2024). It is noted that STATFOR October 2019 forecast is lower than the STATFOR February 2019 forecast.

4.2.4 PRB Key Points

The traffic forecast shows a marginal deviation from the STATFOR February 2019 base forecast, however this is well justified by the NINTA-ADAXA correction.

4.3.1 Overview of en route costs in RP2 and RP3



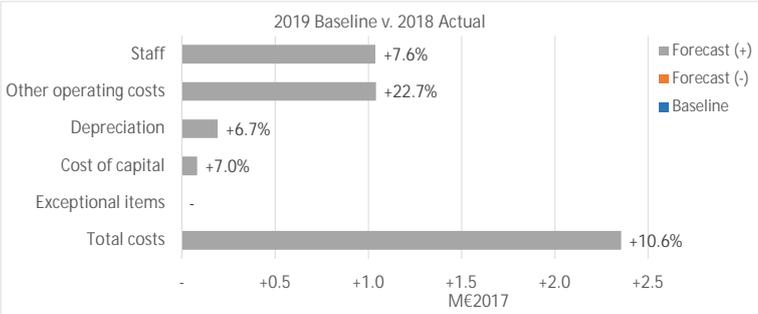
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	21.2	21.0	21.3	22.7	25.5	0.0	28.8	30.7	30.8	32.5	34.9	-	€:€
Annual change	%	-	-0.6%	+1.0%	+6.5%	+12.6%	-	-	+6.8%	+0.3%	+5.5%	+7.2%	-	1.00000
Inflation index	2017 = 100	97.1	97.2	100.0	102.6	105.1	105.1	107.6	109.9	112.2	114.5	116.9	+2.2%	
Total costs	M€ (2017)	21.6	21.4	21.3	22.2	24.6	24.6	27.2	28.6	28.1	29.3	30.9	+4.7%	
Annual change	%	-	-0.7%	-0.8%	+4.5%	+10.6%	+10.6%	+10.5%	+5.1%	-1.5%	+4.0%	+5.6%	+4.7%	
Total costs	M€ (2017)	22	21	21	22	25	25	27	29	28	29	31	+4.7%	

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

	M€2017	%
2019F v. 2018A	+2.4	+10.6%
2019F v. 2019 RP2 DC	+0.6	+2.3%
2019F v. average 2015-2018	+3.0	+13.7%

	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

2019 en route forecast costs amount to 25M€2017, which is +2.4M€2017 (+10.6%) above the 2018 actual costs. When compared to the average of 2015-2018 actual costs, the 2019 forecasted costs are higher by +3.0M€2017 (or +13.7%).

2019 baseline analysis

The 2019 en route baseline costs amount to 25M€2017, which is in line with the 2019 forecast costs and +2.4M€2017 (+10.6%) above the 2018 actual costs.

The increase in costs between the 2018 actual costs and the 2019 baseline is due to:

- Higher staff costs (+1.0M€2017 or +7.6%). Latvia reports that "The costs increase due to the following factors: normal inflation, increase of salaries in the Republic of Latvia faster than inflation, new ATCO training program with expected ATCOs arriving in 2020-2021 to cope with unexpected traffic increase during late RP2/start of RP3, and an increase of ATCO staff costs to be compatible with the respective comparator group (Baltic states)."
- Higher other operating costs (+1.0M€2017 or +22.7%). Latvia reports that "Other operating costs increase due to following reasons: new ATCO training program in 2018-2021 and normal inflation."
- Higher depreciation (+0.2M€2017 or +6.7%). Latvia explains that "Due to loss of one administrative building for Rail Baltic (RIX) airport connection project, there is a need to construct another one, including extra space for technical support staff. Therefore, the capital expenditure rises, having an impact on the depreciation costs."
- Higher cost of capital (+0.1M€2017 or +7.0%).

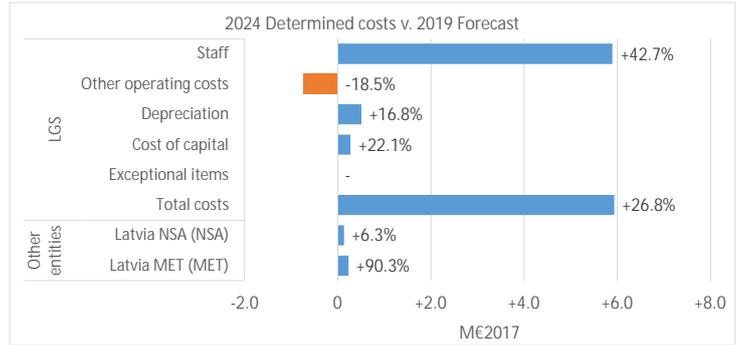
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✘ Investments (see details in 3.5)
- ! Cost of capital (see details in 4.3.1)
- n/a Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	2.00%
Maximum penalty (% of determined costs)	2.00%
Additional incentives?	No



Between 2019 forecast and 2024, the costs are planned to grow on average by +4.7% annually, resulting in an overall increase of some +25.7% over the period. Major contributor, in terms of volume to this planned increase in costs, is LGS (+5.9M€2017, or +26.8%), while the costs for MET are also planned to increase (+90.3%, or 0.2M€2017).

For LGS, the planned increase in costs is driven primarily by additional staff costs (+5.9M€2017, or +42.7%) and, to a lesser extent, depreciation costs (+0.5M€2017 or +16.8%), and cost of capital higher (+0.3M€2017, or +22.1%). Other operating costs are planned to be lower (-0.7M€2017, or -18.5%). No details are reported under the Section "Pensions". It is understood that the pension costs are not identified separately from other social security contributions/costs.

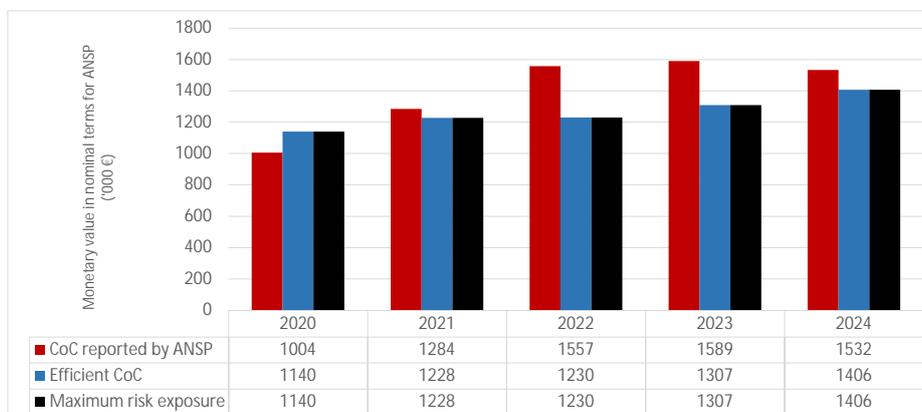
4.3.4 PRB Key Points

- The 2019 cost forecast and baseline are in line with the RP2 expected cost evolution.
- Between 2019 forecast and 2024, the costs are planned to grow on average by +4.7% annually, resulting in an overall increase of some +25.7% over the period. Major contributor, in terms of volume to this planned increase in costs, is LGS (+5.9M€2017, or +26.8%), while the costs for MET are also planned to increase (+90.3%, or 0.2M€2017).
- For LGS, the planned increase in costs is driven primarily by additional staff costs (+5.9M€2017, or +42.7%) and, to a lesser extent, depreciation costs (+0.5M€2017 or +16.8%), and cost of capital higher (+0.3M€2017, or +22.1%).

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	25,909	27,900	27,947	29,714	31,961
Monetary value of Return on Equity	1,004	1,004	1,209	1,202	1,117
Ratio RoE/DC (%)	3.9%	3.6%	4.3%	4.0%	3.5%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	-136	56	327	282	126

Total 2020-2024	655
-----------------	-----

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	4.2%	n/a	6.0%	n/a	6.0%	n/a	6.0%	n/a	6.0%	n/a
Interest on debts	0.0%	n/a	2.0%	n/a	2.0%	n/a	2.0%	n/a	2.0%	n/a
Capital structure (% debt)	0.0%	n/a	45.5%	n/a	46.4%	n/a	49.1%	n/a	52.7%	n/a
WACC	4.2%	4.8%	4.2%	4.0%	4.1%	3.3%	4.0%	3.3%	3.9%	3.6%

Is the interest on debts in line with the market? Yes

- The ANSP is fully financed through equity in 2020, thus no interest on debts is specified for this year. From 2021, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.

- The efficient cost of capital is computed in line with the maximum risk exposure.

- Over the period 2020-2024 the reported cost of capital is 0.65M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 3.5%-4.3%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	22,309	28,524	34,078	35,902	35,337
Net current assets	1,546	2,202	3,484	3,484	4,042
Adjustments total assets	0	0	0	0	0
Total asset base	23,855	30,726	37,562	39,386	39,379

- The fix asset base will increase over the period. This is broadly in line with the increase in new major investments as detailed in section 3.5 of this document.

- The net current assets do not present major issues.

- The RAB does not include adjustments to the total asset base.

- The total asset base increases over RP3, this is mostly due to the increase in the fixed asset base.

4.3.A.5 PRB Key Points

- The reported cost of capital is 0.65M€ above the efficient cost of capital over the period 2020-2024. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 3.5%-4.3%).

4.3.B.1	Review of en route pension costs for the main ANSP (data from en route reporting tables)	n/a
4.3.B.2	Reporting exceptions and planned changes in assumptions	n/a
4.3.B.3	Actions taken by the ANSP to manage the cost-risk associated with pensions	n/a
4.3.B.4	PRB Key Points	

- No details are reported. The pension costs are not identified separately from other social security contributions/costs.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

Those costs incurred either in en route charging zone or in the terminal charging zone, directly attributed to the zone concerned. Costs that are incurred with respect to both charging zones are allocated based on statistical drivers such as kilometres flown, flights flown, expert ratios and proportion of directly incurred expenses.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

n/a

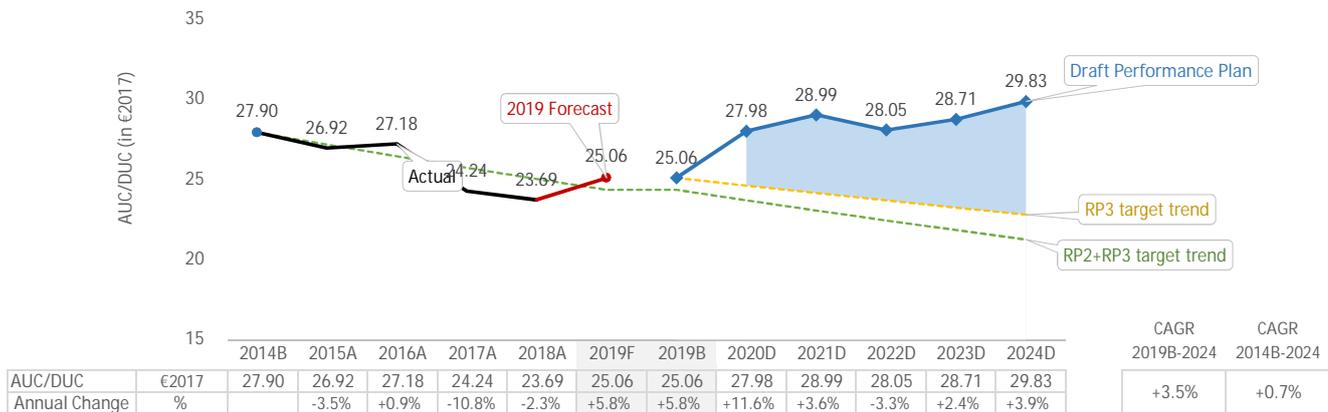
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points ✔

- Latvia did not mention a change in the cost allocation methodology with respect to RP2.
- No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	+3.5%	Union-wide trend	-1.9%	Difference	+5.4p.p.
PP trend	+0.7%	Union-wide trend	-2.7%	Difference	+3.4p.p.
PP 2019 baseline	25.06	Average comp. group	31.28	Difference	-19.9%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	n/a
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

- The RP3 en route DUC trend is on average +3.5% p.a., which is worse than the Union-wide RP3 DUC trend.
- The long-term en route DUC trend is on average +0.7% p.a., which is worse than the Union-wide long term DUC trend. It is noted that the 2014 DUC baseline has not been computed using the M3 traffic coefficient. If this would have been the case, the long-term trend would have been +0.6%.
- The 2019 Baseline en route DUC (25.06€2017) is -19.9% lower than the average of the comparators' group (31.28€2017).

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017):	v. RP3 trend over the period 2020-2024	+25.4	v. RP2+RP3 trend over the period 2020-2024	+31.7
------------------------	--	-------	--	-------

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+35.0	Additional ATCO costs (M€2017)*	+2.1
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€2017)	15.0	of which, related to capacity (see Section 3.5 for details)	6.3
---	------	---	-----

Analysis

The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency trend is +25.4M€2017. In order to provide a rough estimation on whether this deviation of 25.4M€ 2017 is proportionate with the measures taken, the two following cost items can be considered:

- The cumulative additional costs for ATCOs planned to be working in the ACC by the end of RP3. Based on the average unit cost for ATCO in OPS reported by LGS in the ACE 2017 report, it is estimated that the announced recruitment plan would result in around +2.1M€2017.
- The determined costs of new major investments, which represent some +15M€2017 over RP3.

As a conclusion, and even if the rough estimation calculated above (2.1+15=17.1M€2017) is incomplete, the cost deviation with regard to the RP3 cost efficiency target (+25.4M€2017) is too large to be exclusively due to capacity related measures. In particular the investments do not seem to be qualified as related to capacity enhancement measures.

- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

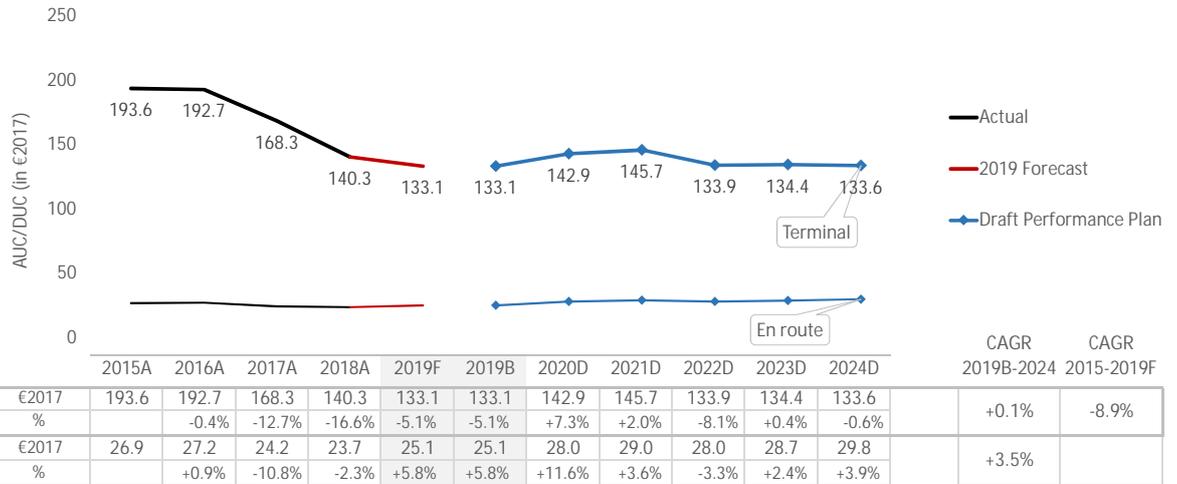
4.4.4 Analysis of the DUC deviation due to restructuring costs

n/a

4.4.5 PRB Key Points

- Latvia is not achieving neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- Latvia DUC level in 2019 is below the average of the comparator group.
- Only part of the deviation from the Union-wide RP3 DUC trend can be justified by capacity related measures.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Riga (EVRA)	GROUP IV	673.8	161.3	-76.1%	647.6	137.3	-78.8%
Liepaja (EVLA)	GROUP IV	673.8	468,031.3	+693.9%	647.6	3,050.0	+371.0%
Ventspils (EVVA)	GROUP IV	673.8	10,473.5	+1454.4%	647.6	3,451.1	+433.9%
Jurmala (EVJA)	GROUP IV	673.8	-	-	647.6	-	-

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

For Riga (EVRA) (Group IV): the average unit cost (161.3€2017 over RP2 - 2015-2018) and the planned DUC (137.3€2017 over RP3 - 2020-2024) are much lower (-76.1% over RP2 and -78.8% over RP3 respectively) than the median airport in its group. Two other "Group IV" airports (EVLA and EVVA) report average unit costs well above the median airport's unit cost/DUC over RP2 and over RP3. No data seems to be available for EVJA (Group IV as well).

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	44.0			
2019F (STATFOR Feb 19)	L 43.1	B 44.0	H 44.9	=B
2019F (STATFOR Oct 19)	L 44.7	B 45.0	H 45.2	-2.22%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+0.1	+1.0%
2019 Forecast v. Avg. 2015-2018 Actual	-0.1	-2.4%
2019 Baseline v. 2019 Forecast	0.0	+0%

- The 2019 baseline TNSU baseline forecast is aligned with STATFOR February 2019 base case.
- The 2019 baseline terminal ANS costs are in line with the 2019 forecast terminal ANS costs which are +0.1ME2017 (+1.0%) higher than the 2018 terminal actual costs.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Latvia reports they have adapted the STATFOR baseline forecast for TNSU upwards by 2% per year as a result of the stakeholder consultation.

Review of the PP traffic forecast

The TNSUs forecasts are higher than the STATFOR base forecast from February 2019 for every year of RP3 2020-2024 (+ 2 p.p. /year). Latvia reports that this is a result of airspace users' consultation: "IATA expressed concern that STATFOR baseline scenario in the terminal area may be too low when considering the national carrier Air Baltic plans fleet replacement plans. STATFOR baseline scenario forecast for terminal service units was revised upwards by 2% per year".

Determined costs (terminal)

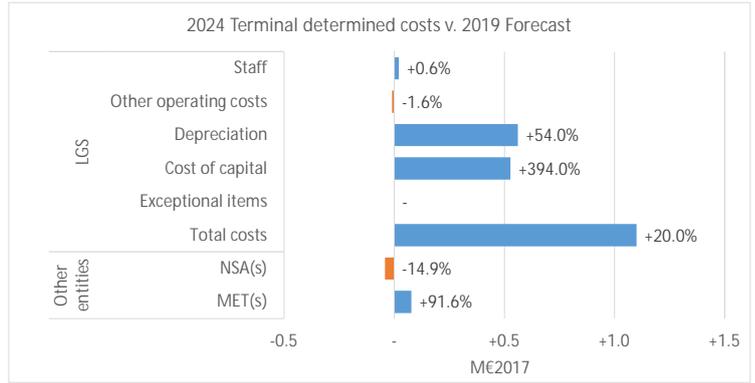
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - LGS (terminal)

- ✗ Investments (see details in 3.5)
- 🕒 Cost of capital
 - Interest on loans
 - RoE
 - WACC
- n/a Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.02%
Maximum penalty (% of determined costs)	0.02%
Additional incentives?	No



- The Terminal RP3 DUC trend is +0.1% p.a. on average which is better than the en-route DUC trend (+3.5%) over the period.
- The share of terminal investment costs in total investment costs (31%) is higher than the share of terminal determined costs in total determined costs (20%).
- Terminal WACC and its parameters are equal to the ones for en route.
- For incentives refer to section 3.4 of this document.
- The terminal 2024 determined costs are +1.1M€2017 (or +20%) higher than the 2019 forecast. The cost difference between 2019 forecast and 2024 determined is mainly related to LGS terminal depreciation costs (+0.6M€2017 or +54.0%) and cost of capital (+0.5M€2017 or +394.0%).

4.5.4 PRB Key Points ✗

- The Terminal RP3 DUC trend is +0.1%, better than the en route RP3 DUC trend of +3.5%.
- The Terminal RP3 DUC trend is +0.1%, worse than the Terminal RP2 DUC trend of -8.9%.
- Riga, the main airport, had a DUC 76.1% lower than the average of its comparator group over RP2. The difference is expected to be -78.8% over RP3.
- Latvia used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is not in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, due to increases in depreciation and cost of capital.

PRB Assessment

LITHUANIA

Draft Performance Plan

Context and scope

Lithuania

Performance Plan: Draft performance plan (Article 12) Dated: 20.11.2019
 Documents no: 1683, 1684, 1685, 1686, 1309, 1321, 1313, 1318, 1319, 1314, 1312, 1316, 1311, 1687, 1688

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.8%
 % Costs V. SES 0.3%

Scope

FAB: Baltic FAB

ANSPs: SE Oro Navigacija (ON)
 Lithuanian Hydrometeorological Service under the Ministry of Environment of the Republic of Lithuania (LHMS)
 State Joint Stock Company Latvijas Gaisa Satiksme (LGS)

ATS, ASM, ATFM, CNS, AIS, SAR
 MET
 ATM, ATS (FIS, Alerting, ATC), ASM, ATFM, CNS (COM, NAV, SUR), AIS, SAR

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Transport Competence Agency

National Supervisory Authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Lithuania	n/a	No	No	No	
Terminal	n/a	n/a	n/a	n/a	n/a	
Changes in the CZs from RP2		Yes				
No terminal charging zone has been included in the RP3 performance plan.						

Comparator group: Group D Other States in the comparator group: Cyprus, Estonia, Greece, Latvia, Malta

Currency: € Exchange rate: 1.00000

1. Safety 

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
SE Oro Navigacija (ON)	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	B	B	B	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Lithuania should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.

The PRB notes that the defined measures are considered relevant and sufficient to achieve the required safety performance targets.

- Interdependencies are addressed, and the performance plan sufficiently explains how safety will be addressed when implementing changes, which may be required to achieve other performance targets (no trade-off is considered).

- Change management practices and transition plans, compliant with Commission Implementing Regulation (EU) 2017/373, are described and if applied, are expected to minimise the negative impact on network performance.

2. Environment 

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.90%	1.88%	1.85%	1.85%	1.85%

PRB Assessment

The PRB concludes that the environment targets proposed by Lithuania should be approved.

- Oro Navigacija's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity 

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.05	0.04	0.04	0.04	0.04
National target for terminal and airport ANS ATFM arrival delay per flight (min)	n/a	n/a	n/a	n/a	n/a

PRB Assessment

The PRB concludes that the capacity targets proposed by Lithuania should be approved

- Existing capacity plans indicate Lithuania will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.

- The PRB notes that the incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency 

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	39.27	39.58	39.07	38.72	38.17	-2.0%	-0.8%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	n/a	-

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Lithuania should not be approved.

- Lithuania is not meeting any of the cost-efficiency criteria.

- The deviations from the cost-efficiency trends are not exclusively considered related to capacity measures.

PRB Recommendations

ENVIRONMENT

- Lithuania should ensure the deployment of a cross-border FRA with Poland is achieved.
- Lithuania should effectively allocate and use reservable/segregable airspace as well as consistently report data concerning the civil/military performance indicators given it has now successfully implemented LARA.

CAPACITY

- Lithuania should revise the incentive scheme so that it has a material impact on the revenues and motivates the ANSP to improve its performance.

COST-EFFICIENCY

- Lithuania should decrease of the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Lithuania should provide more information and justifications to allow for an evaluation of staff cost increases.

LITHUANIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are achieved at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Specific measures are provided in the area of Safety Risk Management and Safety Culture therefore the measures are considered relevant and sufficient to achieve the safety performance targets. The measures will be further amended based on the safety culture survey results that will be conducted at the end of 2019.

1.1.3 Interdependencies and Trade-offs

The interdependencies between safety and other KPAs are addressed, safety will not be compromised at any time. Specific indicators were established by the national supervisory authority to monitor the safety performance together with other KPAs.

1.1.4 Change Management

The performance plan describes detailed change management procedures, compliant with the Commission Implementing Regulation (EU) 2017/373 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, to be applied for major implementations. Described procedures and transition plans aim to minimise negative impact on the network performance during implementation.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by Lithuania should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- Interdependencies are addressed, and the performance plan sufficiently explains how safety will be addressed when implementing changes, which may be required to achieve other performance targets (no trade-off is considered).
- Change management practices and transition plans, compliant with Commission Implementing Regulation (EU) 2017/373, are described and if applied, are expected to minimise the negative impact on network performance.

The PRB notes that the defined measures are considered relevant and sufficient to achieve the required safety performance targets.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Oro Navigacija	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	B	B	B	C	C	✓	

The performance plan with respect to safety KPAs is complete, i.e. EoSM levels are defined for all years and levels in 2024 correspond to the RP3 targets. The starting targets are consistent with RP2.

Some measures are listed such as: an upgrade and integration of their Safety Management System into Quality Management System, conducting regular safety culture surveys and implementation of monitoring and reporting toolkit eTOKAI. Furthermore, the measures will be reviewed and adjusted based on the results of safety culture survey that is scheduled at the end of 2019. Additionally, the ANSP plans to apply the severity classification scheme based on RAT. Considering the ANSP is expected to improve in the area of Safety Risk Management and Safety Culture, the measures are considered relevant and sufficient.

1.3.1 Interdependencies and Trade-offs

The performance plan does not identify any particular interdependency or trade-off with respect to safety while implementing the changes to the ATM Functional System. The performance plan declares that the robust implementation process has been established by the ANSP to ensure safety is never compromised over other KPAs. The monitoring between different KPAs is performed in compliance with Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation. The ANSP will ensure that, despite resource constraints, resources are available for safety related activities.

1.3.2 Change Management Practices

Specific change management procedures, compliant with the Commission Implementing Regulation (EU) 2017/373, are applied for iTEC ATM system and remote towers centres in Vilnius and Lithuanian aerodromes implementation. The change management practices and transition plans are expected to provide the means to minimise the negative impact on the network performance.

LITHUANIA

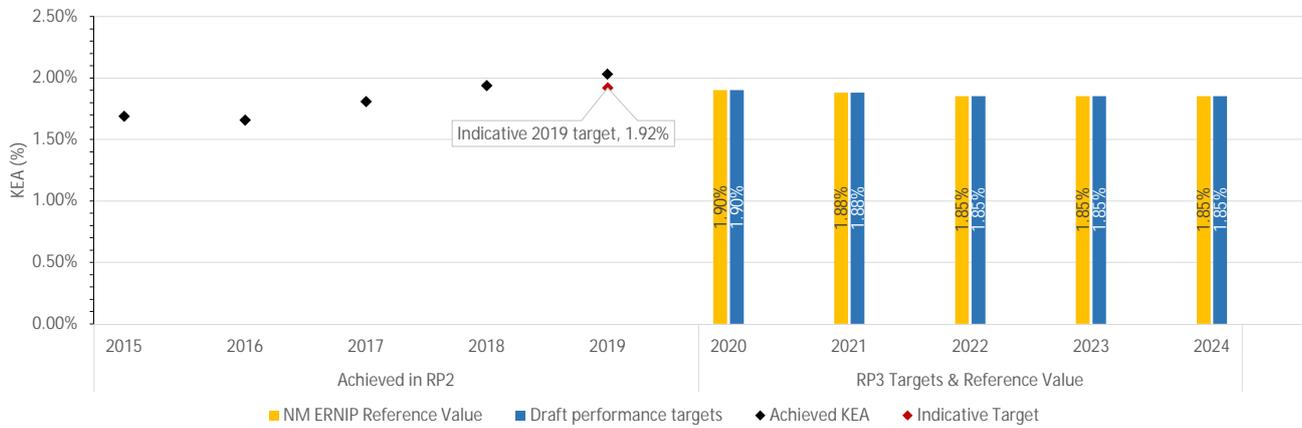
Environment KPA

2.1 Summary of environment key data and assessment results

Lithuania

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.90%	1.88%	1.85%	1.85%	1.85%
Draft performance targets	1.90%	1.88%	1.85%	1.85%	1.85%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Lithuania should be approved.

- Oro Navigacija's horizontal flight efficiency targets are in line with its ANSP reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? Oro Navigacija implemented free route airspace beginning in 2015 and it currently operates between FL095 and FL660.	✓	Reference in PP 3.2.1(c)	Reference in LSSIP Page 38
Major ERNIP Recommended Measures: Measure included within performance plan?	2	Reference in PP None	Reference in ERNIP Page 170
Baltic FAB cross border FRA	✗	None	Page 18
Cross-FAB FRA initiatives	✗	None	Page 18
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Lithuania achieved a KEA of 2.03% in 2019 and needed to meet an indicative target of 1.92% in 2019 to achieve the planned target of 1.90% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

Lithuania stated that the improvement of KEA could be expected only when cross-border FRAs between FABs is in place, but it did not commit to working towards these projects in the performance plan. The ERNIP highlights the importance of these cross-border projects and that Lithuania must implement cross-border FRA with POLFRA by winter 2021/2022.

Given the numerous military activities undertaken in the country it is important FUA is applied to the greatest extent. It is positive that Oro Navigacija started utilising LARA in 2018 and engaging with various airspace user groups to plan the use of national airspace.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Lithuania plan for an environmental incentive scheme? Lithuania does not plan to apply an optional incentive scheme for the environment KPA.	✗
--	---

LITHUANIA

Capacity KPA

3.1.1 En route ATFM delay

Targets defined in the performance plan are consistent with the national reference values during the RP3, and NOP delay forecast is lower than the proposed target.

Analysis of the Lithuania planned capacity profiles indicates that capacity profiles are in line with the capacity enhancement measures and the trend set by the national targets.

Presented capacity enhancement measures and capacity plans are coherent, and show that the targets are realistic.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? n/a

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM delay n/a

3.1.3 Incentives

En route: Threshold is symmetrical around national targets, which are equal to reference values published in NOP. Delay forecast in NOP shows that ANSP expected to easily achieve targets and partial bonus (0.01 minutes per flight annually 2020 - 2024). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Enlisted major investment projects are non-capacity improvements and relevant with a local impact only.

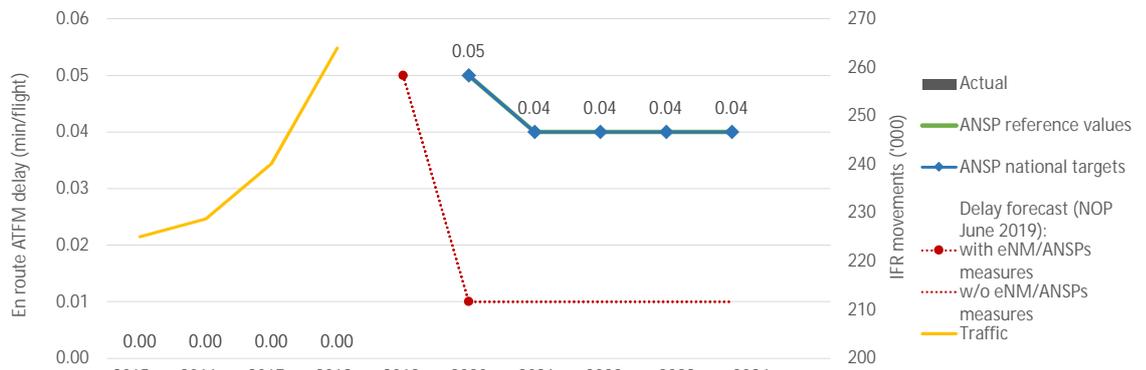
3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets proposed by Lithuania should be approved

- Existing capacity plans indicate Lithuania will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that the incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+0.5%	+1.6%	+5.0%	+9.9%						
Actual ATFM delay per flight (movements)	0.00	0.00	0.00	0.00		0.05	0.04	0.04	0.04	0.04
ANSP reference values						0.05	0.04	0.04	0.04	0.04
ANSP national targets						0.05	0.04	0.04	0.04	0.04
Forecast with eNM/ANSPs measures*					0.05	0.01				
Forecast w/o eNM/ANSPs measures*					0.05	0.01		0.01		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? n/a

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The performance plan contains four main measures to enhance capacity:

- optimisation of Lithuanian airspace based on EUROCONTROL Airspace model / CAPAN analyses;
- deployment of new ATM system (iTEC version 2.1) in 2019;
- introduction of new ATCOs rostering system;
- an improved cooperation between ATFM, ATM divisions and operational units (Vilnius ACC).

ATCO Planning (FTEs)

	2018A	2019P	2020P	2021P	2022P	2023P	2024P
Vilnius ACC (EYVC)	Additional ATCOs in OPS to start working in the OPS room	0	2	3	2	1	1
	ATCOs in OPS to stop working in the OPS room	0	4	0	2	1	1
	ATCOs in OPS to be operational at year-end	30.613	28.613	31.613	31.613	31.613	31.613
Total - Oro Navigacija (en route)	Additional ATCOs in OPS to start working in the OPS room	0	2	3	2	1	1
	ATCOs in OPS to stop working in the OPS room	0	4	0	2	1	1
	ATCOs in OPS to be operational at year-end	30.613	28.613	31.613	31.613	31.613	31.613

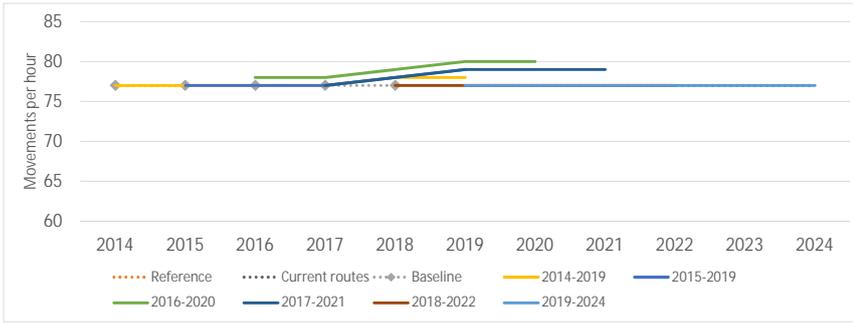
2024 (end) - 2020 (beg.)

+3

+3

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Vilnius ACC (EYVC)



- Historical data shows that capacity plans were in line with the actual capacity provided. 2016 and 2017 capacity plans were aiming at a higher profile, but reverted back to the original value in the following years. Lithuania is providing excellent performance in terms of delay, with zero minutes per flight even when traffic increased almost by 10%.

- The latest capacity plans are fully aligned with the reference profiles.

- The performance plan contains capacity enhancement measures, the effects of which are not reflected in the capacity profiles.

- No capacity gap expected for Lithuania based on the capacity profile planning.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						77	77	77	77	77	77
Current routes						77	77	77	77	77	77
Baseline	77	77	77	77	77						
2014-2019	77	77	77	77	78	78					
2015-2019		77	77	77	78	79					
2016-2020			78	78	79	80	80				
2017-2021				77	78	79	79	79			
2018-2022					77	77	77	77	77		
2019-2024						77	77	77	77	77	77

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- Proposed capacity targets are in line with the respective Reference delay values, contributing to the achievement of the Union-wide capacity target.
- The existing capacity plans indicate that Lithuania has sufficient capacity to meet the forecasted demand and to reach the target.
- Presented ATCO numbers and NOP capacity forecast provide evidence that Lithuania has sufficient capacity to cope with the expected traffic growth during the planning period.

3.3. Arrival ATFM delay per flight (not applicable)

Lithuania

Lithuania has not established any terminal charging zone for RP3.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.005 min	0.200%	0.200%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.05	0.04	0.04	0.04	0.04
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.040	±0.040	±0.040	±0.040
Performance Plan targets	0.05	0.04	0.04	0.04	0.04
Pivot values for RP3	0.05	0.04	0.04	0.04	0.04

Threshold review

Threshold is symmetrical around national targets which are equal to reference values published in NOP.

Modulation review

No modulation should be applied.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty are fixed at 0.2% of revenue. Delay forecast in NOP shows that ANSP expected to easily achieve targets and partial bonus (0.01 minutes per flight annually 2020 - 2024).

3.4.2 Terminal capacity incentive scheme n/a

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✔

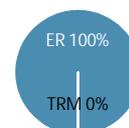
En route:

- Threshold is symmetrical around national targets which are equal to reference values published in NOP.
- Delay forecast in NOP shows that ANSP is expected to easily achieve targets and partial bonus (0.01 minutes per flight annually 2020 - 2024).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	5.1	5.4	5.7	5.6	5.6	27.4
	En route	5.1	5.4	5.7	5.6	5.6	27.4
	Terminal	0.0	0.0	0.0	0.0	0.0	0.0

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Remote tower technologies implementation in all Lithuanian aerodromes and Remote Tower Centre establishment in Vilnius	Remotely-provided ATS from a Remote Tower Centre in Vilnius with a flexible allocation of aerodromes to remote tower modules (RTM) will enable the provision of remote tower services to all Lithuanian airports with a flexible and dynamic allocation of airports connected to different RTM over time. Video cameras and cameras layout infrastructure (cabling, masts) will be implemented in all four Lithuanian aerodromes and the following infrastructure (optical (video surveillance) and air traffic management system, network equipment upgrade, communication G/G, A/G upgrade, NAV Aids upgrade, premises video and sound system, CWP consoles) will be deployed in Remote Tower Centre located in Vilnius.	8.4	No	No	1.7	0.6
2	Vilnius PSR/MSSR radar replacement	Technically and morally obsolete radar equipment (PSR/MSSR radar) replacement in Vilnius.	3.5	No	No	0.2	0.0
3	Multisensory WAM system study and installation	Preparation of multisensory WAM system study and installation of this multisensory WAM system.	3.0	No	No	1.4	0.2
4	NAVAIDS (ILS and DME) in Vilnius and Palanga aerodromes replacement	ILS/DME RWY 19 CATI at Palanga airport will be replaced in 2020, ILS/DME RWY 01 CATII and ILS/DME RWY 19 CATI at Vilnius airport will be replaced in 2021, stand alone DME (PLG) at Palanga will be replaced in 2022.	2.6	No	No	0.9	0.1
Total:						4.2	0.9

Airspace user feedback regarding major investments

The airspace users support the investment programme, but would like for the projects to be clearly linked to the achievement of the performance targets. The airspace users were satisfied about the initial estimations of the remote tower.

Review of investments

New major investments represent 14% of the total determined costs over RP3. These investments for RP3 are detailed and the ANSP does not expect to roll the RP2 investments to RP3. 2015-2018 actual CAPEX delivery reaches 153% of the planned for the same period and the amount overspent is 11.23M€.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	Remote tower technologies implementation in all Lithuanian aerodromes and Remote Tower Centre establishment in Vilnius	Local	Safety, Cost-efficiency	"The project is directly related to European ATM Master Plan (High-performing airport operations (AOP14)). This investment project is also related to ICAO Aviation System Block Upgrades (ASBU) initiative (Block 1: B1-RATS Remotely operated aerodrome control)."
2	Vilnius PSR/MSSR radar replacement	Local	Safety, Cost-efficiency	"The project is directly related to requirements of COMMISSION IMPLEMENTING REGULATION (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the Single European Sky."
3	Multisensory WAM system study and installation	Local	Safety, Cost-efficiency	"The project is directly related to requirements of COMMISSION IMPLEMENTING REGULATION (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the Single European Sky."
4	NAVAIDS (ILS and DME) in Vilnius and Palanga aerodromes replacement	Local	Safety, Cost-efficiency	"The project is directly related to requirements of Volume I of ICAO Annex 10 which defines for international aircraft operations the systems necessary to provide radio navigation aids used by aircraft in all phases of flight."

Additional information

All the major investments are not required by SES legislation, but they are related to the European ATM Master Plan, Commission Implementing Regulation or ICAO Annex 10. There were no comments from the airspace users on this matter.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	10.4	10.4	0.1	0.4	0.9	1.1	1.4	3.9
Existing investments			6.3	5.9	5.5	5.1	4.5	27.3

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 11% of the total determined costs of investments over RP3, while total cost of existing investments 75%.</p> <p>Other new investments - out of the remaining investments, Lithuania is planning for further development (additional functionalities) of the new ATM system (iTEC) for approx. 1.8M€. Air-ground radio equipment renewal and coverage/quality improvement for 1.1M€, Vilnius DVOR/DME replacement for 0.7M€ and pelengators renewal for 0.5M€ - all replaced to increase service and safety quality as their exploitation period is ending and maintenance is becoming more difficult and repair costs potentially increasing. Remaining amount is various different small investments and renewals of IT hardware, software and licences, digitalisation and modernisation of processes to increase efficiency of daily operations, creation of digital tools (e.g. UTM space management), renewal of ageing and inefficient, non eco-friendly car-park, improvement and repairs of facilities, other equipment and systems in use, spare-parts, small office gear, etc.</p> <p>Existing investments - the largest investments of RP2 - new ATM system iTEC, new Administration and ATM center building will be put into operation and start depreciating at the end of 2019. As well as all other fixed assets from RP1 and RP2 and older ones that are still in depreciation process.</p>
--	--

3.5.3 Review of investments contribution to capacity ✓

- a) Investment levels contribute to the provision of capacity that is scaled to demand ✓

In accordance with the NOP 2019-2024, Lithuania provides sufficient capacity to meet the demand. Capacity improvements measures introduced by the performance plan are in line with the NOP. The measures include mainly further developments and implementation of the new ATM system (iTEC) by 2020, which commenced in 2019 (regarded as other investments), airspace improvement changes and improvements in collaboration with neighbouring ANSP addressing possible ATCO number issues (flexible rostering). Enlisted major investment projects are non-capacity improvement relevant with local impact only.
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan n/a

Not applicable. Enlisted major investments are non-capacity improvement relevant with local impact only.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented n/a

Not applicable. Enlisted major investments are non-capacity improvement relevant with local impact only.

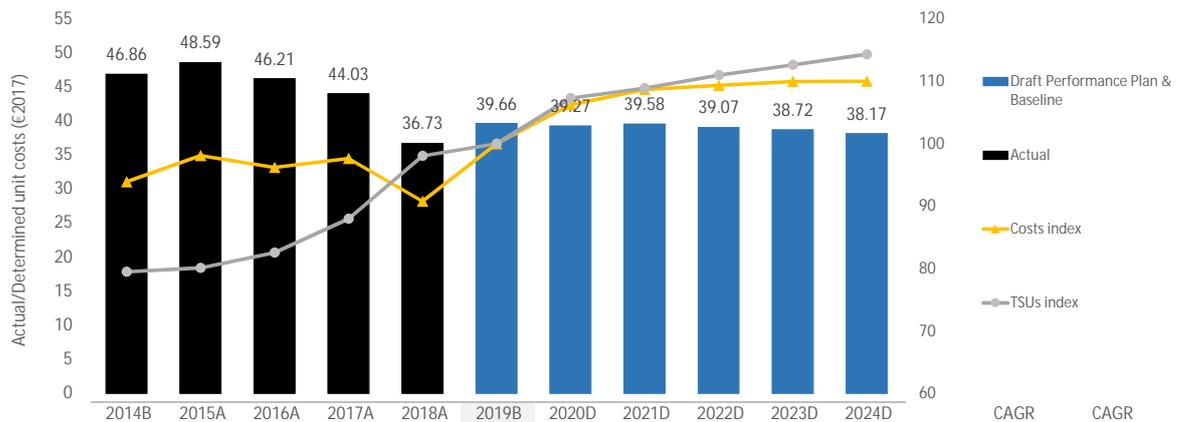
3.5.4 PRB Key Points ✓

- No major issues identified for the investments.
- Major investments for RP3 are detailed and the ANSP does not expect to roll forward RP2 investments to RP3.
- Enlisted major investments are non-capacity improvement relevant with local impact only.

LITHUANIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	ME (nom)	22.3	23.1	22.8	23.8	22.6	0.0	27.2	28.3	28.9	29.6	30.2	-	+3.1%
Total costs	ME (2017)	22.9	23.9	23.5	23.8	22.1	24.4	25.9	26.5	26.7	26.8	26.8	+1.9%	+1.6%
TSU	'000	489	492	507	541	603	615	660	670	682	692	703	+2.7%	+3.7%
AUC/DUC	€ (2017)	46.86	48.59	46.21	44.03	36.73	39.66	39.27	39.58	39.07	38.72	38.17		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	46.86	48.59	46.21	44.03	36.73	39.66	39.27	39.58	39.07	38.72	38.17		
Annual change	%		+3.7%	-4.9%	-4.7%	-16.6%	+8.0%	-1.0%	+0.8%	-1.3%	-0.9%	-1.4%	-0.8%	-2.0%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	39.66 €2017	✓
<p>The 2019 traffic baseline is -3.1% lower than the STATFOR February base forecast but only -1.0% lower than the October base forecast. It represents an increase of +2.0% over 2018, which is in line with the traffic evolution to date (up to the end of September) of +2.2%.</p> <p>The 2019 costs baseline is in line with the forecast and consistent with the planned RP2 determined costs. It is +4.5% higher than the average actual costs during the 2015-2018 period mainly due to ongoing staff recruiting and the re-activation of some contracts and investments put on hold during 2018. The cost baseline was supported by the airspace users after the consultation on the draft performance plan held during the summer.</p>		

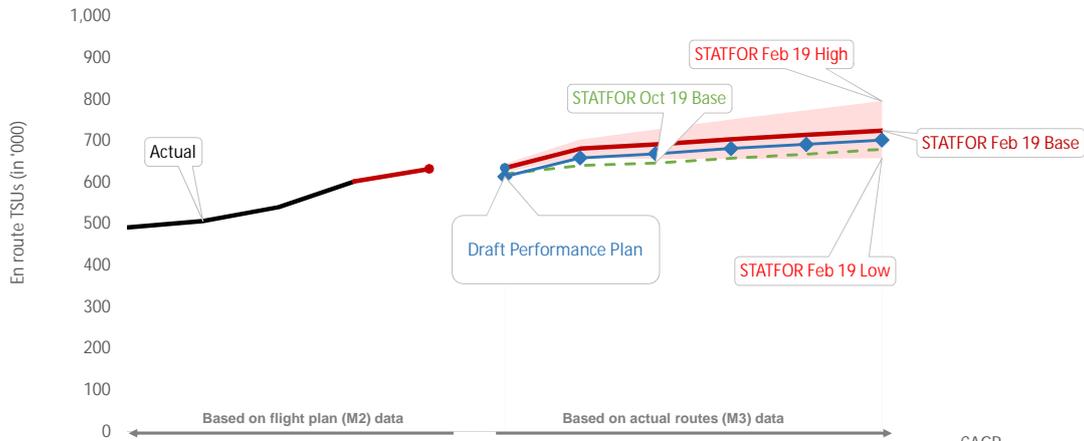
4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-0.8%	✗
Lithuania does not meet the RP3 assessment criteria, with an RP3 trend of -0.8%.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-2.0%	✗
Lithuania does not meet the long-term (RP2+RP3) assessment criteria, with a long-term trend of -2.0%.		
c) DUC level (2019 baseline) lower than the average of comparator group (D) average (28.36 €2017)?	+39.8%	✗
Lithuania does not meet the DUC level assessment criteria, with a DUC 2019 baseline +39.8% higher than its comparator group. Despite the decrease over RP3, the DUC at the end of the period (2024) would still be +24.8% higher than its comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		✗
The performance plan shows costs deviation with respect to the RP3 and the long-term DUC trends of +5.2ME2017 and +4.5ME2017, respectively. The cost deviations are not exclusively considered related to capacity measures.		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB conclusions

<p>The PRB concludes that the cost-efficiency targets proposed by Lithuania should not be approved.</p> <ul style="list-style-type: none"> - Lithuania is not meeting any of the cost-efficiency criteria. - The deviations from the cost-efficiency trends are not exclusively considered related to capacity measures. 	✗
--	---

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	492	507	541	603								
	Annual change		+3.1%	+6.6%	+11.4%								
STATFOR Feb 19 Base	'000 TSUs					633	635	682	692	704	715	726	+2.7%
	Annual change					+5.0%	+5.4%	+7.3%	+1.5%	+1.9%	+1.5%	+1.5%	
STATFOR Oct 19 Base	'000 TSUs					-	621	641	647	658	669	680	+1.9%
	Annual change					-	+3.0%	+3.2%	+1.0%	+1.7%	+1.6%	+1.7%	
Performance Plan	'000 TSUs						615	660	670	682	692	703	+2.7%
	Annual change						+2.0%	+7.3%	+1.5%	+1.9%	+1.5%	+1.5%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months
2019B (PP baseline, M3)	615		
2019F (as in the Reporting tables, M2)	615		
2019B/ 2019F	0.00%	+0.32%	+0.28%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	615			
2019F (STATFOR Feb 19, M3)	L 625	B 635	H 645	-3.1%
2019F (STATFOR Oct 19, M3)	L 619	B 621	H 623	-1.0%

- The 2019 traffic baseline used in the performance plan is the same than the 2019 forecast in the reporting tables despite the fact that they should respectively be calculated according to M3 and M2 methodologies. The reporting tables should be amended to reflect the M3/M2 coefficient.
- Lithuania has chosen a baseline which is -3.1% lower than the STATFOR February 2019 base forecast, but only -1.0% lower than the October base forecast and represents an increase of +2.0% over 2018.
- The main justification provided is the effect of re-routings in other European Member States due to industrial action, capacity constraints, weather, etc. having a knock-on impact driving traffic flows out of Lithuanian airspace, in particular the eNM measures re-routing traffic to avoid Karlsruhe UAC.
- The year-to-date (up to the end of September) traffic evolution shows an increase in traffic of +2.2% compared to the same period of 2018.
- Although the traffic baseline used by Lithuania can be considered a bit conservative, it is mostly in line with the traffic evolution to date and, especially when considering the baseline in conjunction with the overall forecast selected for RP3 (see analysis below).

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

- The forecast used by Lithuania has a lower starting point for 2019 (see above) than the STATFOR February base forecast, however for the 2020-2024 period it replicates the yearly growth of this scenario.
- In addition to the eNM measures mentioned above, Lithuania cites as additional risk factors for not taking the February base forecast the dependency on transit flights and on traffic operated by airlines registered in the Russian Federation and the early signs of an economic slowdown.

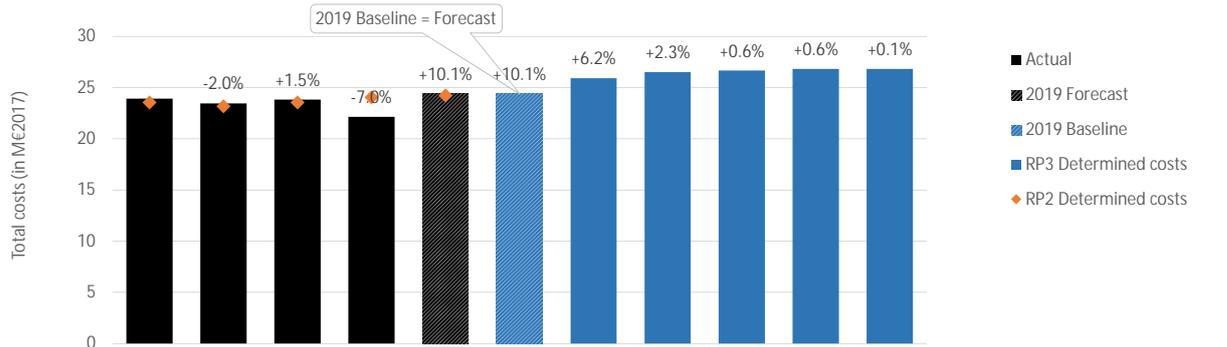
Review of the PP traffic forecast

The traffic forecast selected by Lithuania falls between the STATFOR base forecasts of February and October. Considering the proven negative effect of the eNM measures on Lithuanian traffic and the risk factors mentioned above, the forecast selected seems reasonable and consistent with the latest information available.

4.2.4 PRB Key Points

- Lithuania has chosen baseline which is -3.1% lower than the STATFOR February 2019 base forecast, but only -1.0% lower than the October base forecast and represents an increase of +2.0% over 2018.
- The forecast used by Lithuania has a lower starting point for 2019 (see 4.2.2 above) than the STATFOR February base forecast, however for the 2020-2024 period it replicates the yearly growth of this scenario. Considering this, the traffic proposed by Lithuania does not present major issues.

4.3.1 Overview of en route costs in RP2 and RP3



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017	
Total costs	M€ (nom) 23	23	24	23	25	-	27	28	29	30	30	-	€:€ 1.00000	
Annual change	%	-1.5%	+4.5%	-5.3%	+12.0%	-	-	+3.9%	+2.1%	+2.5%	+1.9%	-		
Inflation index	2017 = 100	95.8	96.4	100.0	102.5	104.8	104.8	107.1	109.5	111.9	114.7	+2.3%		
Total costs	M€ (2017)	23.9	23.5	23.8	22.1	24.4	24.4	25.9	26.5	26.7	26.8	26.8	+1.9%	
Annual change	%	-2.0%	+1.5%	-7.0%	+10.1%	+10.1%	+6.2%	+2.3%	+0.6%	+0.6%	+0.1%	+1.9%		
Total costs	M€ (2017)	23.9	23.5	23.8	22.1	24.4	24.4	25.9	26.5	26.7	26.8	+1.9%		

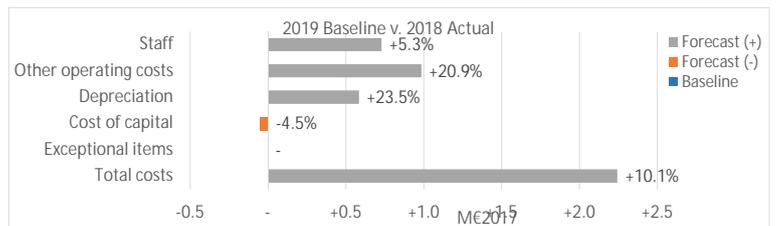
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

According to the performance plan, Lithuania uses a locally produced inflation forecast due to their experience during RP1 and RP2 when their local inflation forecasts were closer to reality than those of IMF. The local forecast used is slightly lower than IMF's and would lead to an inflation index 0.62 p.p lower than that of IMF by the end of RP3 (2024). The overall determined costs for the 2019-2024 period would be -0.4M€2017 lower, had the IMF forecast been used.

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+2.2	+10.1%
2019F v. 2019 RP2 DC	+0.2	+0.7%
2019F v. average 2015-2018	+1.1	+4.5%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

- The 2019 forecast costs are +10.1% above the 2018 actuals (in real terms) but in line (+0.7%) with the planned RP2 determined costs.
- As seen in the graph above, 2018 costs were exceptionally low making this year an unrealistic reference. Lithuania explains in the performance plan that, due to a political change, in 2017/2018 all top management of the ANSP was replaced and new rules were set for procurement which meant stopping all maintenance and supply contracts. New contracts were drawn during 2018 and expenditures are going back to usual levels in 2019, thus the cost increases, in particular, in other operating costs and depreciation.
- As for staff costs, the performance plan refers to the recruitment in 2019 of 18 operational and technical personnel to replace retiring staff and to ensure enough ATCOs to allow normal rostering.
- A full breakdown and rationale for the 2019 costs is provided in Annex F of the performance plan.
- The 2019 cost baseline was supported by the airspace users in their response to the draft performance plan presented during the consultation meeting on 25 July 2019.

2019 baseline analysis

The 2019 baseline is in line with the 2019 forecast.

4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✓ Investments (see details in 3.5)
- ⓘ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.20%
Maximum penalty (% of determined costs)	0.20%
Additional incentives?	No



- ANSP costs are planned to increase by +7.5% (or 1.7ME2017) between 2019 and 2024 mainly driven by increases in depreciation and staff cost. The ANSP is planning a decrease of -8.0% over the period in other operating costs.
- According to the performance plan, the main reason for the staff costs increase is the intense pressure of the Lithuanian labour market - competition from other European countries for skilled staff (including ATCOs) means there is virtually no unemployment. This together with high economic growth is pushing salaries high (+8-10% in the last 3 years and forecasted to grow +6-8% in the next few years).
- The main reason for the increase in depreciation costs is the execution of the current investment plan with some important projects being put into operation in 2019. Lithuania considers that the fact that in RP3 these costs cannot be adjusted for inflation puts them at a disadvantage compared to other European countries where economic growth and inflation are lower.
- These two factors - increased wages due to market liberalisation and high inflation due to economic growth - are cited by Lithuania as local circumstances to be considered for the assessment of its performance plan.

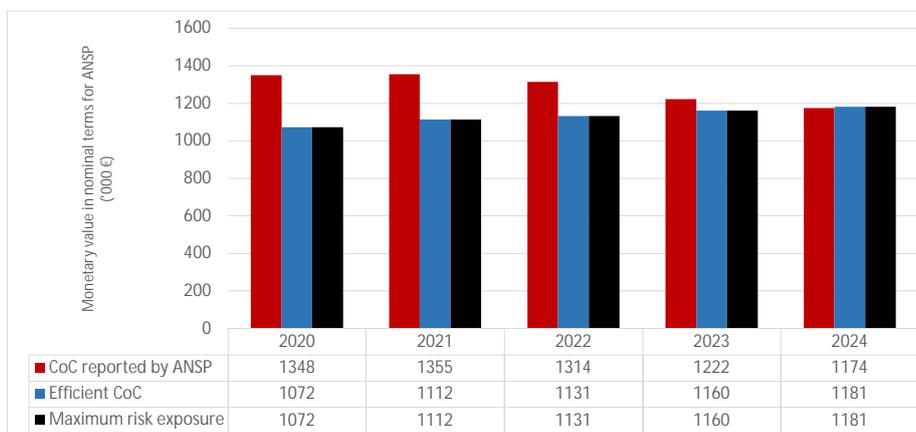
4.3.4 PRB Key Points

- The 2019 cost baseline was supported by the airspace users in their response to the draft performance plan presented during the consultation meeting on the 25 July 2019.
- ANSP costs are planned to increase by +7.5% (or 1.7ME2017) between 2019 and 2024 mainly driven by increases in depreciation and staff costs.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	24,359	25,282	25,708	26,367	26,843
Monetary value of Return on Equity	1,348	1,355	1,314	1,222	1,174
Ratio RoE/DC (%)	5.5%	5.4%	5.1%	4.6%	4.4%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	277	242	183	61	-7

Total 2020-2024	756
-----------------	-----

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	3.5%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	3.5%	2.8%	3.5%	2.9%	3.5%	3.0%	3.5%	3.3%	3.5%	3.5%

Is the interest on debts in line with the market?	n/a
---	-----

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024 the reported cost of capital is 0.76M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 4.4%-5.5%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	34,456	34,472	33,199	30,443	29,002
Net current assets	4,069	4,234	4,344	4,461	4,549
Adjustments total assets	0	0	0	0	0
Total asset base	38,524	38,706	37,543	34,904	33,552

- The fix asset base will slightly increase from 2020 to 2021 and then it will decrease over RP3. This is in line with the decrease of existing investments described in section 3.5.
- The net current assets do not present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase from 2020 to 2021 and then it will decrease over RP3 by 13%. This decrease is driven by the decrease in the fixed asset base.

4.3.A.5 PRB Key Points

- The reported cost of capital is 0.76M€ above the efficient cost of capital over the period 2020-2024. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 4.4%-5.5%).

4.3.B.1	Review of en route pension costs for the main ANSP (data from en route reporting tables)	n/a
---------	--	-----

4.3.B.2	Reporting exceptions and planned changes in assumptions	n/a
---------	---	-----

4.3.B.3	Actions taken by the ANSP to manage the cost-risk associated with pensions	
---------	--	--

Oro Navigacija has no pension costs for RP3. According to the performance plan, "After the structural pensions system reform in Lithuania, from 1 January 2019 contributions to the pension funds (state and private) are paid from gross salaries of employees and not by contributions of employers. Employees themselves decide how much they want to contribute to their private pension funds in addition to the basic contribution rate to the state pension system 8.72% (this one is subject to the EU "pension rights" transfer)."

The current rates of the state social insurance contributions payable by insured persons to the state pension, sickness, maternity and health insurance is 19.5%. For more information: <https://socmin.lrv.lt/en/activities/social-insurance-1/social-insurance-contributions>.

4.3.B.4	PRB Key Points	✓
---------	----------------	---

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Lithuania did not change the cost allocation methodology with respect to RP2.
 - Lithuania does not have terminal charging zone included in the performance plan.
 - For each cost centre, appropriate percentage of cost is allocated between different activities, i.e. en route and terminal services: facilities and services that serve only en route are allocated 100% to en route services, facilities and services that serve only terminal are allocated 100% to terminal services, and for facilities and services that serve both en route and terminal costs are allocated based on proportion of the number of flights or, in some cases, of the number of ATCOs or ATCOs remuneration.

1.2. Are the criteria for cost allocation clearly defined and justified? **Yes** If not, what are the issues identified?
 n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? **No** If yes, description and justification of the changes from RP2 to RP3 specified in the PP
 n/a

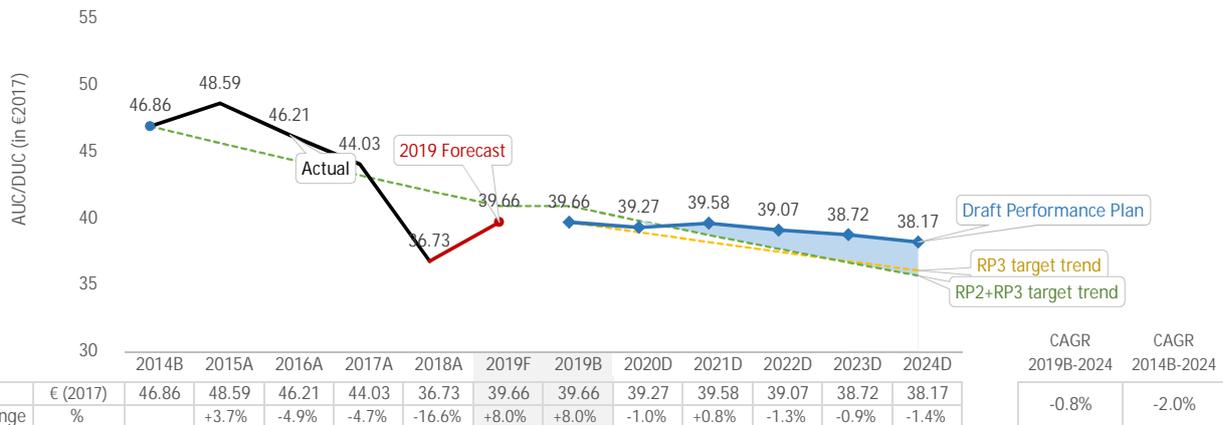
2.2. Are these changes in cost allocation duly described and justified? **n/a** If, not what are the identified issues?
 n/a

2.3. Is there an impact on the determined costs and/or baseline? **n/a** If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
 n/a

4.3.C.3 PRB Key Points ✓

- Lithuania did not change the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	-0.8%	Union-wide trend	-1.9%	Difference	+1.1p.p.
PP trend	-2.0%	Union-wide trend	-2.7%	Difference	+0.7p.p.
PP 2019 baseline	39.66	Average comp. group	28.36	Difference	+39.8%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

- Lithuania does not meet the RP3 or long term trend assessment criteria with trends (-0.8% and -2.0% p.a., respectively) worse than the Union-wide target trends. It should be noted that, while not meeting the targets, the RP3 and long-term trends show a DUC reduction during both periods.
- Lithuania does not meet the 2019 DUC level criteria with a baseline +39.8% higher than the average of its comparator group.
- Lithuania has performed well in terms of capacity (see section 3.2.1) with no delays during RP2 despite a yearly traffic increase (in IFR mvts.) of +4.2% in the period 2015-2018, and no delays foreseen either for RP3.
- The submitted performance plan shows similar costs deviation with respect to the long term and RP3 trends (+4.5 and +5.2ME2017 respectively).
- According to the performance plan, the local circumstance driving the costs deviation is the increase of ATCO employment costs for RP3 due to the large demand of ATCOs in Europe and the comparatively current lower ATCO salaries in Lithuania. Annex R of the performance plan is provided to develop this point.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in ME2017):	v. RP3 trend over the period 2020-2024	+5.2	v. RP2+RP3 trend over the period 2020-2024	+4.5
------------------------	--	------	--	------

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change in ATCOs in OPS during RP3 (FTEs*)	+13.5	Additional ATCO costs (ME2017)*	+1.0
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in ME2017)	4.2	of which, related to capacity (see Section 3.5 for details)	0.0
---	-----	---	-----

Analysis

Lithuania is estimated to exceed the RP3 DUC trend by +5.2ME2017. At the same time, the estimated deviation from the long-term DUC trend is +4.5ME2017.

In order to provide an estimation of whether the deviations are proportionate to the measures taken to achieve the capacity targets, the two following cost items can be considered:

- The cumulative additional costs for ATCOs planned to start working in the ACC can be estimated at 1.0ME2017 based on the average unit cost for ATCO in OPS reported in the ACE 2017 report. This does not include training costs.
- The cost of the further development of the new ATM system (ITEC) which will be 1.8ME2017 (note that since the total CAPEX of this project is less than 5ME it is not part of the "new major investments" considered above, however the information is provided in section 2.1.3 of the draft performance plan).

Around 2.8ME2017 can be directly attributed to capacity-related measures. However, the draft performance plan lacks enough details to fully allocate the deviations from the cost-efficiency targets. Therefore, the deviations cannot be exclusively related to capacity measures.

- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points 

- Lithuania is not meeting any of the cost-efficiency criteria.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.

4.5 Terminal (not applicable)

Lithuania

Lithuania has not established any terminal charging zone for RP3.

PRB Assessment

MALTA

Draft Performance Plan

Context and scope

Malta

Performance Plan: Draft performance plan (Article 12) Dated: 18.11.2019
 Documents no: 1562, 1563, 1564, 1565, 1566, 1567, 1568

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 0.3%
 % Costs V. SES 0.2%

Scope

FAB: BLUE MED FAB

ANSPs: MATS
 MIA (MET)

ATS, CNS, AIS, ATFCM
 METS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): NSA

ANS

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Malta	n/a	No	No	No	<p>ER 82% TRM 18%</p>
Terminal	Malta - TCZ	1	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group D Other States in the comparator group: Cyprus, Estonia, Greece, Latvia, Lithuania

Currency: € Exchange rate: 1.00000

1. Safety ✔

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
MATS	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Malta should be approved.

-The EoSM safety targets are in line with the Union-wide performance targets.

-The measures proposed are found sufficient to achieve the RP3 safety targets at the ANSP level however additional measures at the NSA level are required to ensure compliance by the NSA with Commission Implementing Regulation (EU) 2017/373.

The PRB notes that a formalised approach assuring that safety has priority over other KPAs has been established and that the changes to ATM functional system will not deteriorate safety.

The PRB notes that change management practices described are sufficient to control impact on safety in particular.

2. Environment ✘

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.46%	1.46%	1.46%	1.46%	1.46%

PRB Assessment

The PRB concludes that the environment targets proposed by Malta should not be approved.

- MATS's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✘

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.02	0.02	0.02	0.02	0.02
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.00	0.00	0.00	0.00	0.00

PRB Assessment

The PRB concludes that the capacity targets proposed by Malta are consistent, however, Malta did not introduce incentive schemes for en route and terminal capacity, which is not compliant with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317.

4. Cost-efficiency ✘

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	26.60	26.41	26.61	26.02	25.27	+1.9%	-0.4%
Target for determined unit cost (DUC) (€2017) - Terminal	148.56	146.04	151.54	150.26	146.74	n/a	+1.1%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Malta should not be approved.

- Malta is not meeting the Union-wide RP3 trend nor the long-term trend.

- Malta is consistent with the average DUC baseline of the comparator group.

- The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

PRB Recommendations

SAFETY

- Malta should define explicit measures at the NSA level derived from Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Malta should update its performance plan to reflect the reference values found in the June 2019 ERNIP as it would appear it did not use the correct reference values to set its performance plan targets.

- Malta should work with its other BLUE MED FAB partners to ensure cross-FAB FRA is implemented as recommended in the ERNIP.

CAPACITY

- Malta should set up incentive schemes for en route and terminal capacity to ensure compliance with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317.

COST-EFFICIENCY

- Malta should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.

- Malta should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends, or should revise terminal RP3 cost-efficiency targets downwards.

MALTA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

MATS has already achieved required level of EoSM in four out of five management objectives.

The specific measures for improvement of safety risk management will be implemented with Safety Plan for RP3, that is developed based on Eurocontrol CANSO Standard of Excellence in Safety Management Systems. Additional measures at the NSA level is required to ensure compliance by the NSA with Commission Implementing Regulation (EU) 2017/373.

1.1.3 Interdependencies and trade-offs

The draft performance plan underlines that MATS monitors safety impact of any changes to ATM Functional system via integrated Safety, Quality and Security Management System. The safety level will be assured by currently implemented safeguards.

1.1.4 Change Management

The change management processes are developed by ANSP in cooperation with NSA. The procedures, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient means to ensure minimal negative impact of the change on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by Malta should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures proposed are found sufficient to achieve the RP3 safety targets at the ANSP level however additional measures at the NSA level are required to ensure compliance by the NSA with Commission Implementing Regulation (EU) 2017/373. The PRB will closely monitor the implementation of measures described from Commission Implementing Regulation (EU) 2017/373 during RP3 in its "RP3 watchlist".

The PRB notes that a formalised approach assuring that safety has priority over other KPAs has been established and that the changes to ATM functional system will not deteriorate safety.

The PRB notes that change management practices described are sufficient to control impact on safety in particular.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
MATS	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan argues that the ANSP has a very mature safety management system. Indeed, ANSP has already reached the RP3 safety targets in four out of five management objectives. During the RP3 period, only safety risk management area requires an improvement. The ANSP intends to maintain the safety levels and the safety plan was already developed based on CANSO Standard of Excellence in Safety Management Systems. Additionally, the specific measure in risk assessment are quoted (setting the new team to identify the risks related to change management, implementation of new software in the area of risk management). The measure is relevant for the ANSP, however additional measures at the NSA is required to ensure compliance by the NSA with Commission Implementing Regulation (EU) 2017/373.

1.3.1 Interdependencies and Trade-offs

No new implementation is required to achieve the RP3 safety targets. The safety level will be maintained with standard procedures of safety management system. The interdependencies between safety and other KPAs are monitored via integrated Safety, Quality and Security Management System. The trade-off with respect to safety are not allowed by MATS.

1.3.2 Change Management Practices

The change management processes are developed by ANSP in cooperation with NSA. The processes aim at identifying potential hazards and adequate mitigation means. The procedures, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient means to ensure minimal negative impact of the change on the network performance.

MALTA

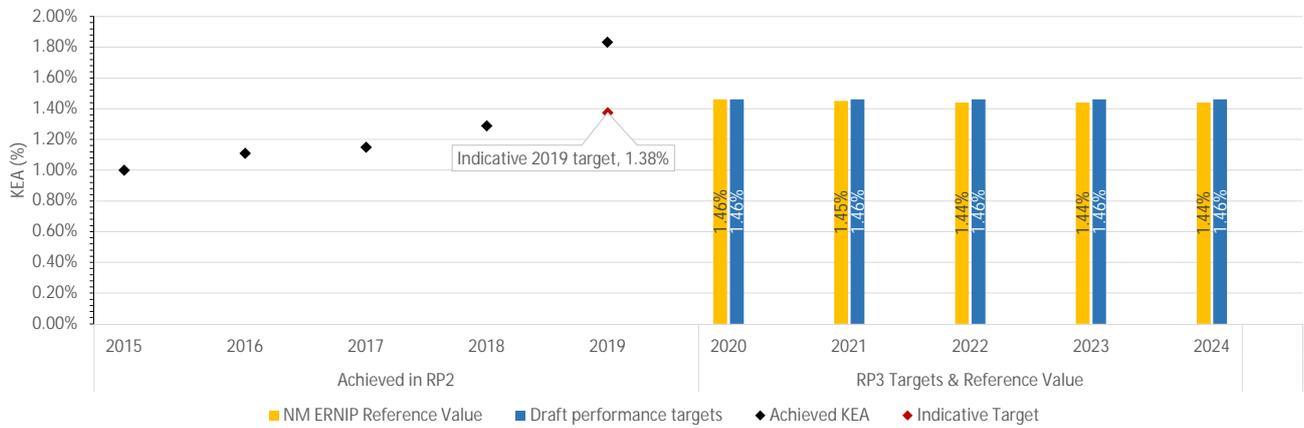
Environment KPA

2.1 Summary of environment key data and assessment results

Malta

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.46%	1.45%	1.44%	1.44%	1.44%
Draft performance targets	1.46%	1.46%	1.46%	1.46%	1.46%
Comparison of draft performance targets with reference values	▲0.00%	▲0.01%	▲0.02%	▲0.02%	▲0.02%
Consistency with reference values	✓	✗	✗	✗	✗



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Malta should not be approved.
 - MATS's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓
FRA was introduced in the Malta FIR on 08 Dec 2016 .The ATS route network was retained in lower airspace. Full FRA within LMMMUIR above FL195+ with ATS route network withdrawal is planned for December 2020.	

Reference in PP	Reference in ERNIP
3.2.1(c)	Page 34

Major ERNIP Recommended Measures:	1
Measure included within performance plan?	
Cross-border FRA within Blue Med	✗

Reference in PP	Reference in ERNIP
None	Page 12

FUA Implementation according to latest LLSIP	Implementation
1	✓
2	✓
3	✓

The chart in section 2.1.1 shows that Malta achieved a KEA of 1.83% in 2019 and needs to meet an indicative target of 1.38% in 2019 to achieve the planned target of 1.46% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

MATS implemented free route airspace in 2015 although environmental performance has worsened in each year thereafter. Unfortunately, Malta provided limited explanation or discussion of its performance which did not help the PRB assess the performance plan.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Malta plan for an environmental incentive scheme?	✗
Malta does not plan to apply an optional incentive scheme for the environment KPA.	

MALTA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Capacity targets follow national reference values, NOP delay forecast values are below reference values.

Capacity plans indicate that Malta has sufficient capacity to cope with traffic demand.

No capacity enhancement measures are listed in the performance plan.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

Malta is not expected to generate any delays during the RP3, as reflected by the target, which constitutes an improvement with respect to both target and observed performance during the RP2.

3.1.3 Incentives

Malta has decided not to implement an en route incentive scheme since it considers that the forecast demand is well below the en route capacity and that establishing an incentive scheme would only expose the ANSP to a penalty without the possibility of gaining any incentive.

Terminal incentives: Malta has decided not to implement a terminal incentive scheme since the target delay is zero and that establishing an incentive scheme would only expose the ANSP to a penalty without the possibility of getting a bonus.

The establishment of incentive schemes are a substantive requirement for the development of draft performance plans in accordance with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317. Furthermore, the establishment of incentive schemes is an element subject to review as part of the review of draft performance plans in accordance with point 2.1(f) of Annex IV to that Regulation.

3.1.4 Investments

No major issues regarding investments have been identified, however more detailed information on the investment measures would be needed to enable for a positive assessment of the capacity contribution level.

Investment #2 (M-LAT) is planned for deployment only in 2024 bringing benefits to operations in the following RPs

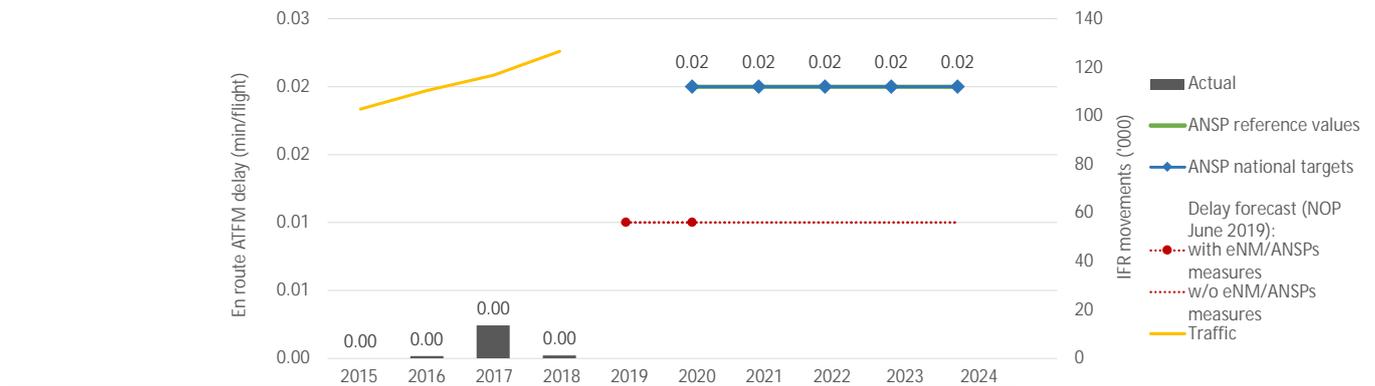
3.1.5 PRB conclusions



The PRB concludes that the capacity targets proposed by Malta are consistent, however, Malta did not introduce incentive schemes for en route and terminal capacity, which is not compliant with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+0.9%	+7.4%	+5.8%	+8.4%						
Actual ATFM delay per flight	0.00	0.00	0.00	0.00						
ANSP reference values						0.02	0.02	0.02	0.02	0.02
ANSP national targets						0.02	0.02	0.02	0.02	0.02
Forecast with eNM/ANSPs measures*					0.01	0.01				
Forecast w/o eNM/ANSPs measures*					0.01	0.01		0.01		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

There are no capacity enhancement measures listed in the performance plan, however, according to the performance plan, demand is well below the capacity of the ANSP. This is also supported by NOP delay forecast values. The performance plan also refers to a new social agreement under discussion with the ATCO personnel, which may affect the maximum number of ATCOs as of 2020.

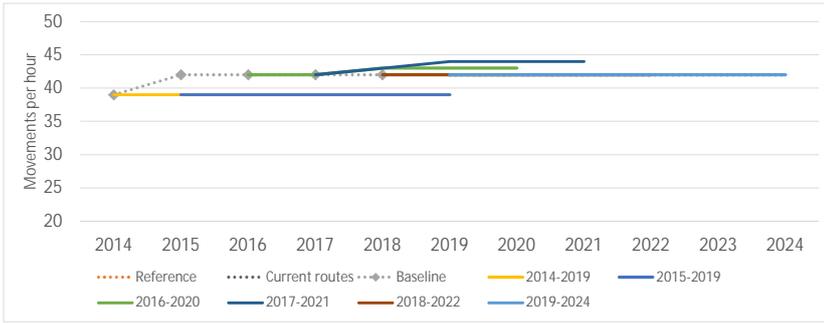
The performance plan does not contain all measures from the NOP, however there is no capacity gap foreseen for RP3.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Malta ACC (LMMM)	Additional ATCOs in OPS to start working in the OPS room	0	0	7	5	0	0	1	+8
	ATCOs in OPS to stop working in the OPS room	0	1	3	1	0	1	0	
	ATCOs in OPS to be operational at year-end	51	50	54	58	58	57	58	
Total - MATS (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	7	5	0	0	1	+8
	ATCOs in OPS to stop working in the OPS room	0	1	3	1	0	1	0	
	ATCOs in OPS to be operational at year-end	51	50	54	58	58	57	58	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Malta ACC (LMMM)



- Historical data shows flat baseline values following a one-off increase in 2015. Baseline and planned values are consistent in most of the years.
- Latest planned capacity profile shows no change in capacity over the years of RP3. This is fully in line with the reference profile (the current routes profile is equal to the reference profile).
- Malta ACC has sufficient capacity and is not expected to experience a capacity gap in RP3.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						42	42	42	42	42	42
Current routes						42	42	42	42	42	42
Baseline	39	42	42	42	42						
2014-2019	39	39	39	39	39	39					
2015-2019		39	39	39	39	39					
2016-2020			42	42	43	43	43				
2017-2021				42	43	44	44	44			
2018-2022					42	42	42	42	42		
2019-2024						42	42	42	42	42	42

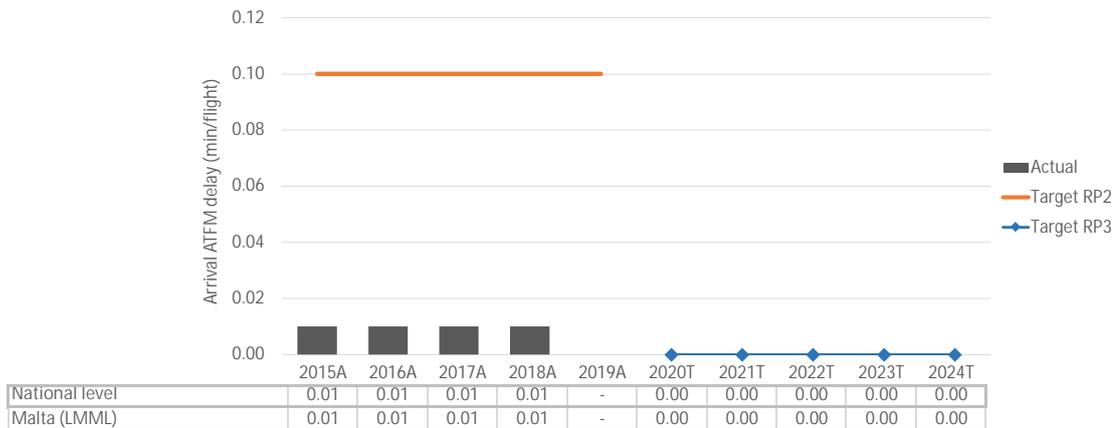
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- National target values follow the national reference values, NOP delay forecast values are below national reference values.
- Capacity plans and capacity enhancement measures indicate that no capacity gap is expected over RP3.

3.3.1 Overview of arrival ATFM delay per flight



3.3.2 Review of targets and comparison with level and trend of past performance during RP2

The performance plan presents a zero delay target for the entire RP3, an improvement with respect to the RP2 target (0.1 minutes delay per arrival) and even with respect to the low delays observed in the RP2 (0.01 minutes delay per arrival).

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Malta (LMML)	0.00
National Target	0.00



No arrival ATFM delay is envisaged in Malta during the RP3.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Malta (LMML)	GROUP IV	0.01	0.01	+0.00	0.00	-0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Malta's performance during the RP2 was in line with the performance of similar airports, and the target for the RP3 implies an improvement with the total absence of delays.

3.3.5 PRB Key Points

- Malta is not expected to generate any delays during the RP3, as reflected by the target, which constitutes an improvement with respect to both target and observed performance during the RP2.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
?	0.000%	0.000%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	?
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.02	0.02	0.02	0.02	0.02
Alert threshold (Δ Ref. value in fraction of min)	± 0.050				
Performance Plan targets	0.02	0.02	0.02	0.02	0.02
Pivot values for RP3	0.00	0.00	0.00	0.00	0.00

Threshold review

n/a

Modulation review

n/a

Review of financial advantages/disadvantages

Malta has decided not to implement an en route incentive scheme since it considers that the forecast demand is well below en route capacity and that establishing an incentive scheme would only expose the ANSP to a penalty without the possibility of gaining any incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
?	0.000%	0.000%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	?
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	± 0.000				
Performance Plan targets	0.00	0.00	0.00	0.00	0.00
Pivot values for RP3	0.00	0.00	0.00	0.00	0.00

Threshold review

n/a

Modulation review

n/a

Review of financial advantages/disadvantages

Malta has not included any terminal incentive scheme in its performance plan, arguing that with a zero delay target, an incentive scheme would only expose the ANSP to a financial disadvantage (penalty) without the possibility of getting a bonus.

3.4.3 Additional capacity incentive schemes

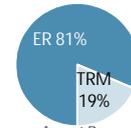
3.4.4 PRB Key Points ✘

- Malta has not included any en route or terminal incentive scheme in the performance plan.
- The establishment of incentive schemes are a substantive requirement for the development of draft performance plans in accordance with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317. Furthermore, the establishment of incentive schemes is an element subject to review as part of the review of draft performance plans in accordance with point 2.1(f) of Annex IV to that Regulation.

3.5.1 Determined costs of investments over RP3

RP3 investment ratio ER/TRM

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	4.9	6.0	7.1	7.4	7.5	32.9
En route	M€ (nominal)	4.1	5.0	5.7	5.9	6.1	26.8
Terminal	M€ (nominal)	0.8	1.0	1.4	1.5	1.4	6.1



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State. The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	New ATC Centre	MATS is investing in a new ATC Centre as the existing facilities are over 45 years old and are currently limiting the company from further developments. The new ATC Centre will consist of a 52 meter tower hosting all sections of the company including the administration, safety and quality sections, the technical workshops, a new training centre, the AIM and the operations section. The new premises will also facilitate ATM R&D in line with EU aviation policies.	52.5	No	Yes	2.1	0.3
2	M-LAT	The Multilateration system consists of several receivers, installed around the aerodrome, than can pick up messages from transponders installed on aircrafts and vehicles. Each receiver can time stamp each received message, thus improving the accuracy of the positioning of the individual aircraft/vehicle. The combined track can be routed to the A-SMGCS in the VCR.	5.0	No	No	0.0	0.9
Total:						2.1	1.2

Airspace user feedback regarding major investments

The airspace users appreciated the consistent depreciation calculated for RP3, but noted they would appreciate if Malta reimburses the prefinanced CAPEX that was not spent in RP2. Regarding RP3, more details were requested regarding the investments and their benefits, as the forecast demand for both en route and terminal is below the capacity.

Review of investments

Major new investments represent 10% of the total determined costs of investments over RP3. These investments for RP3 are justified and the ANSP does not expect to roll the RP2 investment projects to RP3. However, 2015-2018 actual CAPEX delivery reaches 34% of the planned values for the same period and the amount underspent is 17.83M€. It is uncertain if this amount will be reimbursed to airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	New ATC Centre	Network, Local	Safety, Environment, Capacity, Cost-efficiency	The new building will benefit all four KPAs: - Safety: contingency OPS room, noise separation and ensuring operations if outages occur - Environment: latest technologies and better use of energy to minimise the impact to environment - Capacity: enhance the capacity in the aerodrome as the visual tower at the present building is too small to accommodate more controllers - Cost-efficiency: enhance productivity and limiting costs while ensuring the safety of operations
2	M-LAT	Network, Local	Safety, Capacity, Cost-efficiency	The Multilateration system will benefit: - Safety: reduce runway incursions and provide another layer of surveillance thus introducing another safety barrier at LMML - Capacity: enhance aerodrome air traffic services as it will introduce a radar picture at the aerodrome - Cost-efficiency: higher movements may be serviced in the future

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	19.4	19.4	1.8	2.0	2.6	2.9	3.0	12.2
Existing investments			3.1	2.2	3.7	4.1	4.1	17.1

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 37% of the total determined costs of investments over RP3, while existing investments represent 53%. MATS provided the following information regarding other new investments:</p> <p>"1) AGDL DATALINK (3.2M€): Through the CPDLC ATM function the message is always received clearly by the pilot whereas voice messages may sometimes be misunderstood. Another advantage is that AGDL would eventually reduce the Voice VHF channelling congestion across adjacent sectors.</p> <p>2) M-NET (1.25M€): The MATS Network is a complex design to manage, route, monitor and protect all IP based communication between the various ATM systems and the external sites including those of adjacent FIRs.</p> <p>3) A-SMGCS (2M€): This is required for the new VCR in the new building. This will collate information correlated tracks from the ATM and M-LAT with visual streaming from cameras to provide a hybrid visual information and a radar type movement picture of the aerodrome."</p> <p>No information regarding existing investments were provided.</p>
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

In RP2, Malta's performance positively contributed to the performance of the BLUE MED FAB for capacity. Malta generated no ATFM delay. The arrival ATFM delay performance in Malta was close to zero. The capacity plan introduced by the NOP 2019-2024 identifies only operational and airspace management measures (FRA and RNAV in TMA) which could be vaguely linked with some of the investments. The investments seem to be focused on the further development of the ATM services at Malta airport only. More details on the investments would be needed to assess the level of contribution to the capacity increase in Malta.

Investment #1 (ATC Centre) could be viewed as an enabler or a support to capacity enhancement with neutral or positive capacity impact. The description is generic and cannot be used for a proper assessment on the link to the achievement of the capacity targets. It is unclear if the investment is going to support ENR services.

Investment #2 (M-LAT) may support the RNAV and FRA measures identified by the NOP, however they do not seem to be essential for the RNAV and FRA implementation. From the description it is unclear if it supports only airport operations (in TMA) or ENR as well.

Other new and existing investments #1 and #3 could be linked to capacity increasing concepts, #2 seems to be investment into supporting infrastructure. The level of contribution of all investments requires more data and level of detail.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

Details provided in the descriptions of the investments are insufficient to draw a conclusion. Malta has been advised by the NM to plan accordingly with the high traffic capacity profile scenario. The capacity plan introduced measures only in the operational domain (RNAV in TMA) and airspace organisation (FRA and RNAV), which is expected to deliver sufficient capacity to cope with expected demand (with 0 surplus).

From the information provided in the performance plan, it is difficult to assess whether the link of investments to capacity is only using the business plans. Investment #1 reflects aging of the ATM infrastructure with limited options for further expansion. It is planned for deployment in 2021 and may provide capacity support to the increasing traffic at least at the airport (more details would be needed to make the proper assessment see 3.5.3 a) above).

The implementation of the investment #2 is planned for end of the RP3 (2024) may support capacity increase in years after RP3. From the investment plan it is unclear whether the investments are to support only airport/TMA operations or en route as well.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

Investment #1 (New ATC centre) will be deployed in 2021, while the investments will already start in 2020. Using the provided information, it is unclear whether 2020 is the start of the implementation. If implemented properly the investment may contribute neutrally or positively to the capacity enhancements. Investment #2 is planned for 2024 and may bring capacity benefits in the following reference periods only.

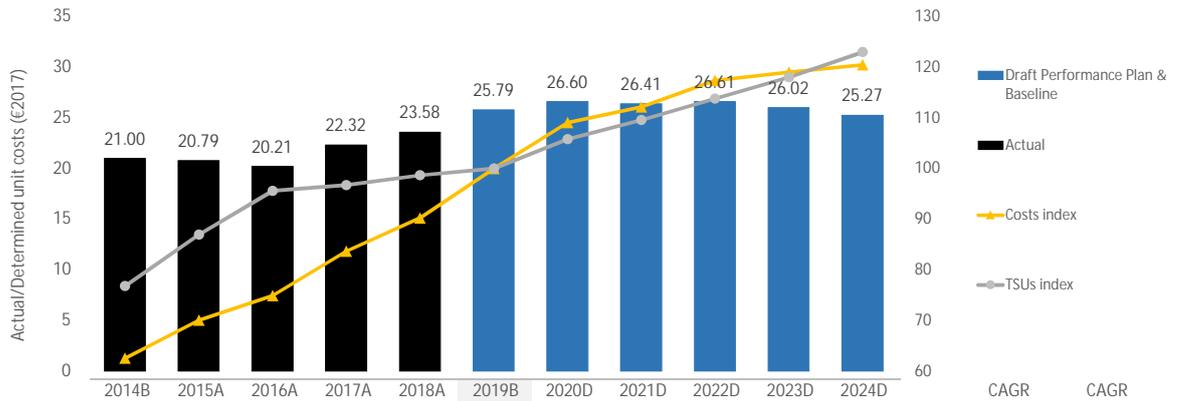
3.5.4 PRB Key Points

- No major issues regarding investments have been identified.
- More detailed information on the investment measures would be needed to enable for a positive assessment of the capacity contribution level.
- Capacity enhancement measures identified by the NOP 2019-2024 are linked only to operational and airspace measures, however some of them could be supported by the introduced investments.
- Investment #2 is planned for deployment only in 2024 bringing thus benefits to operations in the following reference periods.

MALTA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	14.9	16.8	18.1	20.4	22.3	0.0	27.8	28.9	30.7	31.6	32.4	-	+8.1%
Total costs	M€ (2017)	15.3	17.1	18.3	20.4	22.0	24.4	26.7	27.4	28.7	29.1	29.4	+3.8%	+6.8%
TSU	'000	727	823	905	916	935	947	1,002	1,038	1,078	1,118	1,165	+4.2%	+4.8%
AUC/DUC	€ (2017)	21.00	20.79	20.21	22.32	23.58	25.79	26.60	26.41	26.61	26.02	25.27		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	21.00	20.79	20.21	22.32	23.58	25.79	26.60	26.41	26.61	26.02	25.27		
Annual change	%		-1.0%	-2.8%	+10.4%	+5.6%	+9.4%	+3.1%	-0.7%	+0.8%	-2.2%	-2.9%	-0.4%	+1.9%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	25.79 €2017	✗
--	-------------	---

The 2019 baseline determined unit cost value amounts to 25.79€, in line with the 2019 forecast determined unit cost.

The proposed baseline value for en route costs is in line with the 2019 forecast, but +10.9% (+2.4M€2017) higher than the 2018 actual costs. The 2019 baseline cost value was calculated based on the latest available actual costs. It is understood that the expected impact of the new collective agreement is already included in the 2019 baseline; however, it is also noted that the increase is mainly due to higher non-staff operating costs, rather than staff costs. As such, it is questionable whether the higher baseline value can be fully justified on the basis of the available information.

The TSUs selected by Malta for the computation of the 2019 en route baseline (947,000) are -1.3% lower than the STATFOR February 2019 base forecast for 2019, and reflect the May 2-year intermediate STATFOR forecast for 2019 (after M3 conversion).

4.1.3 Summary of cost-efficiency assessment results

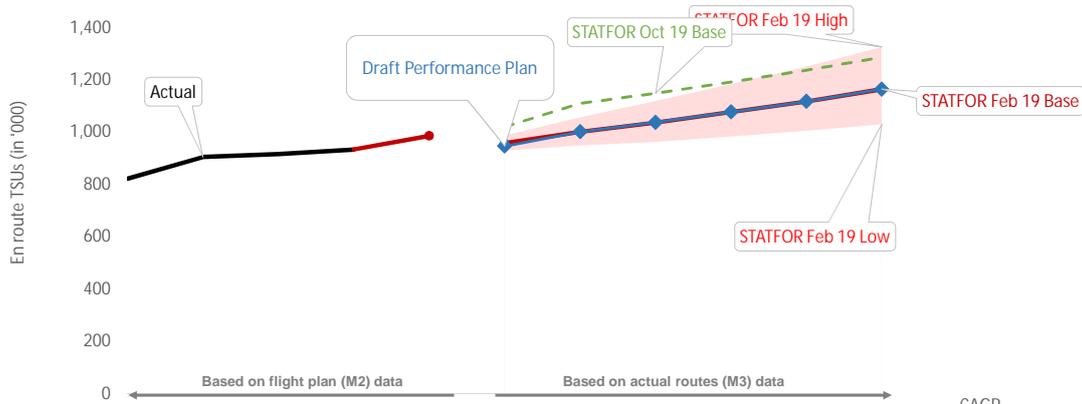
- | | | |
|---|--------|-----|
| a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? | -0.4% | ✗ |
| Malta proposes a -0.4% CAGR decreasing the DUC trend over RP3. The proposed trend deviates by about +1.5 p.p. from the Union-wide RP3 DUC target. According to the information provided in the draft performance plan this deviation is mainly required to meet the staffing needs for future years. | | |
| b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? | 1.9% | ✗ |
| The long-term DUC trend (2014-2024) as proposed by Malta is +1.9% p.a.. This trend deviates significantly from the Union-wide trend (-2.7% CAGR). | | |
| c) DUC level (2019 baseline) lower than the average of comparator group (D) average (31.14 €2017)? | -17.2% | ✓ |
| The 2019 DUC for Malta (25.79€) is -17.2% below the average DUC of the comparator group (31.14€). It is noted that Malta presents the lowest DUC within its comparator group, and the second lowest at European level, both in 2019 and in 2024. | | |
| d) Deviation exclusively due to measures necessary to achieve the capacity targets? | | ✗ |
| The draft performance plan shows deviations from the RP3 and the long-term DUC trends of +9.9M€2017 and +50.3M€2017, respectively. However, it is estimated that only +5.4M€2017 are directly related to the implementation of capacity enhancement measures (+3.3M€2017 for the recruitment of ATCOs and +2.1M€2017 for capacity-related investments). | | |
| e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? | | n/a |

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Malta should not be approved.

- Malta is not meeting the Union-wide RP3 trend nor the long-term trend.
- Malta is consistent with the average DUC baseline of the comparator group.
- The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	823	905	916	935								
	Annual change		+10.0%	+1.2%	+2.0%								
STATFOR Feb 19 Base	'000 TSUs					987	959	1,002	1,038	1,078	1,118	1,165	+4.0%
	Annual change					+5.6%	+2.6%	+4.5%	+3.6%	+3.8%	+3.8%	+4.2%	
STATFOR Oct 19 Base	'000 TSUs					-	1,021	1,111	1,150	1,193	1,237	1,287	+4.7%
	Annual change					-	+9.2%	+8.8%	+3.5%	+3.8%	+3.7%	+4.0%	
Performance Plan	'000 TSUs						947	1,002	1,038	1,078	1,118	1,165	+4.2%
	Annual change						+1.3%	+5.8%	+3.6%	+3.9%	+3.7%	+4.2%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months
2019B (PP baseline, M3)	947		
2019F (as in the Reporting tables, M2)	947		
2019B/ 2019F	0.00%	-2.84%	-2.31%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	947			
2019F (STATFOR Feb 19, M3)	L 930	B 959	H 987	-1.25%
2019F (STATFOR Oct 19, M3)	L 1,009	B 1,021	H 1,032	-7.25%

The traffic forecast selected by Malta for the computation of the 2019 en route baseline (947,000 TSUs) is -1.3% lower than the STATFOR February 2019 base forecast for 2019. It is understood that the TSUs selected for the computation of the 2019 baseline value reflect the May 2019 2-year intermediate STATFOR forecast for 2019 (i.e. 975,000), converted in M3 on the basis of the 3-months CRCO conversion coefficient (-2.84%). Based on the traffic development presented by the latest STATFOR October 2019 base forecast for 2019 (+9.2% vs. 2018), the May 2019 2-year intermediate STATFOR forecast for 2019 used for the 2019 baseline seems very pessimistic. STATFOR October 2019 base forecast revises significantly upward traffic expectations for Malta for RP3.

The TSUs included in the 2019 forecast are the same as the one used to compute the baseline, despite the fact that these should be expressed in M2.

The use of a lower traffic than STATFOR February 2019 base forecast in 2019 increases the 2019 baseline DUC, which helps showing a better trend over RP3. If the TSUs foreseen by the STATFOR February 2019 base forecast (959,000) had been used to compute the 2019 baseline, the RP3 DUC evolution would result in a -0.2% decreasing trend, rather than the -0.4% currently shown.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

No justification required as the proposed traffic forecast is in line with STATFOR February 2019 base forecast.

Review of the PP traffic forecast

Concerning the 2020-2024 period, the TSUs selected by Malta are fully in line with STATFOR February 2019 base forecast.

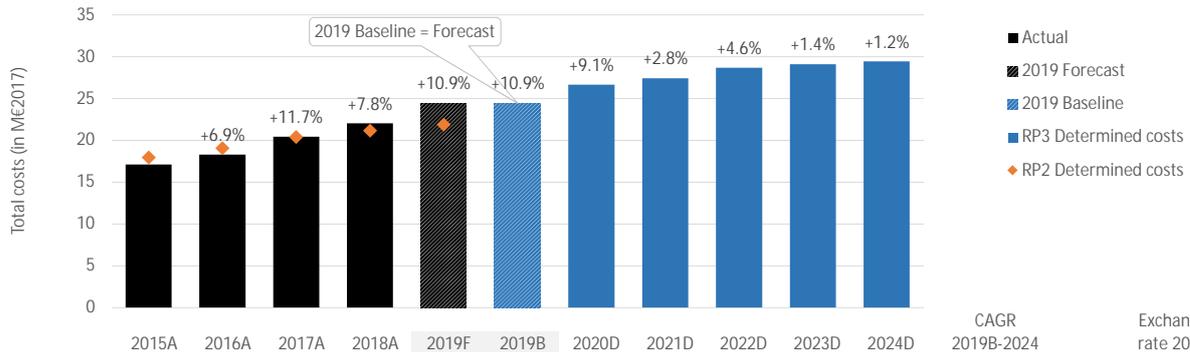
Based on this forecast, en route traffic for Malta is expected to grow by +4.2% CAGR between 2019B and 2024.

It is noted that the October 2019 STATFOR forecast (base scenario) has revised significantly upward the traffic expectations for Malta, especially for 2019 baseline and 2020. However, starting from 2021, the October forecast presents a similar traffic dynamic as compared to the February one until 2024.

4.2.4 PRB Key Points

- The 2019 baseline traffic units are not in line with the STATFOR February 2019 base forecast, but with the May 2019 2-year intermediate STATFOR forecast converted in M3 using the three-months CRCO conversion coefficient.
- Traffic forecast for the period 2020-2024 is in line with the STATFOR February 2019 base forecast.
- STATFOR October 2019 base forecast revises significantly upward traffic expectations for Malta for RP3.

4.3.1 Overview of en route costs in RP2 and RP3



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017	
Total costs	M€ (nom)	16.8	18.1	20.4	22.3	25.1	0.0	27.8	28.9	30.7	31.6	32.4	-	€:€
Annual change	%		+7.6%	+12.8%	+9.2%	+12.4%	-	-	+4.3%	+6.0%	+2.9%	+2.7%	+2.0%	1.00000
Inflation index	2017 = 100	97.8	98.7	100.0	101.7	103.6	103.6	105.6	107.6	109.8	111.9	114.2		
Total costs	M€ (2017)	17.1	18.3	20.4	22.0	24.4	24.4	26.7	27.4	28.7	29.1	29.4	+3.8%	
Annual change	%		+6.9%	+11.7%	+7.8%	+10.9%	+10.9%	+9.1%	+2.8%	+4.6%	+1.4%	+1.2%		
Total costs	M€ (2017)	17	18	20	22	24	24	27	27	29	29	29	+3.8%	

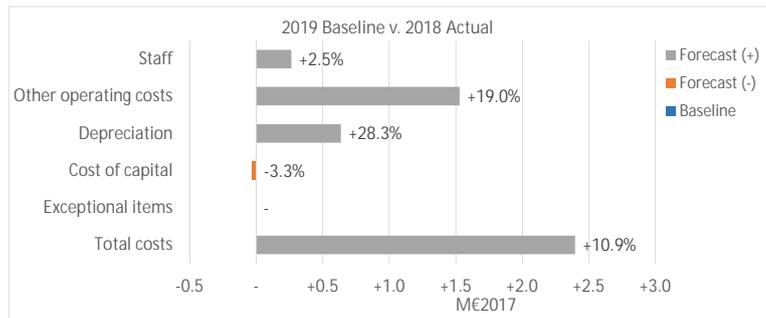
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

It is noted that the inflation rate included by Malta in its draft performance plan is broadly in line with the one presented by the IMF (April 2019), except for some rounding differences leading to a 0.01 p.p. difference between the two sources in 2024.

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+2.4	+10.9%
2019F v. 2019 RP2 DC	+2.6	+11.7%
2019F v. average 2015-2018	+5.0	+25.5%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast en route costs are +10.9% higher than the 2018 actual costs (+2.4M€2017) and significantly higher than the 2015-2018 average actual costs (+25.5%, or +5.0M€2017). The main contributor to the deviation is MATS.

The increase in 2019 forecasted ANSP's costs, as compared to 2018 actual costs, mainly reflects higher non staff operating costs (+24.8%, or +1.6M€2017) and, to a lesser extent, higher depreciation costs (+30.1%, or +0.6M€2017).

2019 baseline analysis

The proposed en route baseline costs value is at the same level of the 2019 forecast, i.e. 24.4M€2017.

According to the information provided in the draft performance plan, the 2019 baseline value was computed based on the latest available data and looking at the evolution of actual costs since 2015. The expected impact deriving from the new collective agreement between the government and the unions was already accounted for in the 2019 baseline value. Nevertheless, as noted in the analysis on the 2019 forecast value above, the cost item contributing the most to the increase in 2019 baseline costs is the non-staff operating costs, rather than staff costs. In this respect, no specific driver is provided in the draft performance plan to justify the higher 2019 forecast costs as compared to 2018 actuals. Differently, the 2019 baseline cost value for the other entities included in the en route charging zone (i.e. NSA and MET) were below the 2018 actual costs.

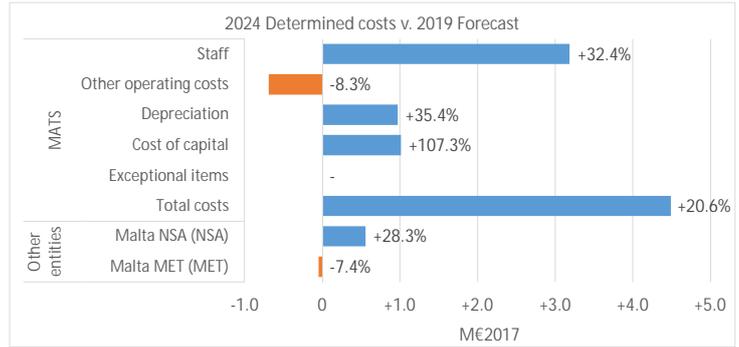
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ⓘ Investments (see details in 3.5)
- ⓘ Cost of capital (see details in 4.3.1)
- ⓘ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.00%
Additional incentives?	No



As far as the RP3 determined costs are concerned, these are expected to increase by about +3.8% CAGR between 2019 baseline and 2024 (+5.0M€2017). This cost increase is particularly steep in 2020, when the total determined costs is expected to increase by +9.1% compared to the 2019 baseline.

The main contributor to this increase is MATS, the costs of which are expected to increase by +20.6% (+4.5M€2017) between 2019 and 2024. Higher ANSP's costs are mainly explained by a significant increase in staff costs (+32.4%, or +3.2M€2017) resulting from the combined effect of additional recruitment and salary increases resulting from the new collective agreement.

Additionally, CAPEX related costs are expected to increase in aggregate by +2.0M€2017 between 2019 and 2024, mostly as a result of the significant increase in the total asset base over RP3, despite the gradual reduction of the WACC reflecting a gradual increase in debt financing. It is understood that the main driver explaining this increase in the total asset base is the CAPEX project related to the new ATC centre (see section 3.5 of this document for details).

Finally, it is noted that, while the MET provider is expected to keep its costs relatively stable over the period, the NSA's costs are also expected to increase by +0.6M€2017.

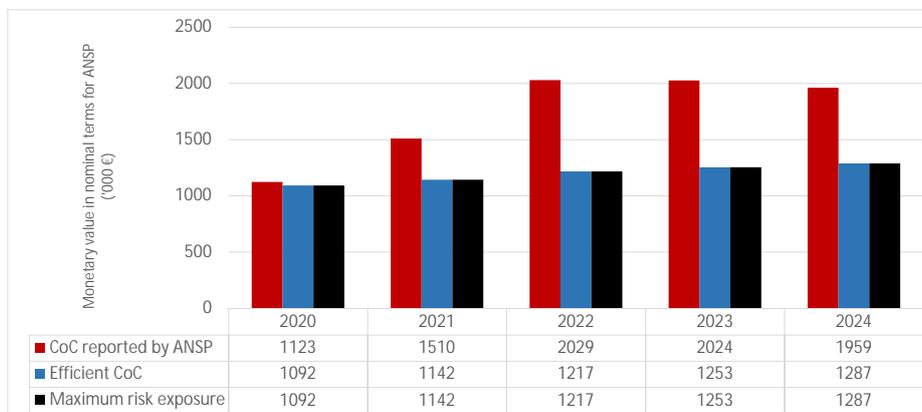
4.3.4 PRB Key Points

- 2019 baseline costs are in line with the 2019 forecasts, however the 2019 forecast en route costs are +10.9% higher than the 2018 actual costs (+2.4M€2017) and significantly higher than the 2015-2018 average actual costs (+25.5%, or +5.0M€2017).
- The total costs are expected to increase on average by +3.8% from 2019 to 2024, due to higher staff costs for additional recruitment and salary increase.
- Depreciation and cost of capital are expected to increase due to the higher asset base resulting from the project related to the new ATC centre.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	24,828	25,960	27,655	28,476	29,242
Monetary value of Return on Equity	1,122	1,222	1,383	1,191	955
Ratio RoE/DC (%)	4.5%	4.7%	5.0%	4.2%	3.3%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	30	367	813	771	672

Total 2020-2024	2,653
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	5.0%	n/a	5.0%	n/a	5.0%	n/a	5.0%	n/a	5.0%	n/a
Interest on debts	0.0%	n/a	3.5%	n/a	3.5%	n/a	3.5%	n/a	3.5%	n/a
Capital structure (% debt)	0.0%	n/a	25.0%	n/a	40.0%	n/a	50.0%	n/a	60.0%	n/a
WACC	5.0%	4.9%	4.6%	3.5%	4.4%	2.6%	4.2%	2.6%	4.1%	2.7%

Is the interest on debts in line with the market?	Yes
---	-----

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices. Concerning the capital structure, MATS stated that "as the investment on fixed assets increases during RP3, MATS will be required to finance increasing proportions of its CAPEX through new loans."
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024, the reported cost of capital is 2.65M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 3.3%-5%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	20,560	31,643	45,196	47,470	48,158
Net current assets	1,871	947	892	165	-426
Adjustments total assets	0	0	0	0	0
Total asset base	22,430	32,590	46,089	47,635	47,732

- The fixed asset base will increase over the period, in line with the investments detailed in section 3.5 of this document.
- The net current assets do not present major issues. The net current assets will decrease over the period, due to the loans the ANSP will take.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over the period, in line with the increase in the fixed asset base.

4.3.A.5 PRB Key Points

- The reported cost of capital is 2.65M€ above the efficient cost of capital over the period 2020-2024. Despite this, the return on equity is commensurate to the total determined costs (between 3.3%-5%).

4.3.B.1	Review of en route pension costs for the main ANSP (data from en route reporting tables)	n/a
---------	--	-----

4.3.B.2	Reporting exceptions and planned changes in assumptions	n/a
---------	---	-----

4.3.B.3	Actions taken by the ANSP to manage the cost-risk associated with pensions	
---------	--	--

According to the information provided in the draft performance plan, Malta states that pension costs are financed by the national Government and therefore no pension related cost is included in the performance plan.

Nonetheless, it is also understood that Malta pays some social security contributions to the States, part of which is used to finance pension costs. However, Malta is not in the position to isolate the pension related costs from the total social security contribution paid to the State.

4.3.B.4	PRB Key Points	ⓘ
---------	----------------	---

- Malta states that pension costs are financed by the national government and, therefore, no pension related cost is included in the performance plan.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Malta did not mention a change in the cost allocation with respect to RP2.
- The various costs are allocated between en route and terminal depending on the nature of the cost. On average, the net book value of the assets is allocated 83% to en route and 17% to terminal.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

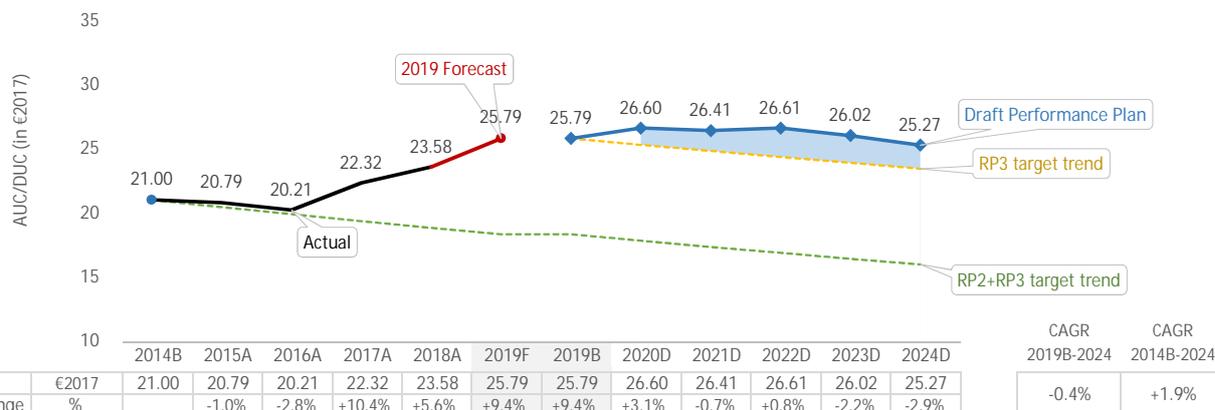
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.3.C.3 PRB Key Points ✔

- Malta did not change the cost allocation methodology with respect to RP2.
- No major issues were identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	-0.4%	Union-wide trend	-1.9%	Difference	+1.5p.p.
PP trend	+1.9%	Union-wide trend	-2.7%	Difference	+4.6p.p.
PP 2019 baseline	25.79	Average comp. group	31.14	Difference	-17.2%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Malta proposes a -0.4% decreasing DUC trend over the RP3. The proposed trend deviates by +1.5p.p. from the Union-wide RP3 DUC trend target.

According to the information provided by Malta in the performance plan, the deviation from the Union-wide target is required to recruit additional personnel to cope with traffic increase and to replace retired staff. No additional justification is provided to explain this deviation. However, it is noted that the traffic forecast included in the draft performance plan is relatively conservative compared to the latest STATFOR October 2017 base forecast. Additionally, the replacement of retired staff should not necessary result in an increase in staff costs.

As far as it concerns the RP2+RP3 long-term trend, Malta presents a +1.9% increasing DUC trend between 2014 and 2024, significantly diverging from the required trend at Union-wide level (i.e. -2.7% CAGR).

Concerning the consistency of the 2019 DUC level with the average DUC of the comparator group, the 2019 DUC for Malta (25.79€2017) is -17.2% below the average DUC of the comparator group (31.14€2017). It is noted that Malta presents the lowest DUC within its comparator group, and the second lowest at European level, both in 2019 and in 2024.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +9.9 v. RP2+RP3 trend over the period 2020-2024 +50.3

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+31.0	Additional ATCO costs (M€2017)*	+3.3
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€2017)	2.1	of which, related to capacity (see Section 3.5 for details)	2.1
---	-----	---	-----

Analysis

The performance plan shows costs deviation with respect to the RP3 and the long term DUC trends of +9.9M€2017 and +50.3 M€2017, respectively.

According to the information provided by Malta in the draft performance plan, the deviation from the RP3 DUC trend is required to recruit additional personnel to cope with traffic increase and to replace retired staff. However, based on the available information, it is estimated that the cumulative additional costs for ATCOs planned to start working in the ACC amounts to +3.3M€2017 (based on the average unit cost for ATCO in OPS reported in the ACE 2017 report). Additionally, the costs of capacity-related investments (i.e. new ATC Centre and M-LAT system) is estimated at +2.1M€2017. Malta reported +29.3M€2017 of other investments (new and existing) over RP3, although their impact on capacity cannot be quantified.

Overall, out of a total deviation of +9.9M€2017 from the RP3 DUC trend, about +5.4M€2017 can be directly attributed to capacity-related measures based on the available information. This amount is not commensurate with a total deviation of +9.9 M€2017.

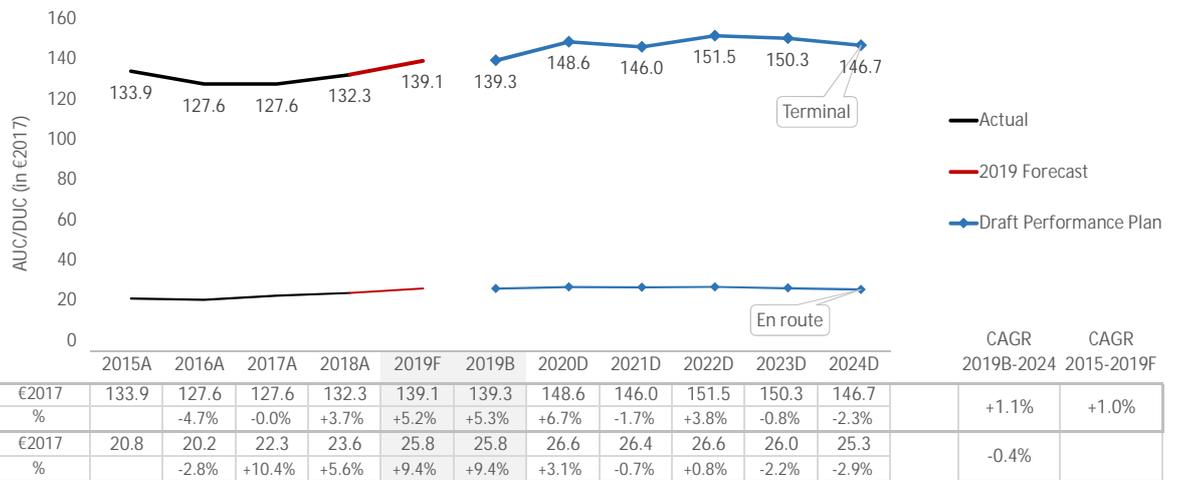
- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points 

- The DUC trends are not consistent neither with the RP3 DUC trend nor the long-term trend.
- Malta DUC baseline level (25.79€2017) is below the average DUC of the comparator group. Malta presents the lowest DUC within its comparator group (and the second lowest at European level) both in 2019 and in 2024.
- The deviations from the cost-efficiency trends are not considered exclusively for the purpose of achieving the capacity targets.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Malta (LMML)	GROUP IV	673.8	130.4	-8.7%	647.6	148.6	-7.1%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Malta TCZ includes only Malta International airport. The average DUC over the RP3 period for this airport is well below (-7.1%) the median DUC of the airports included in the same group.

The DUC evolution for Malta TCZ follows a +1.1% CAGR increasing trend between 2019B and 2024, which is worse than the -0.4% CAGR trend shown at en route level.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	36.2			
2019F (STATFOR Feb 19)	L 35.5	B 36.2	H 36.8	=B
2019F (STATFOR Oct 19)	L 36.1	B 36.4	H 36.5	-0.55%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+0.4	+8.5%
2019 Forecast v. Avg. 2015-2018 Actual	+1.2	+30.3%
2019 Baseline v. 2019 Forecast	0.0	+0%

As for en route, the 2019 baseline value for Malta TCZ is at the same level of the 2019 forecast (+5.0M€2017). This is in turn +8.5% (+0.4M€2017) above the 2018 actual costs. The 2019 baseline value was estimated on the basis of the latest available actuals costs.

As far it concerns the 2019 baseline TNSUs, these are based on the STATFOR February 2019 base forecast (i.e. 36 '000 TNSUs).

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Terminal TNSUs for Malta TCZ are in line with the STATFOR February base forecast for the entire RP3 and no additional justification is required to support this choice.

Review of the PP traffic forecast

TNSUs are expected to grow by +3.9% CAGR for Malta TCZ over the RP3. The STATFOR October 2019 base forecast did not change significantly the traffic dynamics for RP3 as compared to the February base forecast.

Determined costs (terminal)

Is inflation in PP in line with IMF (April 2019 forecast)?

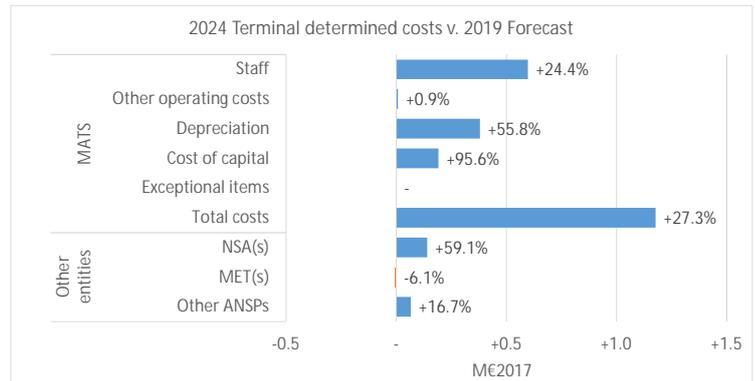
Deviation from index < 1p.p. in 2024

Cost elements - MATS (terminal)

- ① Investments (see details in 3.5)
- ① Cost of capital
 - Interest on loans
 - RoE
 - WACC
- n/a Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.00%
Additional incentives?	No



- The share of terminal investment costs (19%) is lower than share of terminal costs in the total determined costs (17%).

- Terminal WACC and its parameters are equal to the ones for en route.

- Terminal determined costs are expected to increase by +1.4M€2017 between 2019 and 2024 (+27.4%). The main contributor to this cost increase is MATS (+27.3%, or +1.2M€2017), which recorded higher staff costs (+0.6M€2017) due to the combination of additional recruitment and salary increase. Higher depreciation costs and cost of capital explain the remaining difference (+0.6M€2017 cumulatively) and result from a significant increase in the total asset base.

- On the reverse, the NSA and the other ANSP (i.e. MIA) account for +0.1M€2017 each of additional cost between 2019 and 2024.

4.5.4 PRB Key Points

- The terminal RP3 DUC trend is +1.1%, which is worse than the en route RP3 DUC trend of -0.4%.

- The terminal RP3 DUC trend is +1.1%, which is worse than the terminal RP2 DUC trend of +1.0%.

- Malta Airport, the only airport included in the performance plan, had a DUC 80.7% lower than the average of its comparator group over RP2. The difference is expected to be -77.1% over RP3.

- Malta used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.

PRB Assessment

NORWAY

Draft Performance Plan

Context and scope

Norway

Performance Plan: Draft performance plan (Article 12) Dated: 15.11.2019
 Documents no: 1541, 1561, 1542, 1543, 1544, 1545, 1546

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.6%
 % Costs V. SES 1.3%

Scope

FAB: NEFAB

ANSPs: Avinor Flysikring AS (Avinor ANS)
 Avinor AS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 The Civil Aviation Authority of Norway (CAA-N)
 The Norwegian Meteorological Institute (MET)

En-Route ATS
 Terminal ATS

Intergovernmental Agency
 National regulator
 Norwegian MET provider

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Norway	n/a	No	No	no	
Terminal	Norway - TCZ	4	No	No	no	
Changes in the CZs from RP2	no					

Comparator group: Group B Other States in the comparator group: Denmark
 Finland
 Ireland
 Sweden

Currency: NOK Exchange rate: 9.32776

1. Safety ✔

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Avinor	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Norway should be approved.
 -The EoSM safety targets are in line with the Union-wide performance targets.
 -The measures proposed are found sufficient to achieve the RP3 safety targets at ANSP level, however additional measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

The PRB notes that interdependencies between safety and other KPAs are described and that it is explained how safety will be addressed when implementing changes, which may be required to achieve other performance targets (no trade-off is considered).
 The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment ✔

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.43%	1.43%	1.42%	1.42%	1.42%

PRB Assessment

The PRB concludes that the environment targets proposed by Norway should be approved.
 - Avinor's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✔

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.08	0.08	0.08	0.08	0.08
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.50	0.50	0.50	0.50	0.50

PRB Assessment

The PRB concludes that the capacity targets proposed by Norway should be approved.

4. Cost-efficiency ✘

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	49.43	51.04	51.52	50.49	49.43	+0.2%	-0.5%
Target for determined unit cost (DUC) (€2017) - Terminal	164.25	164.55	164.09	165.97	177.00	n/a	-1.0%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Norway should not be approved.
 - Norway is not meeting neither trends nor the comparator group criteria.
 - The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.
 - Norway deviates from the trends due to restructuring measures, however such project is in line with the technology improvement of the company and does not seem to fully qualify as a restructuring cost. Moreover, it is not fully demonstrated that the "restructuring cost" will deliver a net financial benefit to airspace users by the end of RP4.

PRB Recommendations

SAFETY

- Norway should define explicit measures at the NSA level derived from Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Norway should consider invoking point (b) of Article 32 of Commission Implementing Regulation (EU) 2019/317, which enables charging modulation to incentivise airspace routings that are shorter in distance.

COST-EFFICIENCY

- Norway should clarify the eligibility of the suggested restructuring costs within the RP3 performance plan context. At the same time, Norway should take into account the amounts charged to the users during RP2 for the same project.

- Norway should decrease the RP3 costs in order to meet the cost-efficiency criteria.

- Norway should reduce the cost of capital proposed aligning it to the market risk exposure.

NORWAY

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan describes relevant ANSP related safety measures in the area of safety risk assessment that needs to be improved in terms of maturity. However, additional measures at the level of NSA are required to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.1.3 Interdependencies and Trade-offs

During RP3, there are no changes in ATM functional system planned to reach the RP3 targets that would affect safety. Although there are no specific indicators to monitor safety interdependencies and trade-offs between the KPAs, safety performance will be protected. Additional resources could be made available if needed to maintain safety level.

1.1.4 Change Management

The change management procedures aiming at minimizing any negative effect on the network performance, are described both at the NSA and ANSP level that are in accordance with Commission Implementing Regulation (EU) 2017/373.

1.1.5 PRB Conclusions

The PRB concludes that the safety targets proposed by Norway should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.

- The measures proposed are found sufficient to achieve the RP3 safety targets at ANSP level, however additional measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

- The PRB will closely monitor the implementation of measures described from Commission Implementing Regulation (EU) 2017/373 during RP3 in its "RP3 watchlist".

The PRB notes that interdependencies between safety and other KPAs are described and that it is explained how safety will be addressed when implementing changes, which may be required to achieve other performance targets (no trade-off is considered).

The PRB understands that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Avinor	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

AVINOR has a very mature safety management system, the RP3 safety targets are already achieved in four out of five management objectives. During RP3 period, only safety risk management area requires an improvement. The draft performance plan provides the description of the major measures that are: integration of presenting safety/risk data, supporting risk management in the organisation, gathering safety information from both investigations, monitoring safety assessments' result to provide a holistic overview of safety and risk, and testing Eurocontrol's IRIS tool to support risk analysis.

The measures are considered relevant for the ANSP. However, additional measures at the level of NSA are required to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.3.1 Interdependencies and Trade-offs

There are no changes in ATM functional system planned to reach the RP3 targets that would affect safety. Although there are no specific indicators to monitor safety interdependencies and trade-offs between the KPAs, safety performance will be protected. Additional resources could be made available if needed to maintain safety level.

1.3.2 Change Management Practices

The change management procedures are applied at the state and at the ANSP levels. The impact of major airspace changes on network performance is assessed by Norwegian CAA, as per Commission Implementing Regulation (EU) 2017/373. At the ANSP level, the implementation of the new ATM system in 2023-2025 based on the iTEC alliance, will be coordinated with network manager in order to assure minimal negative impact on network performance.

NORWAY

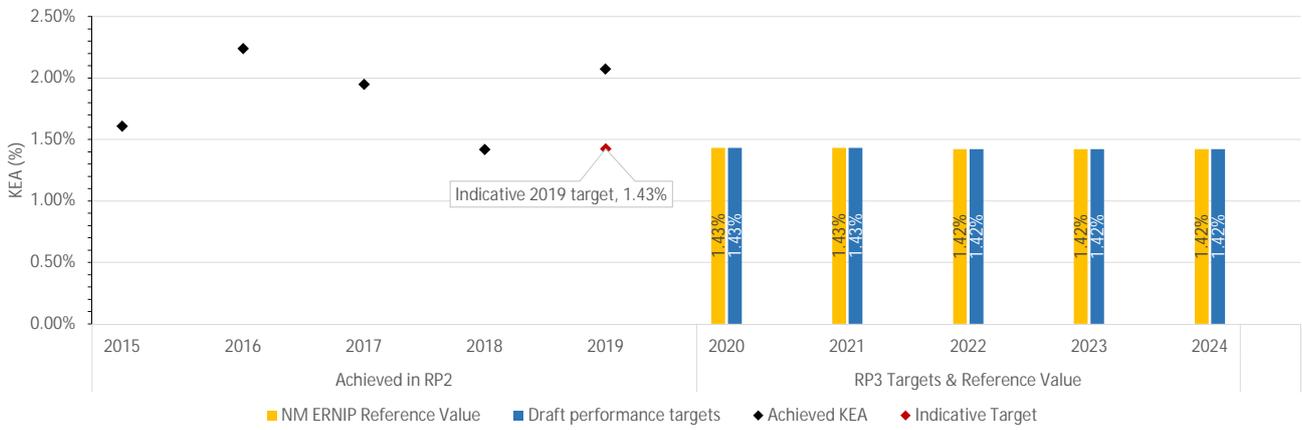
Environment KPA

2.1 Summary of environment key data and assessment results

Norway

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.43%	1.43%	1.42%	1.42%	1.42%
Draft performance targets	1.43%	1.43%	1.42%	1.42%	1.42%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Norway should be approved.
 - Avinor's horizontal flight efficiency targets are in line with its ANSP reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? FRA is implemented in cooperation with partners in SE/DK FAB, NEFAB and Borealis.	✓	Reference in PP 3.2.1(c)	Reference in LSSIP Page 53
Major ERNIP Recommended Measures: Measure included within performance plan?	1	Reference in PP 3.2.1(c)	Reference in ERNIP Page 16
Borealis FRA	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Norway achieved a KEA of 2.07% in 2019 and needed to meet an indicative target of 1.43% in 2019 to achieve the planned target of 1.43% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

Avinor implemented free route airspace in 2015 and it seems that initial implementation may have caused some issues as KEA increased sharply the following year. Nonetheless, since then it has decreased, and in 2018 a KEA of 1.42% was achieved. Avinor is implementing iTEC near the end of RP3 which should enable trajectory-based operations and provide further resilience and improvement.

Avinor has significantly contributed towards Borealis FRA and helped achieve the alliance's ambition to create cross-FAB FRA by 2021. Norway will need to support its partners to offer efficient cross-border FRA as it currently does so within NEFAB.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Norway plan for an environmental incentive scheme? Norway does not intend to apply an optional incentive scheme for the environment KPA.	✗
--	---

NORWAY

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

National target values are set below the national reference values for all years of RP3, and above NOP delay forecast values.

The existing capacity plans indicate that Norway has sufficient capacity to meet the forecasted demand and to reach the target.

The presented ATCO numbers and NOP delay forecast provide sufficient evidence that Norway has sufficient capacity to cope with the expected traffic growth during the planning period.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	-0.10	-0.08	-0.05	-0.03	-0.03
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? n/a

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

The proposed targets for RP3 at the national level represent an improvement of 0.1 minutes per arrival with respect to RP2 targets and are slightly above observed performance between 2015-2018. However at airport level, the breakdown of the targets is done equally for all four airports, which would imply an improvement at Oslo and a deterioration at Bergen, Trondheim and Stavanger.

3.1.3 Incentives

En route incentives: Norway has decided to apply a penalty-only incentive scheme. A maximum penalty of 2% of revenue is possible. Delay forecasts published in the NOP indicate capacity performance of between 0.03 and 0.05 minutes per flight during RP3. Such performance would fall in the bonus range in each year of RP3 however Norway decided to not include a bonus in its incentive scheme

Terminal incentives: Norway has chosen to modulate the pivot values to cover only CRSTMP causes with a pivot value that is double of the observed CRSTMP delays in the past. The scheme includes a ±37.5% dead band, there are no bonuses but the penalties are 2%.

While the national target for all causes represents an improvement with respect to RP2, these pivot values allow for a deterioration in performance with respect to 2015-2018.

3.1.4 Investments

All presented major investments could be directly linked or may support introduced capacity measures.

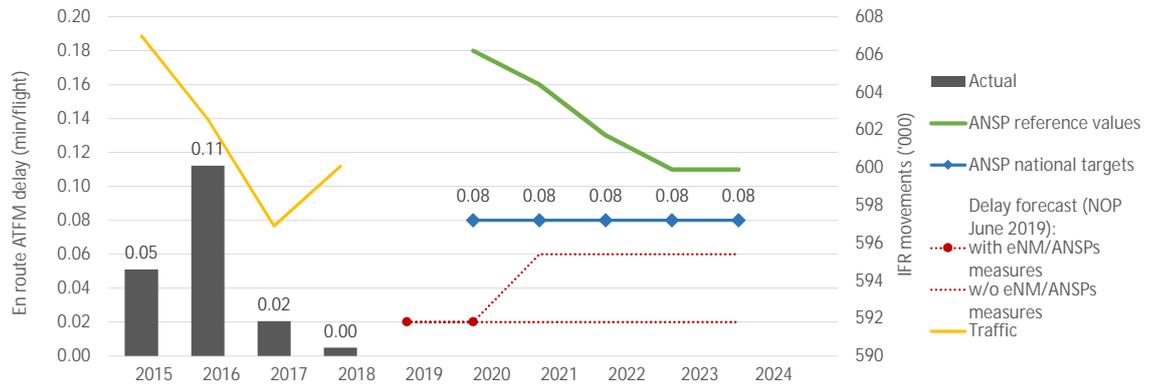
The level of contribution to the capacity increase cannot be assessed on limited information provided in the description of the projects.

3.1.5 PRB conclusions



The PRB concludes that the capacity targets proposed by Norway should be approved.

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	-2.5%	-0.7%	-0.9%	+0.5%						
Actual ATFM delay per flight (movements)	0.05	0.11	0.02	0.00						
ANSP reference values					0.18	0.16	0.13	0.11	0.11	
ANSP national targets					0.08	0.08	0.08	0.08	0.08	
Forecast with eNM/ANSPs measures*					0.02	0.02				
Forecast w/o eNM/ANSPs measures*					0.02	0.02			0.02-0.06	

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	-0.10	-0.08	-0.05	-0.03	-0.03
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? n/a

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

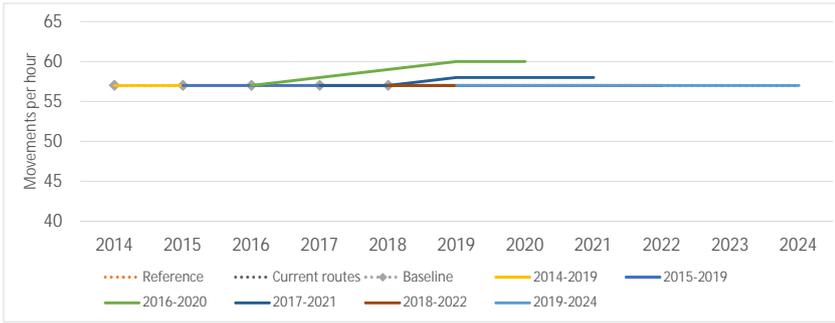
The performance plan refers to the recruitment and training of ATCOs as a primary measure to provide additional capacity. The performance plan also contains reference to the introduction of a new ATM system during the reference period, the effects of which on capacity are mitigated by building up sufficient ATCO staff. The performance plan also puts forward that if targets are not met, the State will intervene and implement additional measures.

Measures are in line with the NOP.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Bodo ACC (ENBD)	Additional ATCOs in OPS to start working in the OPS room	0	1.8	2.7	2.7	1.8	0	0	+2
	ATCOs in OPS to stop working in the OPS room	0	3.6	0.9	1.8	0.9	0.9	0.9	
	ATCOs in OPS to be operational at year-end	42	40.2	42	42.9	43.8	42.9	42	
Oslo ACC (ENOSE)	Additional ATCOs in OPS to start working in the OPS room	0	5	5	4	4	0	0	-2
	ATCOs in OPS to stop working in the OPS room	0	3	3	3	3	3	3	
	ATCOs in OPS to be operational at year-end	103	105	107	108	109	106	103	
Stavanger ACC (ENOSW)	Additional ATCOs in OPS to start working in the OPS room	0	0	1.6	3.2	3.2	0	0	+2
	ATCOs in OPS to stop working in the OPS room	0	1.6	2.4	0.8	0.8	0.8	1.6	
	ATCOs in OPS to be operational at year-end	30	28.4	27.6	30	32.4	31.6	30	
Total - Avinor (en route)	Additional ATCOs in OPS to start working in the OPS room	0	6.8	9.3	9.9	9	0	0	+1
	ATCOs in OPS to stop working in the OPS room	0	8.2	6.3	5.6	4.7	4.7	5.5	
	ATCOs in OPS to be operational at year-end	175	173.6	176.6	180.9	185.2	180.5	175	

Bodo ACC (ENBD)



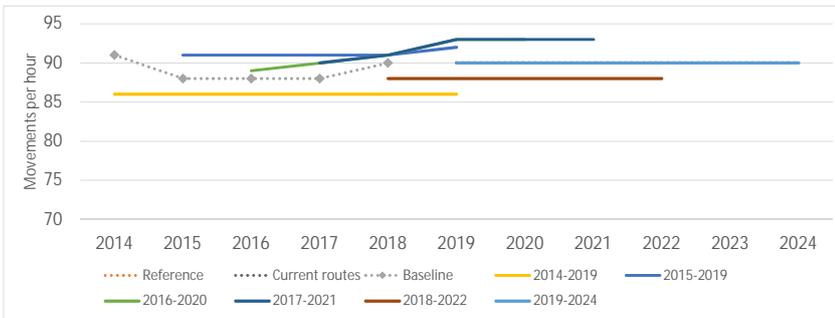
- Historical data shows that capacity profiles in Bodo ACC were flat over the years of RP2. Planned values corresponded with the baseline in most years.

- Latest planned capacity profiles show no change over RP3, and maintain the baseline capacity.

- Latest planned capacity profiles are meeting both the reference profiles and the current route profiles for all years of RP3, indicating that Bodo ACC will not face a capacity gap.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						57	57	57	57	57	57
Current routes						57	57	57	57	57	57
Baseline	57	57	57	57	57						
2014-2019	57	57	57	57	57	57					
2015-2019		57	57	57	57	57					
2016-2020			57	58	59	60	60				
2017-2021				57	57	58	58	58			
2018-2022					57	57	57	57	57		
2019-2024						57	57	57	57	57	57

Oslo ACC (ENOSE)



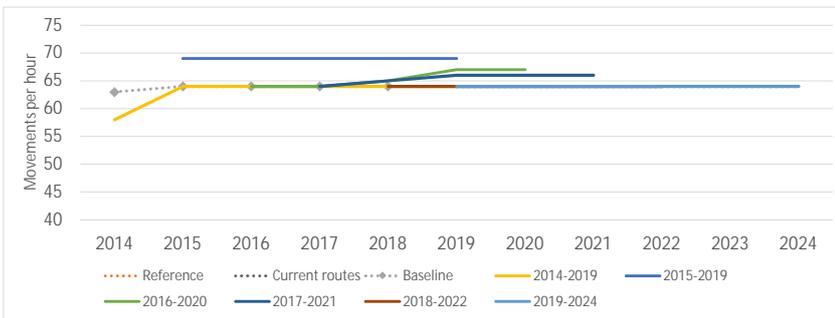
- Historical data shows a decrease of -3.3% in 2015, and a 2.3% increase in 2018, resulting in an average overall -0.3% decrease during 2014-2018. Capacity plans were +/-5% around baseline values.

- Latest planned capacity profiles show no change over RP3, maintaining current baseline capacity.

- Latest planned capacity profiles meet the reference and the current route profiles for all years of RP3, indicating that Oslo ACC will not face a capacity gap over the period.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						90	90	90	90	90	90
Current routes						90	90	90	90	90	90
Baseline	91	88	88	88	90						
2014-2019	86	86	86	86	86	86					
2015-2019		91	91	91	91	92					
2016-2020			89	90	91	93	93				
2017-2021				90	91	93	93	93			
2018-2022					88	88	88	88	88		
2019-2024						90	90	90	90	90	90

Stavanger ACC (ENOSW)



- Historical data shows that capacity profiles in Stavanger ACC were flat over the years of RP2, following a 1.6% increase in 2014. Planned values were below the baseline in 2014, above the baseline in 2015, and at the baseline in all other years.

- Latest planned capacity profiles show no change over RP3, and maintain the baseline capacity.

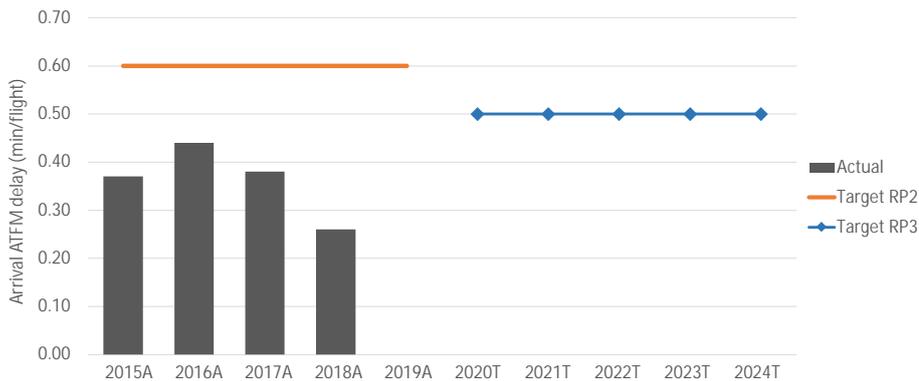
- Latest planned capacity profiles are meeting both the reference profiles and the current route profiles for all years of RP3, indicating that Stavanger ACC will not face a capacity gap.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						64	64	64	64	64	64
Current routes						64	64	64	64	64	64
Baseline	63	64	64	64	64						
2014-2019	58	64	64	64	64	64					
2015-2019		69	69	69	69	69					
2016-2020			64	64	65	67	67				
2017-2021				64	65	66	66	66			
2018-2022					64	64	64	64	64		
2019-2024						64	64	64	64	64	64

3.2.4	Significant/special events leading to higher delays in some years of RP3 and related enhancement measures	n/a
3.2.5	Review of the measures to increase capacity and address capacity gaps	n/a
3.2.6	PRB Key Points	✓

- National target values are set below the national reference values for all years of RP3 and above NOP delay forecast values.
- The existing capacity plans indicate that Norway has sufficient capacity to meet the forecasted demand and to reach the target.
- The presented ATCO numbers and NOP delay forecast provide sufficient evidence that Norway has sufficient capacity to cope with the expected traffic growth during the planning period.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.37	0.44	0.38	0.26	-	0.50	0.50	0.50	0.50	0.50
Bergen (ENBR)	0.11	0.09	0.02	0.03	-	0.50	0.50	0.50	0.50	0.50
Oslo/ Gardermoen (ENGM)	0.67	0.79	0.69	0.45	-	0.50	0.50	0.50	0.50	0.50
Trondheim (ENVA)	0.00	0.00	0.00	0.00	-	0.50	0.50	0.50	0.50	0.50
Stavanger (ENZV)	0.02	0.00	0.00	0.02	-	0.50	0.50	0.50	0.50	0.50

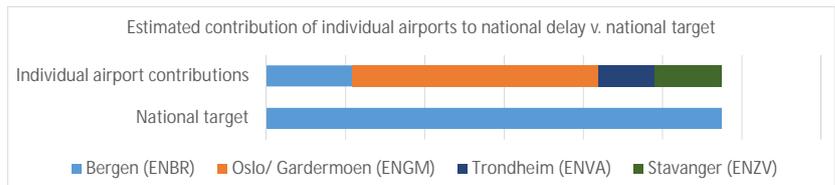
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Norway presents a reduction of the targets for RP3 with respect to the targets for RP2 of 0.10 minutes delay per arrival. This target of 0.50 minutes delay per arrival for the entire RP3 is better aligned with past performance experience in RP2, although still slightly higher.

At airport level, the breakdown delays for Oslo are below average RP2 performance by 0.15 minutes per flight, however, for Bergen, Trondheim and Stavanger the proposed targets are higher than average RP2 delays with a difference of between 0.43 and 0.5 minutes per flight.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Bergen (ENBR)	0.50
Oslo/ Gardermoen (ENGM)	0.50
Trondheim (ENVA)	0.50
Stavanger (ENZV)	0.50
National Target	0.50



The breakdown at airport level is the same for every airport (0.50 minutes delay per arrival), so the estimated contribution to the total delays is only depending on the traffic share.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Bergen (ENBR)	GROUP III	0.25	0.06	-0.18	0.50	+0.45
Oslo/ Gardermoen (ENGM)	GROUP I	0.87	0.65	-0.22	0.50	-0.37
Trondheim (ENVA)	GROUP IV	0.01	0.00	-0.01	0.50	+0.49
Stavanger (ENZV)	GROUP IV	0.01	0.01	+0.00	0.50	+0.49

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The performance observed at the two main airports Oslo and Bergen was, during the 2015-2018 period, better by 0.22 and 0.18 minutes per arrival than the performance of similar airports. Trondheim and Stavanger had negligible delays, like the airports in their category.

The performance plan for RP3 establishes the same target for all airports (0.50 minutes delay per arrival). This implies a further improvement for Oslo, but a significant deterioration Bergen, Trondheim, and Stavanger. The breakdown values for these airport are by 0.25, 0.49, and 0.49 minutes per arrival higher respectively, than the median value of the similar airport group.

3.3.5 PRB Key Points

- The proposed targets for RP3 at the national level represent an improvement of 0.1 minutes per arrival with respect to RP2 targets and are slightly above observed performance between 2015-2018. However at airport level, the breakdown of target values is done equally for all four airports, which would imply an improvement at Oslo and a deterioration at Bergen, Trondheim and Stavanger.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.03 min	0.000%	2.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.18	0.16	0.13	0.11	0.11
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.08	0.08	0.08	0.08	0.08
Pivot values for RP3	0.08	0.08	0.08	0.08	0.08

Threshold review

The threshold is symmetrical around the pivot values. The pivot values are not based on the reference values published in the NOP, but are based on more stringent targets proposed by the State.

Modulation review

No modulations are applied.

Review of financial advantages/disadvantages

Norway has decided to apply a penalty-only incentive scheme. A maximum penalty of 2% of revenue is possible. Delay forecasts published in the NOP indicate capacity performance of between 0.03 and 0.05 minutes per flight during RP3. Such performance would fall in the bonus range in each year of RP3 however Norway decided to not include a bonus in its incentive scheme.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.03 min	0.000%	2.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.040	±0.040	±0.040	±0.040	±0.040
Performance Plan targets	0.50	0.50	0.50	0.50	0.50
Pivot values for RP3	0.08	0.08	0.08	0.08	0.08

Threshold review

The terminal incentive scheme includes a dead band of ±0.03 minutes delay per arrival that allows for small variations in the arrival ATFM delay with no resulting bonuses or penalties.

Modulation review

Norway has chosen to modulate the pivot values according to CRSTMP causes. The proposed pivot (0.08 minutes delay per arrival) is constant throughout the RP3 and represents 16% of the national target (all causes). This pivot value is double the average CRSTMP performance in 2015-2018 (0.04 minutes delay per arrival). In that same period the share of CRSTMP delays versus all causes was 10.4%. If the same share would be applied to the national target all causes, the pivot values would result in 0.052 minutes delay per arrival.

Review of financial advantages/disadvantages

The scheme includes no possible bonus, and a maximum penalty of 2% as of 0.12 minutes delay per arrival of CRSTMP delay. The performance plan argues that the absence of bonus is to not incentivise providing capacity beyond the target pivot value.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points 🔍

En route incentives:

- Norway has decided to apply a penalty-only incentive scheme. A maximum penalty of 2% of revenue is possible. Delay forecasts published in the NOP indicate capacity performance of between 0.03 and 0.05 minutes per flight during RP3.

Terminal incentives:

- Norway has chosen to modulate the pivot values to cover only CRSTMP causes with a pivot value that is the double of the observed CRSTMP delays in the past. The scheme includes a ±37.5% dead band, there are no bonuses but the penalties are 2%.
 - While the national targets considering all delay causes represent an improvement with respect to RP2, the pivot values allow for a deterioration in performance with respect to 2015-2018.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	14.3	15.2	17.8	19.0	25.7	91.9
	En route	14.3	15.2	17.8	19.0	25.7	91.9
	Terminal	0.0	0.0	0.0	0.0	0.0	0.0

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	SKYCOM	Implementation of VoIP based Voice Communication System for Norway ACC, replacing existing 3 old local VCS systems. SKYCOM is an enabler for benefit realisation and performance improvement of future ATM system (FAS) for Norway ACC e.g. dynamic sectorisation.	14.8	No	Yes	4.3	0.0
2	FAS ACC (TWR/APP)	iTEC client positions to support Towers and Approaches with ATM-functionality, based on new iTEC ATM system. The client working positions will be connected to a shared data centre, supporting both ACC, APP and (limited) TWR functions.	20.4	No	Yes	1.3	0.0
Total:						5.6	0.0

Airspace user feedback regarding major investments

The airspace users expressed their concerns regarding the CAPEX underspending during RP2 and their lack of support of RP3 investments categorised as restructuring costs, due to the lack of details regarding the investments and due to the unrealised projects during RP2.

The airspace users also requested assurance that the users will not be charged twice for the same investments and pointed out the lack of information regarding the intention to return the CEF funds granted.

Review of investments

New major investments represent 6% (or 5.6M€) of the total determined costs of investments over RP3. These investments for RP3 are justified and the ANSP does not expect to roll the RP2 investment projects towards RP3. These investments only represent the en route part. The terminal investments are not included in the present document due to the separation of en route and terminal ANSPs in the Norwegian performance plan. The determined costs for the new major investments in terminal amount to a total of 9.6M€ over the period, slightly more than for en route. The investments in terminal are focused on the new ATM system and terminal area radar in Oslo. En route and terminal 2015-2018 actual CAPEX delivery reaches 78% of the planned values for the same period and the amount underspent is 24.33M€. It is uncertain if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	SKYCOM	Network, Local	n/a	Implementation of VoIP based Voice Communication System for Norway ACC, replacing existing 3 old local VCS systems. SKYCOM is an enabler for benefit realisation and performance improvement of future ATM system (FAS) for Norway ACC e.g. dynamic sectorisation.
2	FAS ACC (TWR/APP)	Network, Local	n/a	iTEC client positions to support Towers and Approaches with ATM-functionality, based on new iTEC ATM system. The client working positions will be connected to a shared data centre, supporting both ACC, APP and (limited) TWR functions.

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	47.3	35.1	0.0	0.0	0.2	1.0	1.5	2.7
Existing investments			14.2	14.7	16.7	16.0	22.0	83.6

<p>Description and justification of other new and existing investments in fixed assets planned over RP3</p>	<p>En route other new investments represent 3% (2.7M€) of the total determined costs of investments over RP3, while existing investments represent 91% (83.6M€). Other new investments are mainly replacement and upgrade of COM/SUR/NAV-equipment. Annex E of the performance plan provides a breakdown of the investments categorised as other new investments, but no further details on them. The ANSP mentions that the investment level is based on an evaluation of equipment in operation and the time frame for upgrade/replacement, considering many factors, but most importantly regulatory requirements and cost efficiency. Existing investments are described in the Performance Plan for RP2. Terminal other new investments represent 28.4M€, significantly less than for en route investments.</p> <p>Avinor ANS has planned restructuring costs for its transition to new technology. These restructuring costs concern the investments in new ATM infrastructure. The capital and depreciation cost of the investment in new ATM infrastructure has been included in the figures in table 2.1.1 of the performance plan, under item "Sub-total existing investment (3)". The investment in the new ATM system is also included in the RP2 performance plan (The investment named "FS108 New ATM infrastructure"). The investment was in a very early stage when Avinor ANS was planning for RP2, there was no board decision and the business case and CBA was not yet made. The associated cost included in the RP2 PP was an estimate. During RP2 the investment project has been approved by the Avinor ANS board, the detailed project plan has been made, the project activities are ongoing, and capital expenditure is increasing. When planning for RP3 the updated forecast on total cost for the new ATM system is the basis for the determined cost. This means that overcharging in RP2 is compensated by undercharging in RP3. The actual CAPEX 2015-2018 is lower than planned, representing the major underspend in the period for Avinor amongst the rest of RP2 investments.</p>
---	---

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand ✔

Norway performed well in the capacity KPA in the previous reference period and positively contributed to the NEFAB performance. According to the NOP 2019-2024, the State provides sufficient capacity to meet expected demand with close to zero capacity surplus during the whole RP3. In the performance plan, Norway claims to be in a position to provide more capacity than the national reference values. Capacity enhancement measures provided in the capacity plan contain implementation of the 'Future ATM System' at all (3) ACCs, airspace and sector changes, new ATCOs recruitment and flexible rostering. All presented major investments could be directly linked or may support introduced capacity measures, however, the level of contribution to the capacity increase cannot be assessed on limited information provided in the description of the investments.

Investment #1 - is investment to communication system, which is expected to support new ATM systems' connectivity and flexible sectorisation;
Investment #2 - is the new Future ATM System.

Other new investments are mainly replacement and upgrade of COM/SUR/NAV-equipment. They are not expected to contribute directly and positively to capacity. More information on the related investments would be needed to make the proper assessment. Annex E of the performance plan is available but categorisation (clustering) of the investments into specific groups does not allow to make the assessment of investments' scaling to demand.
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ✔

The performance plan provides information on when and how the projects will be implemented. The investments could be linked to the measures introduced by the capacity plan in the NOP. Simulation provided by the NM has indicated that timing and sequencing of the measures supported by the investments is expected to deliver required capacity, although it is not clear what would be the level of the investments' contribution to the achievement of capacity.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented !

A conclusion could be made only if additional information on the major and existing investments is provided. It is expected that capacity improvements in the first half of RP3 could be supported by the investments initiated in RP2 (with unknown implementation status) and other operational and airspace measures. The major investments are estimated to deliver capacity benefits only at the end of RP3 and beyond. The investments are in line with the measures introduced in the capacity plan.

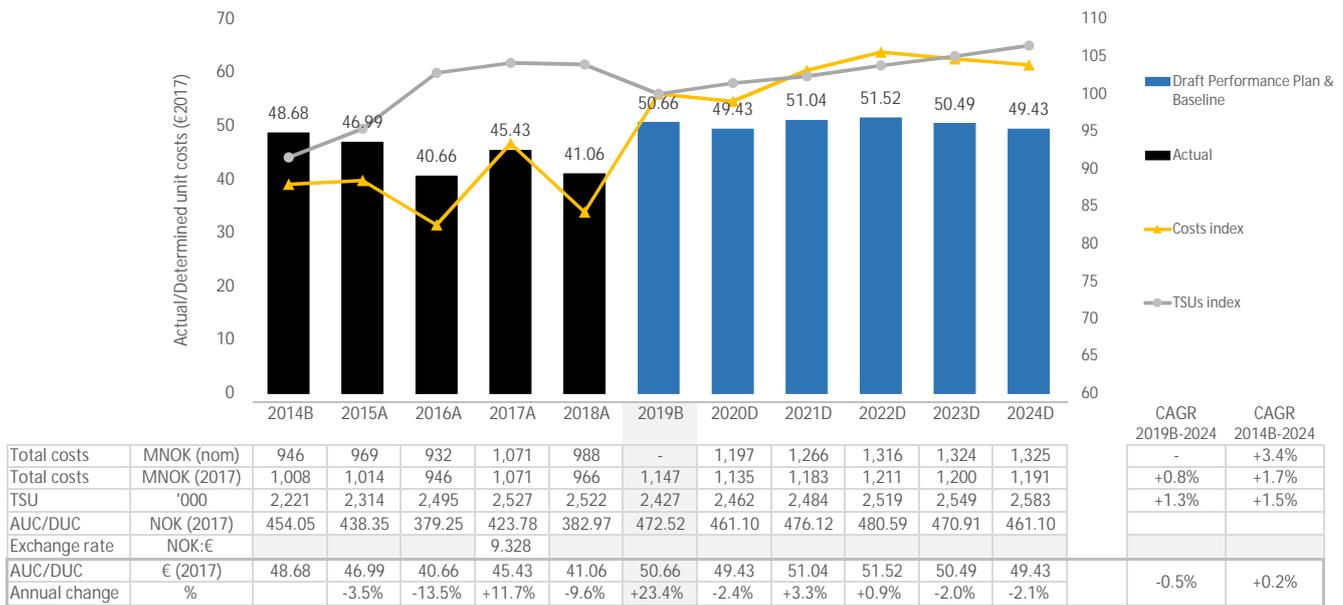
3.5.4 PRB Key Points !

- Avinor ANS has planned restructuring costs for its transition to new technology. These restructuring costs concern the investments in new ATM infrastructure. The capital and depreciation cost of the investment in new ATM infrastructure have been included in the figures in table 2.1.1 of the performance plan, under item "Sub-total existing investment (3)".
- All presented major investments could be directly linked or may support the introduced capacity measures.
- The level of contribution to the capacity increase cannot be assessed based on the limited information provided.

NORWAY

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	50.66 €2017	✘
The 2019 TSU baseline forecast is in line with STATFOR October 2019 base case forecast.		
The 2019 en route baseline costs amount to 122.946M€2017, which is +18.4M€2017 (+17.7%) higher than the 2019 forecast costs and +18.7% above the 2018 actual costs. The main reasons for the differences between the 2019 baseline and the 2019 forecast costs are:		
- changes in the internal allocation key for cost of combined Tower (TWR) and Approach (APP) which increases the en route baseline cost by 19.8MNOK (in nominal terms equivalent to 2.0M€2017);		
- a change in allocation keys for approach costs from APP 50/50 to APP 80/20 or 80% en route and 20% TANS for Approach of the terminal services for (OSL/BGO/SVG/TRD) and airports outside the regulations. The new APP allocation key increases the en-route baseline costs (2019 baseline) by 128.3MNOK (in nominal terms equivalent to 13.1M€2017);		
- And to include in the en route cost base the costs for en-route and approach services provided by Avinor ANS for the military activity. This increases the baseline costs (2019 baseline) by 32.5MNOK (in nominal terms equivalent to 3.3M€2017).		

4.1.3 Summary of cost-efficiency assessment results

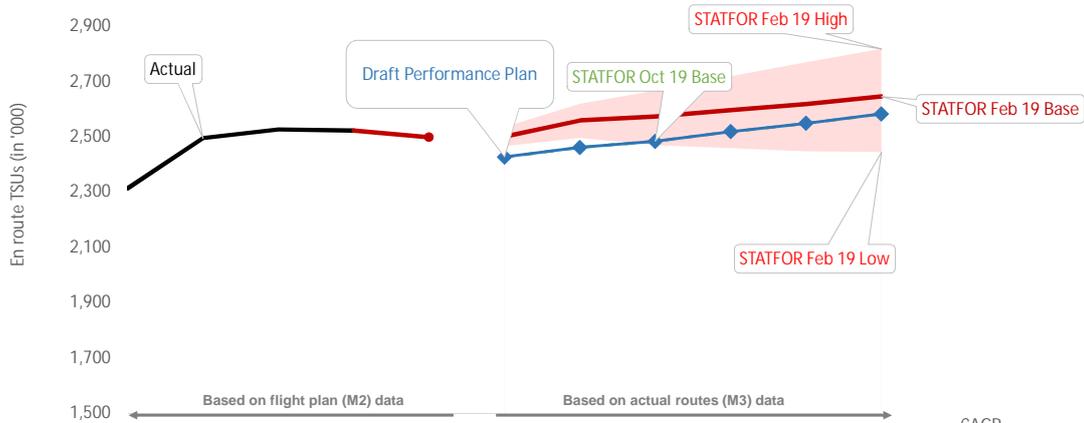
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-0.5%	✘
The RP3 en route DUC trend is -0.5% on average which is worse than the Union-wide RP3 DUC trend. The related RP3 en route DC trend is +0.8% on average in real terms while the TSU RP3 trend is +1.3% over 2019-2024.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	+0.2%	✘
The long term en route DUC trend is +0.2% on average, which is worse than the long-term Union-wide DUC trend (-2.7%) over 2014-2024.		
c) DUC level (2019 baseline) lower than the average of comparator group (B) average (47.71 €2017)?	+6.2%	✘
The DUC level is 6.2% higher than the average of the comparator group for the 2019 baseline and +5.5% higher in 2024.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		✘
Norway is estimated to exceed the RP3 DUC trend by +32.3M€2017. At the same time, the estimated deviation from the long-term DUC trend is +142.0M€2017. However it is acknowledged that the long-term DUC trend is affected by the change of cost allocation methodology between en route and terminal. Had the new methodology been applied during RP2, the deviation would be roughly +88M€2017. It cannot be considered that this deviation is exclusively for the purpose of achieving the capacity targets. Norway argues that the deviation is due to the transition to a new ATM system which is considered as a major technological shift and reported as a "restructuring cost".		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		✘
The "restructuring measures" are reported to relate to the transition to a new ATM system towards the end of RP3. The investment seems to be in line with the business technology updates. The break-even point is estimated to be reached 13 years after implementation and no benefit is expected before RP4 or beyond.		



The PRB concludes that the cost-efficiency targets proposed by Norway should not be approved.

- Norway is not meeting neither trends nor the comparator group criteria.
- The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.
- Norway deviates from the trends due to restructuring measures, however such project is in line with the technology improvement of the company and does not seem to fully qualify as a restructuring cost. Moreover, it is not fully demonstrated that the "restructuring cost" will deliver a net financial benefit to airspace users by the end of RP4.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	2,314	2,495	2,527	2,522								
Annual change	%		+7.8%	+1.3%	-0.2%								
STATFOR Feb 19 Base	'000 TSUs					2,498	2,501	2,560	2,573	2,596	2,618	2,646	+1.1%
Annual change	%					-0.9%	-0.8%	+2.3%	+0.5%	+0.9%	+0.8%	+1.1%	
STATFOR Oct 19 Base	'000 TSUs					-	2,427	2,462	2,484	2,519	2,549	2,583	+1.3%
Annual change	%					-	-3.8%	+1.4%	+0.9%	+1.4%	+1.2%	+1.3%	
Performance Plan	'000 TSUs						2,427	2,462	2,484	2,519	2,549	2,583	+1.3%
Annual change	%						-3.8%	+1.4%	+0.9%	+1.4%	+1.2%	+1.3%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	2,427		
2019F (as in the Reporting tables, M2)	2,427		
2019B/ 2019F	0.00%	+0.11%	-0.05%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	2,427			
2019F (STATFOR Feb 19, M3)	L 2,466	B 2,501	H 2,535	-2.96%
2019F (STATFOR Oct 19, M3)	L 2,418	B 2,427	H 2,435	=B

The 2019 TSU baseline forecast is in line with STATFOR October 2019 base forecast, which is -2.96% below the STATFOR February 2019 base forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Norway reports that "The en route service units are based on STATFOR base forecast from October 2019 for the period 2019-2024 using model 3, taking into consideration the ratios M3/M2 published by the CRCO for November 2017 to May 2019."

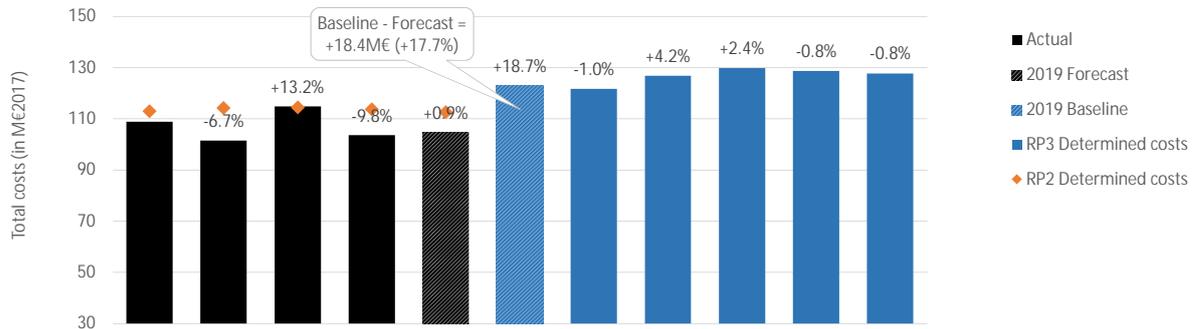
Review of the PP traffic forecast

The selected TSU forecasts are in line with STATFOR October 2019 base scenario for all years of RP3 (2020-2024) which forecasts an average growth of +1.3% p.a. over 2019-2024. It is noted that STATFOR October 2019 forecast is lower than the STATFOR February 2019 forecast.

4.2.4 PRB Key Points

- The traffic forecast is not in line with the STATFOR February 2019 base forecast. Norway submitted the performance plan after the publication of STATFOR October 2019 forecast.

4.3.1 Overview of en route costs in RP2 and RP3



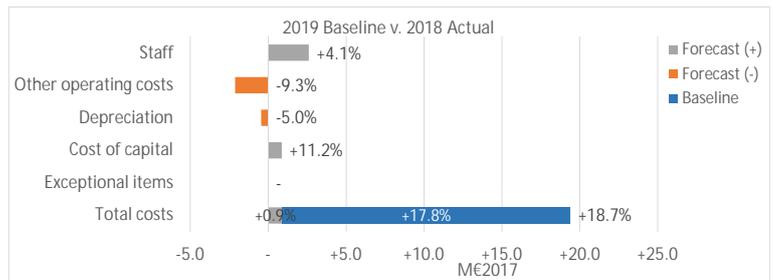
	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017	
Total costs	MNOK (nom)	969	932	1,071	988	1,011	-	1,197	1,266	1,316	1,324	1,325	-	NOK:€
Annual change	%		-3.7%	+14.8%	-7.7%	+2.3%	-	+5.8%	+3.9%	+0.6%	+0.1%	-	9.32776	
Inflation index	2017 = 100	94.5	98.1	100.0	103.0	105.0	105.0	106.7	108.7	110.9	113.1	115.4	+1.9%	
Total costs	MNOK (2017)	1,014	946	1,071	966	975	1,147	1,135	1,183	1,211	1,200	1,191	+0.8%	
Annual change	%		-6.7%	+13.2%	-9.8%	+0.9%	+18.7%	-1.0%	+4.2%	+2.4%	-0.8%	-0.8%	+0.8%	
Total costs	M€ (2017)	109	101	115	104	105	123	122	127	130	129	128	+0.8%	

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+0.9	+0.9%
2019F v. 2019 RP2 DC	-8.0	-7.1%
2019F v. average 2015-2018	-2.6	-2.5%

2019 baseline analysis	M€2017	%
2019B v. 2019F	18.4	+17.7%



2019 forecast analysis

2019 en route forecast costs amounts to 104.501M€2017, which is +0.9 M€2017 (+0.9%) above the 2018 actual costs. When compared to the average of 2015-2018 actuals, the 2019 forecasted costs are lower by -2.6M€2017 or (-2.5%).

2019 baseline analysis

2019 en route baseline costs amount to 122.946M€2017, which is +18.4M€2017 (or +17.7%) higher than the 2019 forecast costs and +19.3M€2017 (or +18.7%) above the 2018 actual costs. The main reasons for the differences are:

- Changes in the internal allocation key for cost of combined towers (TWR/APP), which increases the en route baseline cost by 19.8MNOK (in nominal terms) equivalent to 2.0M€2017;
- Change in allocation keys for approach costs from APP 50/50 to APP 80/20 or 80% en route and 20% TANS for approach of the terminal services for (OSL/BGO/SVG/TRD) and airports outside the regulations. The new APP allocation key increases the en route baseline costs by 128.3MNOK (in nominal terms) equivalent to 13.1M€2017;
- Inclusion in the en route cost base the costs for en route and approach services provided by Avinor ANS for the military activity. This increases the baseline costs (2019B) by 32.5MNOK (in nominal terms) equivalent to 3.3M€2017. For the main en-route ANSP (AVINOR ANS representing close to 93% of en route ANS costs), this is also explained by:
 - Higher staff costs (+2.6M€2017 or +4.1%). Norway reports that "The most important driver for the cost development in RP3 is the transition to a new ATM system. (...) Training cost on the new ATM system cannot be capitalised according to accounting practices and will further increase staff cost. Training on the new ATM-system platform is planned 2021-2023. There will be a period of simultaneously operating two systems, also affecting the level of staff cost (...)."
 - Lower "Other OPEX" (-2.1M€2017 or -9.3%). Norway reports that "Other operating costs have decreased during RP2 and the level of other operating costs is expected to stay stable in RP3."
 - Lower depreciation (-0.4M€2017 or -5.0%). Norway explains that "Capital expenditure has increased in RP2 and will increase further in RP3. This gives an effect on depreciations and costs of capital during RP3, especially as a consequence of the two investment projects; NORWAM phase 2 in 2022 and planned completion of Future ATM System in 2024."
 - Higher cost of capital (+0.9M€2017 or +11.2%). Norway reports that "The cost of capital before tax (WACC) is adjusted to 4.16 % for en route services in PR3. (Return on equity before tax set to 7.26 % and Average interest on debts before tax set to 2.09 % according letter from the Ministry of Transport from October 2019)."

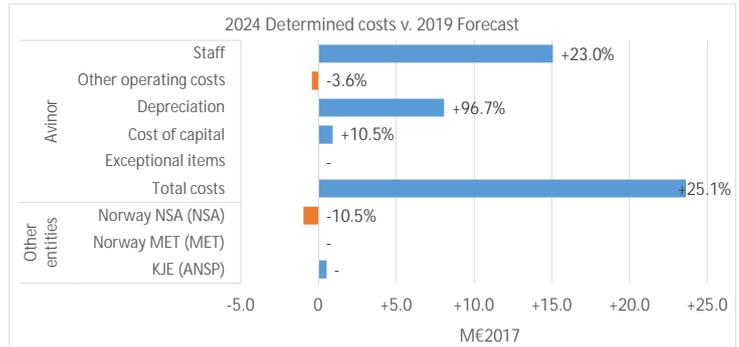
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 📌 Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- 📌 Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	2.00%
Additional incentives?	No



In total 2024, the main en route ANSP (AVINOR) costs are +23.6M€2017 (or +25.1%) higher than the 2019 forecast.

Between 2019 forecast and 2024, the AVINOR staff costs are planned to increase by +15.1M€2017 (+23.0%). Other operating costs (-0.4M€2017) are planned to be -3.6% lower in 2024 than in 2019 forecasts, whereas depreciation costs and cost of capital are planned to be higher, +8.1M€2017 (or +96.7%) and +0.9M€2017 (or +10.5%) respectively.

The pension costs (included in staff costs in the Reporting tables) are planned to slightly decrease over RP3 in real terms and the share of pension cost in total ANSP costs (9.0%) remain lower than the Union-wide average (12.5%).

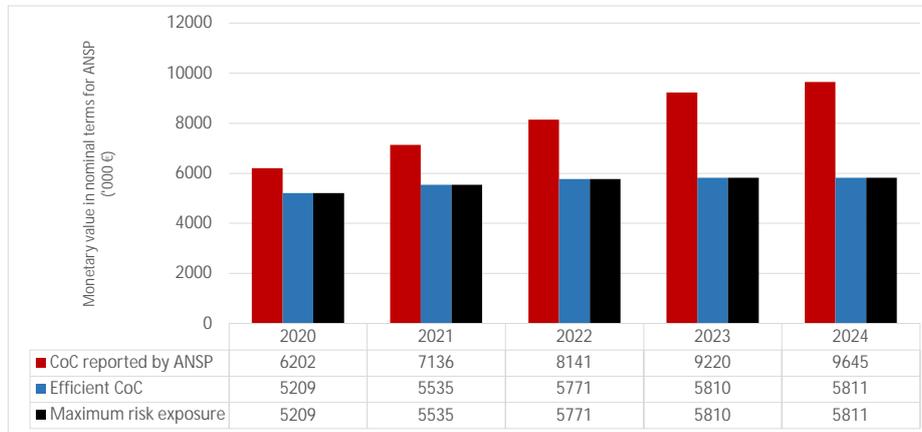
4.3.4 PRB Key Points

- Norway included costs in the baseline that should not been considered, since they will be incurred only in some years of RP3.
- In total 2024, the main en route ANSP (AVINOR) costs are +23.6M€2017 (or +25.1%) higher than the 2019 forecast, the main drivers are the staff costs and the depreciation costs.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	118,397	125,788	131,159	132,053	132,063
Monetary value of Return on Equity	n/a	n/a	n/a	n/a	n/a
Ratio RoE/DC (%)	n/a	n/a	n/a	n/a	n/a

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	992	1601	2370	3410	3834

Total 2020-2024	12,208
-----------------	--------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.3%	n/a								
Interest on debts	2.1%	n/a								
Capital structure (% debt)	60.0%	n/a								
WACC	4.2%	3.5%	4.2%	3.2%	4.2%	2.9%	4.2%	2.6%	4.2%	2.5%

Is the interest on debts in line with the market? **Yes**

- Avinor ANS does not currently have any loans, but it is estimated that the company will have loans in 2021. Avinor has considered, for the calculation of the cost of debt, an average interest on debts before tax equal to 2.09 % according to the letter received by the Ministry of Transport from the Norwegian Aviation Industries (NHO) referring to a calculation made by IATA in September 2019. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate for both real and reported interest rates is duly justified and in line with competitive market practices.

- The capital structure is set at 60% debt based on an assessment of the cost of capital for Avinor Group made by Deloitte in 2019.

- The efficient cost of capital is computed in line with the maximum risk exposure.

- Over the period of 2020-2024, the reported cost of capital is 12.21M€ above the efficient cost of capital. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provides notional parameters for the WACC.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	141,602	163,534	187,287	212,909	223,026
Net current assets	7,481	8,007	8,416	8,735	8,819
Adjustments total assets	0	0	0	0	0
Total asset base	149,083	171,541	195,704	221,644	231,845

- The fixed asset base increases over the period, in line with the investments described in section 3.5 of this document.

- The net current assets do not present major issues.

- The RAB does not include adjustments to the total asset base.

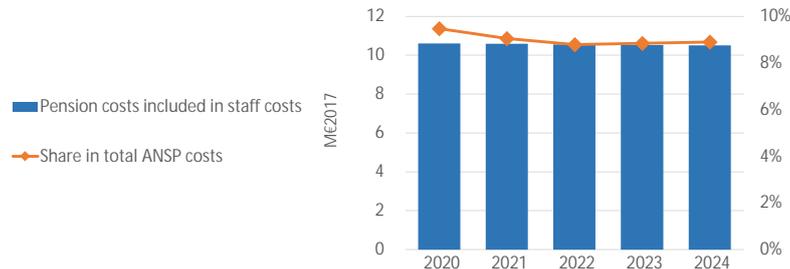
- The total asset base increases over RP3, in line with the increase in the fixed asset base.

4.3.A.5 PRB Key Points



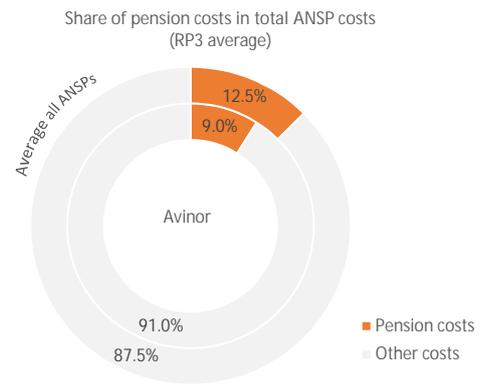
- The reported cost of capital is 12.21M€ above the efficient cost of capital over the period of 2020-2024. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provides notional parameters for the WACC.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	ME2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	ME2017	10.6	10.6	10.6	10.5	10.5
Year on year variation	% change		-0.1%	-0.3%	-0.3%	-0.2%
Share in total ANSP costs	%	9.5%	9.0%	8.8%	8.8%	8.9%
Year on year variation	p.p.		-0.4p.p.	-0.3p.p.	0.1p.p.	0.1p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Slight decrease**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables?	No
"The interest expenses related to pensions are reported as staff costs."	
For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024?	No
For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024?	No
For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024?	No

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Norway reports in the performance plan that "As a consequence of the volatility of the pension costs, the pension defined pension plan is closed effectively for new members as of 01.01.19. All employees not turned 53 years before the aforementioned date have been transferred to the new defined contribution plan."

4.3.B.4 PRB Key Points

- No major issues identified. ✓

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Norway changed the cost allocation methodology with respect to RP2.
- The costs are divided into operating costs, support costs, CNS costs and depreciation. These costs are allocated according to the type of service provided to en route or terminal, respectively.
- The costs for provision of approach services and depreciation are allocated 20% to the terminal cost base and 80% to the en route cost base.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

Yes

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

- Norway reports a change of the internal allocation key for APP cost of combined towers (TWR/APP). The previous allocation key was based on historical data on time used in the different services (TWR/APP) in the combined towers. The new allocation key is based on the opening time on sectors in the combined towers.

- Moreover, Norway modified the basis for allocation from ATCO composite hours (50/50) to a distance based allocation key (80/20).

2.2. Are these changes in cost allocation duly described and justified?

Yes

If, not what are the identified issues?

- With respect to the internal allocation key, Norway justifies the change as "An external audit (PWC) has been conducted to evaluate the allocation key in respect of the RP3 performance plan, which resulted in a recommendation for the new allocation key for combined towers."

- With respect to the shift on the allocation basis, "The basis for the proposed new calculation method is that the approach segment is provided at 80 km from the airport (average horizontal extent of the TMA). For larger/smaller TMAs, the distribution according to this model would give slightly different distribution keys for the individual airports than 80/20, while the larger TMAs of course weigh heavier than many of the smaller ones which also have significantly less traffic. The approach segment is calculated from 5-80 km. Of the approach cost (15 km/75 km) 20% is considered allocated terminal ANS, while (60 km/75 km) 80% is considered allocated en-route ANS."

2.3. Is there an impact on the determined costs and/or baseline?

Yes

If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

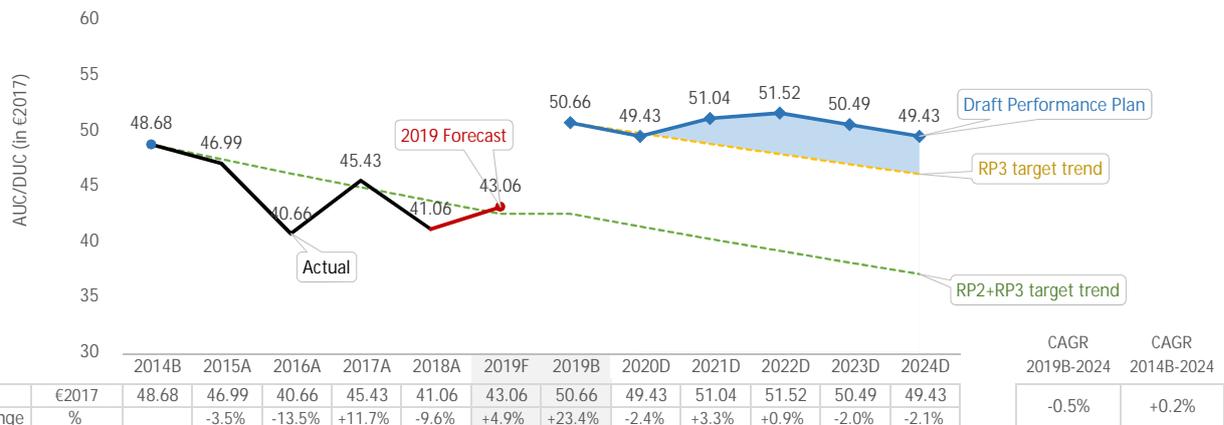
The changes in the cost allocation methodology and criteria has a total impact of +15.1M€2017 on the en route baseline. The impact over RP3 can be estimated around 75M€2017.

4.3.C.3 PRB Key Points



- Norway changed the cost allocation methodology with respect to RP2.
- Norway justifies the change in the allocation on technical basis. The change has no negligible impact over en route baseline and RP3 costs.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	-0.5%	Union-wide trend	-1.9%	Difference	+1.4p.p.
PP trend	+0.2%	Union-wide trend	-2.7%	Difference	+2.9p.p.
PP 2019 baseline	50.66	Average comp. group	47.71	Difference	+6.2%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	Yes
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	No

The RP3 en route DUC trend is -0.5% on average, which is worse than the Union-wide RP3 DUC target trend (-1.9%). The long term en route DUC trend is +0.2% on average, which is worse than the Union-wide long term DUC trend (-2.7%). It is acknowledged that the long term trend is affected by the change of cost allocation methodology between en route and terminal described in section 4.3.C, however, it can be roughly estimated that, had the new methodology been applied during RP2, the long-term trend would be approximately -0.9%, still far from the Union-wide trend.

The 2019 baseline en route DUC (50.66€2017) is +6.2% higher than the average of the comparators' group (47.71€2017). If the DUC calculation is normalised by taking out the restructuring costs (see 4.4.4 below) for every year of RP3 and the reported difference in baseline (+38.4M€2017) applied for all years 2019-2024, the RP3 en route DUC trend would be -2.8%, which is better than the Union-wide DUC target trend (-1.9%) over 2019-2024.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017):	v. RP3 trend over the period 2020-2024	+32.3	v. RP2+RP3 trend over the period 2020-2024	+142.0
------------------------	--	-------	--	--------

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+11.7	Additional ATCO costs (M€2017)*	+1.6
* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€2017)	5.6	of which, related to capacity (see Section 3.5 for details)	5.6
---	-----	---	-----

Analysis

The cumulative costs (sum of the determined costs over 2020-2024) are higher than the level of costs strictly needed to achieve the RP3 DUC trend by +32.3M€2017. The cumulative costs are also higher than the level of costs needed to achieve the long-term trend of -2.7% by +142.0M€2017. However it is acknowledged that the long-term trend is affected by the change of cost allocation methodology between en route and terminal described in section 4.3.C of this document. It can be estimated that, had the new methodology been applied during RP2, the deviation would be roughly 88M€2017.

Norway only refers to the recruitment of ATCOs as the main measure to provide additional capacity. The cumulative additional costs for the ATCOs planned to start working in the ACC can be estimated at around 1.6M€2017 based on the average unit cost for ATCO in OPS reported in the ACE 2017 report. This does not include training costs. Including the costs of capacity-related investments which can be estimated at 5.6M€2017, the total costs that can be directly attributed to capacity-enhancing measures would equal 7.2M€2017.

The amount is not commensurate with the total deviation of 32.3M€2017. Therefore it cannot be considered that this deviation is exclusively for the purpose of achieving the capacity targets. It should be noted that, as show in section 4.4.4 below, Norway argues that the deviation is due to the transition to a new ATM system which is considered by Norway as a major technological shift and reported as a "restructuring cost".

- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs



Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +32.3 v. RP2+RP3 trend over the period 2020-2024 +142.0

Restructuring costs from previous periods to be recovered in RP3 (in M€2017)

2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
-	-	-	-	-	-

Restructuring costs planned for RP3 (in M€2017)

	2020P	2021P	2022P	2023P	2024P	Σ 2020-2024
Staff	3.5	4.5	5.5	5.5	3.6	22.7
of which, pension costs	0.0	0.0	0.0	0.0	0.0	0.0
Other operating costs	0.3	0.5	0.8	1.0	1.2	3.8
Depreciation	0.0	0.0	0.0	0.0	7.5	7.5
Cost of capital	3.4	4.3	5.1	5.8	6.1	24.8
Exceptional items	0.0	0.0	0.0	0.0	0.0	0.0
Total restructuring costs	7.2	9.4	11.4	12.3	18.5	58.8

Summary of restructuring measures presented in the PP

Norway states that "The most important driver for the cost development in RP3, is the transition to a new ATM system. Implementation is planned by the end of RP3. Avinor ANS has over the last years been increasing capacity, in order to shift to new technology without major operational consequences for the airspace users. As a result, cost is increasing through RP3. Training cost on the new ATM system cannot be capitalised according to accounting practices and will further increase staff cost. Training on the new ATM system platform is planned for 2021-2023. There will be a period of simultaneously operating two systems, also affecting the level of staff cost.

Cost related to the implementation of the new ATM system is by Avinor ANS considered to be restructuring cost, as defined in Annex IV of regulation 2019/317. Efficiency benefits from the new ATM system is expected from the end of RP3 at the earliest. Productivity in ordinary operations is expected to increase further through RP3, as Avinor ANS is planning to handle the expected increase in traffic with the same number of operational staff. " Norway also declares that "(...) the cost effects resulting from the transition to new technology are not limited to the capital related cost. An important goal for Avinor ANS is to change to new technology without major operational consequences. In order to succeed to reach this goal Avinor ANS has increased capacity over time, meaning a gradual increase in staff cost driven by the technology investment."

Finally Norway states that "When deducting the restructuring costs from the reported en route cost base the "Cost of operation" shows an average decrease in real en route unit cost of -3.2 % per year (CAGR)."

Analysis

The "restructuring measures" reported relate to the transition to a new ATM system towards the end of RP3. This should affect mainly staff costs and cost of capital.

Annex H of the performance plan presents justifications for restructuring costs, including how the replacement of the ATM system fits with the definition (subject to EC approval). There are also references to business case and CBA, however the bottom line is that the break-even point is estimated to be reached 13 years after implementation and no benefit is expected before RP4 or beyond.

The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 Union-wide cost efficiency trend is +32.3M€2017, which is below the +58.8M€2017 presented as restructuring costs over RP3. However, the deviation from the RP2+RP3 trends (+142M€2017) is not justified.

✘ Can it be considered that the deviation is <u>exclusively</u> due to restructuring costs?	No
✘ Is it demonstrated that measures will deliver a net financial benefit to airspace users at the latest in RP4?	No

4.4.5 PRB Key Points

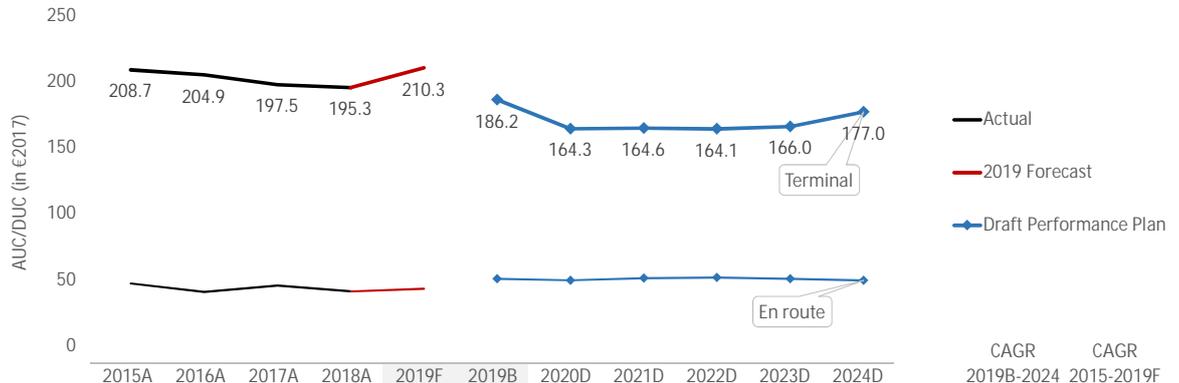


- The DUC trend proposed is not meeting neither the RP3 DUC trend nor the long term DUC trend targets. Moreover, Norway is not consistent with the average baseline of the comparator group.

- The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

- Norway invoked a deviation from the trends due to restructuring costs for the new ATM system, however such project is in line with the technology improvement of the company and does not seem to fully qualify as a restructuring cost. Moreover, it is not fully demonstrated that the "restructuring costs" will deliver a net financial benefit to airspace users by the end of RP4.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal	€2017	208.7	204.9	197.5	195.3	210.3	186.2	164.3	164.6	164.1	166.0	177.0	-1.0%	+0.2%
Annual Change	%		-1.8%	-3.6%	-1.1%	+7.7%	-4.7%	-11.8%	+0.2%	-0.3%	+1.1%	+6.6%		
AUC/DUC - En route	€2017	47.0	40.7	45.4	41.1	43.1	50.7	49.4	51.0	51.5	50.5	49.4	-0.5%	
Annual Change	%		-13.5%	+11.7%	-9.6%	+4.9%	+23.4%	-2.4%	+3.3%	+0.9%	-2.0%	-2.1%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Bergen (ENBR)	GROUP III	171.3	272.6	+59.1%	167.4	240.7	+43.8%
Oslo/ Gardermoen (ENGM)	GROUP I	139.5	152.6	+9.3%	130.5	120.8	-7.4%
Trondheim (ENVA)	GROUP IV	673.8	274.9	-59.2%	647.6	233.5	-63.9%
Stavanger (ENZV)	GROUP IV	673.8	336.0	-50.1%	647.6	296.8	-54.2%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

For Oslo/Gardemoen (ENGM) (Group I): the average unit cost (152.6€2017 over RP2/2015-2018) and the planned DUC (120.8€2017 over RP3/2020-2024) are higher (+9.3% over RP2) and lower (-7.5% over RP3 respectively) than the median airport in its group. The two "Group IV" airports (ENVA and ENZV) report average unit costs well below the median airport's unit cost/DUC (-59.2% over RP2 and -63.9% over RP3 for ENVA and -50.1% over RP2 and -54.2% for ENZV over RP3). Bergen airport (ENBR), from Group III, records an average unit cost over RP2 well above (+59.1%) the median and +43.8% over the median in RP3.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	262.0			
2019F (STATFOR Feb 19)	L 257.9	B 260.6	H 262.3	+0.54%
2019F (STATFOR Oct 19)	L 255.6	B 256.3	H 257.0	+2.22%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+5.0	+10.1%
2019 Forecast v. Avg. 2015-2018 Actual	+4.8	+9.6%
2019 Baseline v. 2019 Forecast	-6.3	-11.4%

- The 2019 TNSU baseline is aligned with the STATFOR October 2019 base forecast plus an estimate for offshore traffic (adding around 2 p.p. per annum). It is not fully clear why this offshore traffic had to be added separately in RP3.
- The 2019 forecasted terminal ANS costs are +5.0ME2017 (+10.1%) higher than the 2018 terminal actual costs and the 2019 baseline terminal ANS costs is -6.3ME2017 (or -11.4%) lower than the 2019 forecasted in real terms, the latter mainly due to changes in cost allocation between en route and terminal (see section 4.3.C)

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Norway reports that: "Based on the latest cost forecast in origin by 1 June 2019, last adjusted in September. The terminal service units are based on STATFOR base forecast from October 2019 for the period 2019-2024 including offshore traffic for the airports."

Review of the PP traffic forecast

The TNSUs are based on STATFOR October 2019 base forecast for the period 2019-2024 +2 p.p reported to be due to offshore traffic for the airports.

Determined costs (terminal)

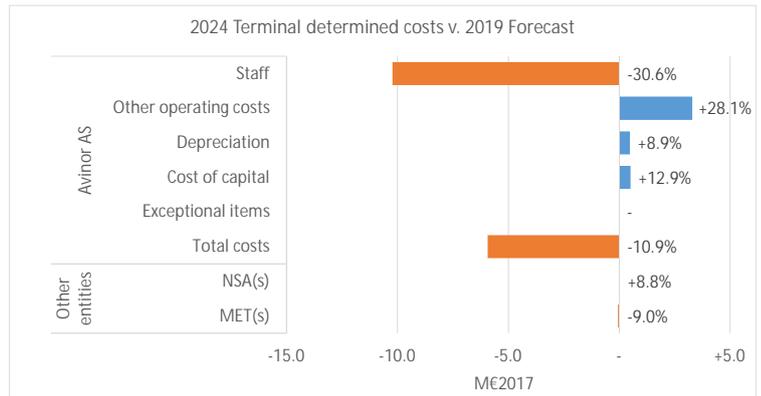
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - Avinor (terminal)

- 📌 Investments (see details in 3.5)
- ✗ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- n/a Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	2.00%
Additional incentives?	No



- The terminal RP3 DUC trend is -1.0% p.a. on average, which is better than the en route DUC trend (-0.5%) over the period.
- Terminal WACC (4.83% for every years fo RP3) is slightly higher than en route (4.16%) because of a higher return on equity. The return on equity should be equal for both terminal and en route, given that the risk of the company and the risk of the sector is the same.
- For AVINOR AS, the terminal 2024 costs are -5.9M€2017 (or -10.9%) lower than the 2019 forecast. The cost difference between 2019 forecast and 2024 is mainly related to AVINOR AS Staff costs (-10.2M€2017 or -30.6%) partially balanced by higher other operating costs (+3.3M€2017 or +28.1%) and aslo depreciation costs (+0.5M€2017 or +8.9%) and cost of capital (+0.5M€2017 or +12.9%).

4.5.4 PRB Key Points ✓

- The Terminal RP3 DUC trend is -1.0%, better than the en route RP3 DUC trend of -0.5%.
- The Terminal RP3 DUC trend is -1.0%, better than the Terminal RP2 DUC trend of +0.2%.
- Oslo, the main airport, had a DUC 9.3% higher than the average of its comparator group over RP2. The difference is expected to be -7.4%, over RP3. The other airports included in the performance plan range from a DUC 59.2% lower to 59.1% higher over RP2. The differences are expected to range from 63.9% lower to 43.8% higher over RP3.
- Norway used a custom forecast based on STATFOR October 2019 base forecast for terminal traffic. The baseline for this forecast is slightly higher (+0.54%) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs decrease over the period, mainly due to a decrease in staff costs.

PRB Assessment

POLAND

Draft Performance Plan

Context and scope

Poland

Performance Plan: Draft performance plan (Article 12) Dated: 19.11.2019
 Documents no: 1603, 1607, 1611, 1612, 1613, 1614, 1615, 1300, 1292, 1616, 1298, 1295, 1294, 1617, 1618

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 2.9%
 % Costs V. SES 2.6%

Scope

FAB: Baltic FAB

ANSPs: Polish Air Navigation Services Agency (PANSA)
 Institute of Meteorology and Water Management - National Research Institute (IMWM)
 Radom Meteo sp. z o.o.
 Warmia i Mazury sp. z o.o.
 Port Lotniczy Bydgoszcz S.A.

ANSP (ATS, CNS, AIS, SAR coordination)
 METEO
 METEO
 ATS (AFIS), CNS (COM), METEO
 ATS (AFIS), METEO

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 Civil Aviation Authority of the Republic of Poland (NSA)

Other/Network
 Supervision

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Poland	n/a	No	No	No	
Terminal	Poland - EPWA	1	No	No	No	
	Poland - Others	14	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group C Other States in the comparator group: Bulgaria, Croatia, Czech Republic, Hungary, Portugal, Romania, Slovakia, Slovenia

Currency: PLN Exchange rate: 4.25483

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
PANSAs	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C
Warmia i Mazury sp. z o.o.	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
Port Lotniczy Bydgoszcz S.A.	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety performance targets proposed by Poland should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how each ANSP individually will improve maturity levels over RP3 to specifically address Safety Risk Management.
- The change management processes and transition plans to minimize the network impact of planned changes compliant with Commission Implementing Decision (EU) 2017/373) are not described.

The PRB understands that no investments are required to ensure that safety performance targets are achieved, this includes investments needed to improve EoSM levels.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.85%	1.84%	1.83%	1.82%	1.81%

PRB Assessment

The PRB concludes that the environment targets proposed by Poland should not be approved.

- PANSAs horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.30	0.30	0.23	0.18	0.18
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.45	0.35	0.33	0.28	0.25

PRB Assessment

The PRB concludes that the capacity targets proposed by Poland should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Poland will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	44.97	45.03	44.80	44.02	42.13	+0.6%	-1.0%
Target for determined unit cost (DUC) (€2017) - Terminal	99.91	101.63	106.38	109.25	132.55	n/a	+4.3%
	209.59	206.49	199.88	195.13	186.00	n/a	-0.8%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Poland should not be approved.

- Poland is not meeting any of the cost-efficiency criteria.
- The reported cost of capital is estimated to exceed the maximum risk exposure over the period by 57.5M€, similar to the total deviation from the RP3 DUC target requested for reaching capacity targets.
- Only the deviation from the RP3 DUC trend can be exclusively considered related to capacity measures. The deviation from the long-term trend cannot be justified on the basis of capacity measures.

PRB Recommendations

SAFETY

- Poland should define explicit measures to improve maturity levels over RP3 to specifically address Management Objectives needed to be improved for each ANSP individually.
- Poland should ensure consistency between safety levels achieved for RP2 in 2019 and planned starting levels for RP3.
- Poland should define the change management processes and transition plans to minimize the network impact of planned changes compliant with Commission Implementing Decision (EU) 2017/373).

ENVIRONMENT

- Poland should revise its environmental performance targets to achieve consistency with the national reference values.

CAPACITY

- Poland should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- Poland should decrease the 2019 cost forecast/baseline.
- Poland should revise the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Poland should reduce the cost of capital proposed aligning it to the market risk exposure.
- Poland should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

POLAND

Safety KPA

1.1.1 Target for EoSM for ANSPs

PANSA, Warmia i Mazury Sp. z o.o. and Port Lotniczy Bydgoszcz S.A. have their EoSM targets defined for each year.

The EoSM target levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

Considering PANSA, some relevant measures are proposed. However, the draft performance plan declares to review and adjust the measures once the European Union Aviation Safety Agency (EASA) Acceptable Means of Compliance (AMC) and Guidance Material (GM) is available.

Considering Warmia I Mazury Sp. z o.o. and Port Lotniczy Bydgoszcz S.A., the draft performance plan declares that measures similar to PANSA measures will be applied, however both ANSPs have less mature safety management system than PANSA. Specific safety measures customised for Warmia I Mazury Sp. z o.o. and Port Lotniczy Bydgoszcz S.A. are required.

1.1.3 Interdependencies and trade-offs

Interdependencies and the trade-offs between safety and other KPAs with respect to planned investments are addressed by specific procedures and safety assessments. The draft performance plan stipulates that safety has a priority above others KPAs.

1.1.4 Change Management

The draft performance plan does not address how major airspace changes or improvements to the ATM functional systems will be implemented to minimise the impact on network performance. Further clarification should be requested.

1.1.5 PRB conclusions 

The PRB concludes that the safety performance targets proposed by Poland should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how each ANSP individually will improve maturity levels over RP3 to specifically address Safety Risk Management.
- The PRB will closely monitor the implementation of measures over the RP3 to ensure that sufficient measures are defined for all three ANSPs in its "RP3 watchlist".

The PRB understands that no investments are required to ensure that safety performance targets are achieved, this includes investments needed to improve EoSM levels.

The change management processes and transition plans to minimise the network impact of planned changes compliant with Commission Implementing Decision (EU) 2017/373) are not described.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
PANSA	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3. The declared PANSA starting levels are higher than achieved RP2 2018 levels.

Some specific measures are proposed such as reinforcement of fatigue risk management, continuous improvement of risk management and improving communication with staff and increase awareness of safety within PANSA and with external stakeholders like airlines and airports. The draft performance plan notes that the measures will be reviewed and re-adjusted once EASA AMC\GM is available. The main action supporting the achievement of the targets for RP3 by PANSA will be updating the existing PANSA SMS Development. Described measures are relevant, however, considering PANSA's need to increase in five MO areas, the sufficient effort is required.

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Warmia I Mazury Sp. z o.o.	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

Measures similar to the PANSA measures are applied, however maturity of EoSM of Warmia i Mazury is lower. Specific measures tailored for Warmia I Mazury Sp. z o.o. are required.

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Port Lotniczy Bydgoszcz S.A	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

Measures similar to the PANSA measures are applied, however maturity of EoSM of PL Bydgoszcz is lower. Specific measures tailored for Port Lotniczy Bydgoszcz S.A are required.

1.3.1 Interdependencies and Trade-offs

Interdependencies and the trade-offs between safety and other KPAs with respect to planned investments are addressed by specific procedures and safety assessments. The performance plan stipulates that safety has a priority above others KPAs, however, it also assumes that to satisfy high capacity demands, some safety activities risk to be postponed or rescheduled to less demanding periods (low season).

1.3.2 Change Management Practices

The performance plan declares that "Change management practices and transition plans for the entry into service of major airspace changes or for ATM system improvements, aimed at minimising any negative impact on the network performance."

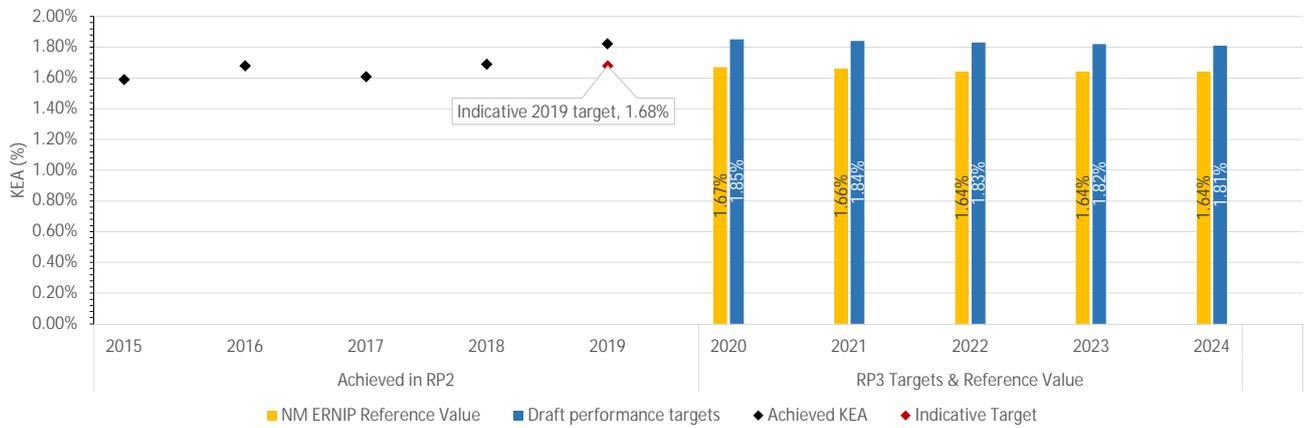
However, no further detail is provided. It is unclear what change management programs or processes are applied to ensure the minimalisation of the impact on the network.

POLAND

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.67%	1.66%	1.64%	1.64%	1.64%
Draft performance targets	1.85%	1.84%	1.83%	1.82%	1.81%
Comparison of draft performance targets with reference values	▲ 0.18%	▲ 0.18%	▲ 0.19%	▲ 0.18%	▲ 0.17%
Consistency with reference values	✗	✗	✗	✗	✗



2.1.2 PRB Conclusions

The PRB concludes that the environment targets proposed by Poland should not be approved.
 - PANSAs horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓
POLFRA was implemented in February 2019 from FL095 to FL660 although the presence of several TMAs means that true FRA is available above FL285.	

Reference in PP	Reference in LSSIP
3.2.1(c)	Page 41

Major ERNIP Recommended Measures:	3
Measure included within performance plan?	
Baltic FAB cross border FRA	✓
Cross-FAB FRA initiatives	✓
Free Route Airspace Warsaw FIR, Phase 4	✓

Reference in PP	Reference in ERNIP
3.2.1(c)	Page 170
3.2.1(c)	Page 18
Implemented	Page 96

FUA Implementation according to latest LLSIP	Implementation
1	✓
2	✓
3	✓

The chart in section 2.1.1 shows that Poland achieved a KEA of 1.82% in 2019 and needed to meet and indicative target of 1.68% in 2019 to attain its national reference value of 1.21% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

The essential factors negatively influencing the situation according to Poland and the reason behind the less ambitious targets are:

- the difference between the STATFOR forecast and the actual growth of the air traffic;
- traffic from/to Russia bypassing Ukrainian airspace;
- route choice of aircraft operators (mainly due to cost-optimisation);
- congestion in parts of European airspace, forcing aircraft operators to fly longer routes to avoid delays;
- increasing military activity, including large military exercises;
- weather.

PRB analysis shows that Poland's network inefficiency has remained stable over RP2, hence, the route choice of aircraft operators, traffic bypassing Ukrainian airspace and congestion has not had a serious impact. Furthermore, Poland's actual traffic was within the high/low STATFOR forecast of February 2014. Finally, weather was accounted for in the target setting process and does not justify less ambitious targets.

To propose its new targets, Poland considered the NM anticipated improvements in KEA (the different between the 2020 and 2024 reference values) and applied that to a higher KEA starting point in 2020. Poland claims this new starting point accounts for historic performance and is more appropriate than the starting value proposed by the NM. The new starting point is higher than the average KEA achieved in RP2.

Poland suggested several initiatives to help achieve improved environmental performance including the reduction of flight buffer zones, separation required for segregated traffic, and re-organisation of TMAs to enable CDA from more directions.

Poland also acknowledged the importance of cross-border FAB FRA and cross-FAB FRA with plans to implement both in 2021/2022 and 2022/2023 respectively.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Poland plan for an environmental incentive scheme?	✗
Poland does not plan to apply an optional incentive scheme for the environment KPA.	

POLAND

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En-route ATFM delay

The targets defined in the performance plan are consistent with the national reference values during RP3, although NOP delay forecast is slightly higher for the last two years of RP3.

Analysis of the Poland planned capacity profiles indicates that capacity profiles are mainly in line with the capacity enhancement measures and the trend set by the national targets.

The presented capacity enhancement measures and capacity plans are coherent, and show that the targets are ambitious, but realistic.

- Performance plan capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	+0%
- NOP delay forecast is lower or equal to the performance plan capacity target	✗	✓	⚠	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

For RP3, the proposed national targets take into account a local forecast and expert simulations of the terminal delays, resulting in higher figures for arrival ATFM delay than RP2 targets and the average observed performance in RP2. These higher delays are foreseen at Warsaw Chopin, Krakow and for Warsaw Modlin, where the performance during RP2 were already below the performance of similar airports. The targets for RP3 further and notably deviate from the performance of similar airports.

3.1.3 Incentives

En route incentives: Pivot value is based on reference values provided in NOP. Delay forecast in NOP shows mixed success in achieving target over reference period with predicted delay falling in deadband (0.23 - 0.28 minutes per flight 2020 - 2024). The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: Poland has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is in line with the national targets for RP3 and the share of CRSTMP delays observed in RP2 with respect to the total observed delays.

The scheme is symmetric and includes a dead band of ±20%. The maximum bonus/penalty is only 0.5%. Given the high target and therefore high pivot values, this scheme does not seem to incentivise to improve or maintain the current performance. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Poland has planned a high number of new investments, however Poland has delivered 87% of the CAPEX planned during RP2 to date (2015-2018).

Major investments are complex projects including elements that may support capacity improvements.

The low level of details provided in the investment description does not allow to make full assessment on capacity contribution and effectiveness of the investment.

A time schedule to ensure implementation should be provided given the complexity of interlinked projects and sub-projects.

3.1.5 PRB conclusions

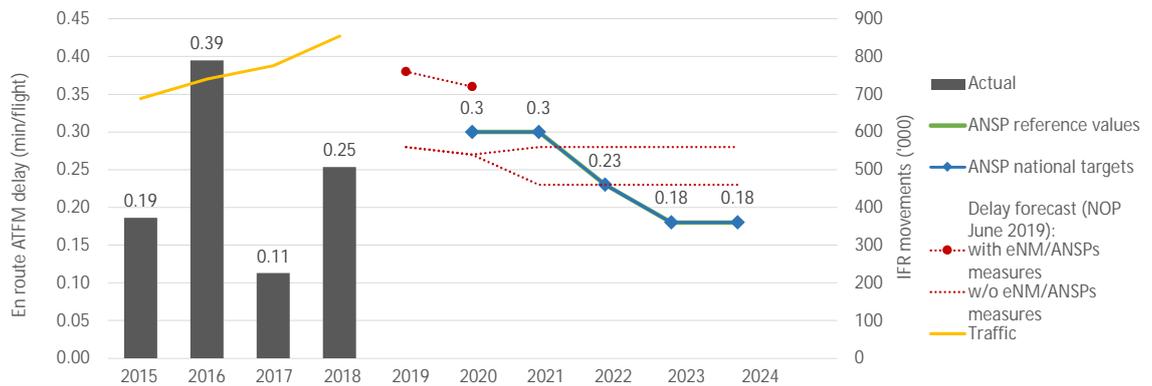


The PRB concludes that the capacity targets proposed by Poland should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Poland will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.

- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en-route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	-0.3%	+7.5%	+4.8%	+10.1%						
Actual ATFM delay per flight	0.19	0.39	0.11	0.25						
ANSP reference values						0.30	0.30	0.23	0.18	0.18
ANSP national targets						0.30	0.30	0.23	0.18	0.18
Forecast with eNM/ANSPs measures*					0.38	0.36				
Forecast w/o eNM/ANSPs measures*					0.28	0.27		0,23-0,28		

* NOP June 2019

- Performance plan capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
- NOP delay forecast is lower or equal to the performance plan capacity target	✗	✓	!	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of performance plan list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The performance plan includes a set of measures to enhance capacity:

- In terms of staffing: increasing efficiency of training, bringing in more ATCOs, flexible staff planning and rostering measures;
- A set of measures focused on increasing the number of sectors and sector open times;
- Development of FRA - successive introduction with neighbouring ANSP - Cross Border FRA;
- Adaptation of the air traffic management system to operational needs and modernisation of the ATM System;
- Improvement of comprehensive airspace management;
- Development of tools supporting ATCOs and flow management optimisation (including Traffic Complexity Tool);
- Investments in infrastructure (CNS) allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace;
- ATFCM techniques including STAM – less sectors overload;
- FMP dynamic management: reaction on “core area”- tactical reduction of delays, closer cooperation with AUs, dynamic capacity/occupancy management, offload rerouting scenarios;
- Full implementation of A-CDM at Warsaw Chopin airport (evaluation phase), local CDM with regional airports.

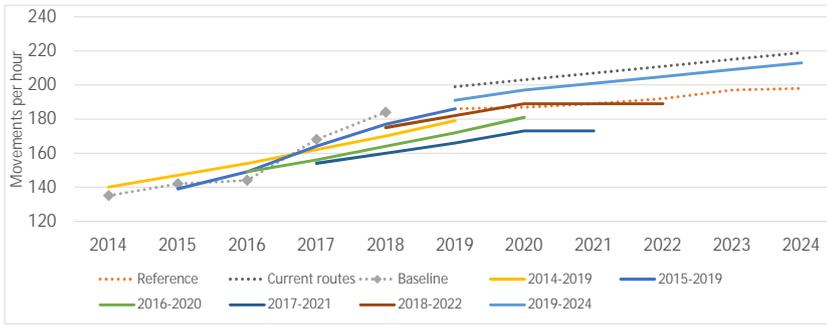
ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Warsaw ACC (EPWW)	Additional ATCOs in OPS to start working in the OPS room	0	7.5	21	11	12	12	12
	ATCOs in OPS to stop working in the OPS room	0	0	2	0	0	0	0
	ATCOs in OPS to be operational at year-end	158.75	166.25	185.25	196.25	208.25	220.25	232.25
Total - PANSA (en-route)	Additional ATCOs in OPS to start working in the OPS room	0	7.5	21	11	12	12	12
	ATCOs in OPS to stop working in the OPS room	0	0	2	0	0	0	0
	ATCOs in OPS to be operational at year-end	158.75	166.25	185.25	196.25	208.25	220.25	232.25

2024 (end) - 2020 (beg.)	
	+66
	+66

3.2.3 Existing and previous ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) !

Warsaw ACC (EPWW)



- Historical data shows that the baseline values were improving steadily over the past years, especially in 2017 and 2018. These baseline values are actually higher than what was planned for these years. During these years, Poland managed to improve their performance, generating less delay than in 2016 even with increasing traffic.

- Current capacity plans are higher than the reference profile, but are still below the current routes profile for all years of RP3. This means that if traffic flows continue to follow the current routes, there may be a minor capacity gap for Poland.

- Capacity profiles are in line with the capacity enhancement measures and the trend set by the national targets.

- If the restructuring measures are implemented successfully and the NM measures are put in place on a network level, Poland is not expected to face a capacity gap.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						186	187	189	192	197	198
Current routes						199	203	207	211	215	219
Baseline	135	142	144	168	184						
2014-2019	140	147	154	162	170	179					
2015-2019		139	149	164	177	186					
2016-2020			149	156	164	172	181				
2017-2021				154	160	166	173	173			
2018-2022					175	182	189	189	189		
2019-2024						191	197	201	205	209	213

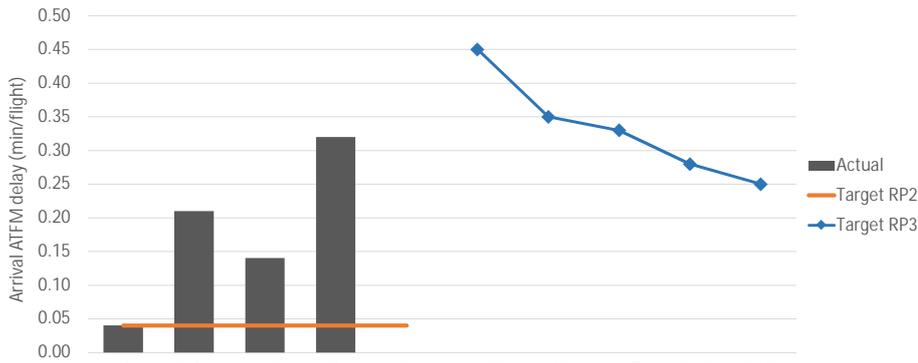
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- Proposed capacity targets are in line with the respective reference delay values, contributing to the achievement of the Union-wide capacity target.
- The existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Poland will have sufficient capacity to meet the forecasted demand and to reach the target.
- Presented ATCO numbers and NOP capacity forecast provide evidence that Poland has sufficient capacity to cope with the expected traffic growth during the first three years of the planning period. In the last two years, NOP delay forecast values are higher than reference values.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.04	0.21	0.14	0.32	-	0.45	0.35	0.33	0.28	0.25
Warszawa/ Chopina (EPWA)	0.03	0.48	0.31	0.68	-	0.95	0.60	0.60	0.54	0.52
Bydgoszcz (EPBY)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Gdansk (EPGD)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Krakow - Balice (EPKK)	0.21	0.05	0.01	0.04	-	0.06	0.35	0.25	0.15	0.07
Katowice - Pyrzowice (EPKT)	0.01	0.00	0.01	0.01	-	0.02	0.13	0.11	0.08	0.03
Lublin (EPLB)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Lodz - Lublinek (EPLL)	0.00	0.04	0.14	0.00	-	0.00	0.00	0.00	0.00	0.00
Warszawa/ Modlin (EPMO)	0.00	0.00	0.00	0.32	-	0.24	0.74	0.65	0.47	0.36
Poznan - Lawica (EPPO)	0.00	0.00	0.02	0.01	-	0.08	0.08	0.08	0.07	0.07
Radom (EPRA)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Rzeszow - Jasionka (EPRZ)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Szczecin - Goleniow (EPSC)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Olsztyn-Mazury (EPSY)		0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Wroclaw/ Strachowice (EPWR)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00
Zielona Gora - Babimost (EPZG)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

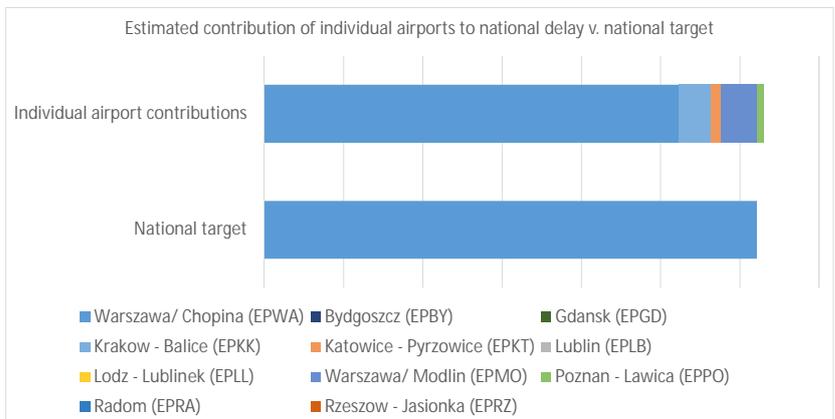
In RP2, Poland largely surpassed the ambitious arrival ATFM delay target of 0.04 minutes per arrival in 2016, 2017 and 2018. For RP3, the proposed national targets take into account a local forecast and expert simulations of the terminal delays, resulting in higher figures for arrival ATFM delay than RP2 targets and the average observed performance in RP2.

Poland has used a local forecast based on the average of base and high forecasts from STATFOR (February 2019). This forecast estimates a CAGR (in IFR movements) of 1.5% for Warsaw Chopin and a collective 3.3% for the other 14 airports. Despite the little traffic increase foreseen for Warsaw Chopin in this forecast, and the multiple measures aimed at capacity increase at the airport, its targets for RP3 are (in average) above the observed performance during RP2.

The targets for Warsaw Modlin are also much higher than the past observed performance (this airport does not observe any delays until 2018). The performance plan argues these targets are set to take into account potential weather delays and other non-related to ATC.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Warszawa/ Chopina (EPWA)	0.64
Bydgoszcz (EPBY)	0.00
Gdansk (EPGD)	0.00
Krakow - Balice (EPKK)	0.18
Katowice - Pyrzowice (EPKT)	0.07
Lublin (EPLB)	0.00
Lodz - Lublinek (EPLL)	0.00
Warszawa/ Modlin (EPMO)	0.49
Poznan - Lawica (EPPO)	0.08
Radom (EPRA)	0.00
Rzeszow - Jasionka (EPRZ)	0.00
Szczecin - Goleniow (EPSC)	0.00
Olsztyn-Mazury (EPSY)	0.00
Wroclaw/ Strachowice (EPWR)	0.00
Zielona Gora - Babimost (EPZG)	0.00
National Target	0.33



Most of the 15 Polish airports included in the performance plan are expected to produce zero or nearly zero delays. The biggest contribution is expected from Warsaw Chopin, followed by Warsaw Modlin and Krakow. Calculations based on RP3 breakdown values and RP2 traffic share, the RP+ national target coincides with the 15 airports' calculated contribution.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015- 2018	Difference v. Median	RP3 average target	Difference v. Median
Warszawa/ Chopina (EPWA)	GROUP III	0.25	0.40	+0.15	0.64	+0.19
Bydgoszcz (EPBY)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Gdansk (EPGD)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Krakow - Balice (EPKK)	GROUP IV	0.01	0.07	+0.07	0.18	+0.17
Katowice - Pyrzowice (EPKT)	GROUP IV	0.01	0.01	+0.00	0.07	+0.07
Lublin (EPLB)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Lodz - Lublinek (EPLL)	GROUP IV	0.01	0.04	+0.03	0.00	-0.01
Warszawa/ Modlin (EPMO)	GROUP IV	0.01	0.08	+0.07	0.49	+0.42
Poznan - Lawica (EPPO)	GROUP IV	0.01	0.01	+0.00	0.08	+0.07
Radom (EPRA)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Rzeszow - Jasionka (EPRZ)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Szczecin - Goleniów (EPSC)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Olsztyn-Mazury (EPSY)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Wroclaw/ Strachowice (EPWR)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01
Zielona Gora - Babimost (EPZG)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80000 and < 225000 and seasonal;
GROUP III - Avg. mvts. in 2016-2018 ≥ 80000 and < 225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The performance of Warsaw Chopin, Krakow and Warsaw Modlin was below the performance of similar airports between 2015 and 2018. As the breakdown values for RP3 are even higher than the delays observed in RP2, these values further and notably deviate from the performance of similar airports.

3.3.5 PRB Key Points

- Warsaw Chopin, Krakow and Warsaw Modlin are the main drivers of terminal delays. These airports perform below the performance of similar airports.
- Breakdown values set for airports are higher than RP2 delay values, thus represent further deviation from the performance of similar airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.02 min	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	No

	2020	2021	2022	2023	2024
NOP reference values	0.30	0.30	0.23	0.18	0.18
Alert threshold (Δ Ref. value in fraction of min)	±0.055	±0.055	±0.052	±0.050	±0.050
Performance Plan targets	0.30	0.30	0.23	0.18	0.18
Pivot values for RP3	0.30	0.30	0.23	0.18	0.18

Threshold review

The threshold is symmetrical around the pivot value, which is based on reference values provided in NOP.

Modulation review

The modulation of pivot values is based on updated reference values from the November edition of the NOP.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty are set at 0.5% of revenue. The delay forecast in NOP shows mixed success in achieving target over reference period with predicted delay falling in dead band (0.23 - 0.28 minutes per flight 2020-2024).

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±20.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.054	±0.000	±0.000	±0.000	±0.000
Performance Plan targets	0.45	0.35	0.33	0.28	0.25
Pivot values for RP3	0.11	0.00	0.00	0.00	0.00

Threshold review

The terminal incentive scheme includes a dead band of ±20% of the CRSTMP pivot value (dead band: 0.086 - 0.130 minutes per arrival). The 20% dead band should be enough to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Poland has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is in line with the national targets for RP3 and the past share of CRSTMP delays with respect to the total observed delays.

Review of financial advantages/disadvantages

The scheme is symmetric. The maximum bonus/penalty is only 0.5%. Given the high target and therefore high pivot values, the past CRSTMP delays (0.04 minutes per arrival average in RP2, which is worse performance than similar airports) would have almost always resulted in the maximum bonus.

3.4.3 Additional capacity incentive schemes

3.4.4 PRB Key Points ✔

En route incentives:

- The pivot value is based on reference values provided in NOP. The delay forecast in NOP shows mixed success in achieving the target over the reference period with a predicted delay falling within the dead band (0.23 - 0.28 minutes per flight 2020 - 2024).
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

- Poland has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is in line with the national targets for RP3 and the share of CRSTMP delays observed in RP2 with respect to the total observed delays.
- The scheme is symmetric and includes a dead band of ±20% . The maximum bonus/penalty is only 0.5%.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	47.5	53.4	60.0	64.1	66.1	291.2
	En route	41.0	45.8	50.9	54.2	55.7	247.5
	Terminal	6.5	7.6	9.1	9.9	10.5	43.6

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	01440701_Campus - construction and design	The project concerns construction of a site that will become the new PANSA headquarters with a new ACC and APP OPS room to take over all operational functions of the facility in Warsaw (excluding EPWA TWR and Training Center). The campus will become the place from which the majority of air traffic (ACC, APP) and auxiliary services for Poland will be performed. More details are provided in Section 2.1 of the performance plan.	99.9	No	Yes	7.3	0.6
2	02440701_Communication systems	The project is directly related to new ATC centres: Campus and ATM OPS Centre Poznań aimed at providing ACC and APP services. The project aims at providing the newly-built air traffic control centres with the necessary communication infrastructure/systems (G-G, A-G) for both voice and data transmission. A part of the project comprises building new radio-communication centres for ATS (ACC). The project covers only COM system for en-route services – does not include TWR units. More details are provided in Section 2.1 of the performance plan.	6.9	No	Yes	2.6	0.0
3	03440701_ATM system with a simulator	The project covers new ITEC core ATM system planned to be installed in the new ATM OPS Center in Poznan and new Campus. ITEC system will be based on the system platform PEGASUS_21 and key components acquired as part of ITEC cooperation, which are jointly developed and financed by a group of leading ANSPs in Europe. Currently, the scope of cooperation includes iFDP modules (Flight Plan Data Processing), iCWP (Controller Working Position) and iMAS (Middleware), but further convergence is foreseen to elaborate a single operational concept and uniform ATM system. ITEC will be primarily dedicated to ACC and APP units – TWR units are to be supported by other systems (following implementation of Electronic Flight progrEss Strips and Virtualization of ATS airport services). More details are provided in Section 2.1 of the performance plan.	30.7	No	Yes	3.7	0.0
4	06440701_VCS system	VCS system (technical devices) for FIR Warsaw (directly related to PANSA new ATC centres: in Poznan and the new Campus, aimed at providing ACC and APP services) with dedicated communication infrastructure. The project consists of equipping the air traffic controller stations in these two new OPS centres with the VCS (Voice Communication System), integrating all available communication systems. The VCS system is required for operational implementation of the new ATC (ACC, APP) centres. More details are provided in Section 2.1 of the performance plan.	11.2	No	Yes	2.2	0.0
5	21440701_ATM OPS Centre Poznań	Construction of an ATC Centre Poznań with required operational and technical infrastructure. ATC Centre Poznan will be the contingency centre for Warsaw FIR, including for EPWW ACC and other regional APP centres. The project consists of building a backup center for air traffic control services located in Warsaw and a main center for the approach control services (APP) for Poznan TMA. The project includes preparation of design documentation, demolition of existing facilities and construction of a new ATC Centre in Poznan together with technical infrastructure allowing further development of the ATM system. More details are provided in Section 2.1 of the performance plan.	20.9	No	Yes	8.4	0.0

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
6	IA480139_ASMGCS	<p>New Radar SMR-2 at Warsaw Chopin Airport with supporting infrastructure, ASMGCS system (level 2+) with working positions for ATCOs at new Warsaw Tower building, integration with other systems used by PANSAs.</p> <p>A-SMGCS implementation requires construction of a new Warsaw Tower - the current EPWA TWR facilities do not provide sufficient space for installation.</p> <p>More details are provided in Section 2.1 of the performance plan.</p>	5.6	No	Yes	0.0	2.2
7	IO450701_Warszawa Tower	<p>New Tower for Warsaw Chopin Airport with related facilities and systems. New TWR Warsaw is required to provide improved capacity at the airport - limitations of current TWR do not allow for installations of new systems and ATCO workstations (there is no place to add new technical equipment) and do not provide full visibility of the airport manoeuvring area. Renovation of the current TWR in Warsaw is not possible during its operational work because of safety and capacity issues. The construction of the new TWR building aims at ensuring continuity of ATS provision at least until the new Solidarity Transport Hub is open (currently no definitive decision is taken on the future of Warsaw Chopin Airport after STH opening).</p> <p>New tower is an enabler for A-SMGCS installation at Warsaw Chopin Airport.</p> <p>More details are provided in Section 2.1 of the performance plan.</p>	9.4	No	Yes	0.8	1.9
8	IP470701_UAV environment development (U-Space Programme)	<p>The name of the investment refers to U-Space/UAV environment for ease of internal processes in PANSAs – despite this name, the scope of the investment does not cover full set of functionalities related to U-Space/UAV environment, but only those related to ensuring efficient interface with ATC/ATM, as covered by PANSAs ANS/ATM certificate. The investment aims at deployment of the ATC interfacing system in line with the SESAR U-space Blueprint and the investment predictions expected from ANSPs on basis of the document European ATM Master Plan: Roadmap for the safe integration of drones into all classes of airspace. This is reflected in the new edition of ATM Master Plan, which is currently finalised and under approval process.</p> <p>The U-space programme at PANSAs includes two projects: "Unmanned Traffic Management integration with ATM systems" and "Tracking of UAVs". Growing number of UAV flights in Controlled Zones (CTRs) showed the need for digitisation of the coordination process and the simplification of flight approval process. The system's primary goal is to support Air Traffic Controllers in providing safe air navigation services to manned aircraft and ensuring separation.</p>	5.9	No	No	0.0	2.5
9	IR470208_Virtualization of ATS airport services	<p>The investment, covering intangible assets and supporting facilities, aims at integration of the existing systems operating independently and other new systems (planned to be implemented in the future) within one system (integration, processing and display of data from various sources). The system will provide data exchange necessary for ATCO/FIS work with technical and operational infrastructure. It will further enable data sharing outside (initially data exchange with airports, later on with the Network Manager) as well as Integration of manned and unmanned aircraft operations around airports.</p> <p>More details are provided in Section 2.1 of the performance plan.</p>	10.7	No	Yes	3.0	0.5
10	IT170202_Tower at the Central Hub Airport	<p>New Tower for Central Hub - construction of a new Tower building with supporting facilities and systems.</p>	14.5	No	Yes	0.1	0.3
11	IT410120_Radar PSR/MSSR Warsaw ASR-10	<p>New radar ASR-10 (replacement of currently used radar ASR-10) with associated infrastructure. New Mode-S functionality is planned to be introduced. The project includes the construction of radar facilities for the needs of approach control (with the possibility of using it also for area control).</p> <p>More details are provided in Section 2.1 of the performance plan.</p>	5.5	Yes	No	1.5	0.0
12	IT430803_Radar PSR/MSSR Gdańsk	<p>New radar PSR/MSSR (replacement of currently used radar PSR/MSSR) with associated infrastructure. New Mode-S functionality is planned to be introduced. The project includes the construction of radar facilities for the needs of approach control (with the possibility of using it also for area control).</p> <p>More details are provided in Section 2.1 of the performance plan.</p>	5.8	Yes	No	1.6	0.0
13	IT430900_Modernization of the ATM system	<p>Continuation of maintenance and development of Pegasus_21 ATM system installed in 2013 (the existing core ATM system in PANSAs). Scope of changes foreseen for RP3 covers, i.a. implementation of third layer of vertical split, increasing number of ATCO workstations, support to full Mode-S implementation, ongoing implementation of recommendations following incident investigation, implementation of functionalities supporting coordination with TWR electronic flight strips system and implementation of changes supporting cross-border OLDI shortcuts (precondition for cross-border FRA).</p> <p>More details are provided in Section 2.1 of the performance plan.</p>	21.2	Yes	Yes	2.5	0.4
14	IT440732_MLAT system for FIR Warsaw	<p>Implementation of MLAT system for FIR Warsaw - investment is an element of SUR modernisation and development in PANSAs to ensure continuity of ANS through multiple radiolocation coverage in FIR Warsaw (in particular SUR for APP and better coverage for ACC) and to implement Mode-S functionalities.</p> <p>More details are provided in Section 2.1 of the performance plan.</p>	8.3	Yes	Yes	3.9	0.4

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
15	IT460706_System ATIS smartMET/NAV EPLL, EPOMO, EPSY, EPRA and EPLB	Intangible assets and supporting facilities. The project covers a number of systems and integrations. It is an enabler for future data digitalisation and implementation of D-ATIS. More details are provided in Section 2.1 of the performance plan.	6.5	Yes	No	3.2	0.8
16	IT470203_Radar PSR / MSSR for Central Hub Airport	Construction of a new radar facility for approach control and its operational implementation.	11.8	No	Yes	0.0	0.0
17	IT470405_A-SMGCS for Central Hub Airport	ASMGCS system, including new SMRs, with working positions for ATCOs at new Solidarity Transport Hub Tower building and integration with other systems used by PANSa. Implementation of tools supporting TWR ATCOs and airport operational personnel in surface movements management and traffic management in the vicinity of the airport.	8.1	No	Yes	0.0	0.0
18	IT480904_A/V Recording FIR Warsaw	Technical facilities and intangible assets - new Audio/ Video - Record Playback System (AV-RPS) for voice and video recording for the operational purpose with new network infrastructure (IP) enabling integration of all audio and visual data recording at locations where such synchronisation is currently not provided. System allowing for recording of voice communication at ATCO workstation and ATM system display with synchronised voice and vision, facilitating data analysis by safety team and technical personnel, meeting requirements of ICAO Annex 10. More details are provided in Section 2.1 of the performance plan.	5.5	No	No	2.8	0.5
Total:						43.6	10.0

Airspace user feedback regarding major investments

Airspace users stated that a number of investments planned for RP2 have not been executed (i.e. A-SMGCS System, Integrated Tower System and TWR, TWR Warsaw, F-K / ERP System) and that these expenditures are postponed for the years 2019 and 2020 onwards. Airspace users note some of these investments again in the RP3 investment plan but understand that Poland does not intend to double charge them for these investments.

Review of investments

Major investments represent 19% of the total determined costs of investments over RP3. Investments #6 and #17 were planned in RP2 and are also included in the RP3 investment plan. However, PANSa ensures that the RP2 plan is expected to be fully delivered and does not expect to roll forward RP2 investment projects towards RP3. In line with this, 2015-2018 actual CAPEX delivery reaches 87% of the planned values for the same period and the underspend amounts to 24.95M€. PANSa provides detailed information on RP2 and RP3 investments and is committed to deliver RP2 projects by the end of the period. The determined costs of the investment #5 and #15 for years 2020-2024 are higher than the declared total value of the investments.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	01440701_Campus - construction and design	Local	Capacity/CEF	Construction of a site that will become the new PANSa HQ; Majority of air traffic (ACC,APP) and aux services for Poland will be performed there.
2	02440701_Communication systems	Local	Capacity/CEF	New ATC centers communication infrastructure.
3	03440701_ATM system with a simulator	Network	Capacity/CEF	New iTEC core ATM system
4	06440701_VCS system	Network	Capacity/CEF	VCS system for the new PANSa ATC centers
5	21440701_ATM OPS Centre Poznań	Local	Safety	ATC center in Poznań
6	IA480139_ASMGCS	Local	Capacity	New Radar SMR-2 at Warsaw Chopin Airport
7	IO450701_Warszawa Tower	Local	Capacity	New Tower for improved capacity
8	IP470701_UAV environment development (U-Space Programme)	Local	Safety	Integration of unmanned and manned air traffic
9	IR470208_Virtualization of ATS airport services	Local	CEF	Integration of new and existing systems into one package
10	IT170202_Tower at the Central Hub Airport	Local	Capacity	New tower for Central Hub
16	IT470203_Radar PSR / MSSR for Central Hub Airport	Local	Capacity	New Radar facility for approach control
17	IT470405_A-SMGCS for Central Hub Airport	Local	Capacity	ASMGCS system
18	IT480904_A/V Recording FIR Warsaw	Local	None	Technical facilities for Record Playback System

Additional information

The performance plan provides detailed justification of the planned major investments not required by SES legislation. Generally, the major investments not required by the SES regulation are serving as enablers for new technologies and provide more space for ATCO workstations necessary to open more sectors. Current ATC facilities do not provide sufficient space for installation of new technologies, therefore the new investments are aiming to address this issue. As regards the investment #1, that constitutes 34% of the CAPEX for new major investments, PANSa provided detailed justification.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	241.3	103.1	8.3	14.3	19.1	21.8	22.5	86.1
Existing investments			36.3	32.9	30.6	27.1	24.5	151.4

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 30% of the total determined costs of investments over RP3, while existing investments represent 52%. PANSА does not provide details on the investments, while only summarising them as: "These cover a number of investments aimed at capacity increase in FIR Warsaw, both for ER operations and airport operations. These include communication ground stations necessary for increasing ER capacity, MLAT installations, Traffic Complexity Tool development, DVOR/DMEs, ILS/DMEs, voice communication systems, investments related to cybersecurity, radars etc. Large majority of these investments is related to capacity increase - either for ER traffic or in terminal airspace (90% of total PANSА RP3 CAPEX is related to the capacity KPA). Number of investments is related to safety in the Polish airspace. The planned investment projects include functionalities foreseen by the Pilot Common Project."
--	--

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand ✔
- The performance plan introduces many major investments of complex nature that are expected to enable improvements in the airspace management, ATCO planning and ATFCM. The descriptions provided for the investments are generic but help in assuming capacity impacts of some projects. Some projects involve complete construction of new building/centres and the level of provided details does not allow to make assessment of the 'capacity added value' nor effectiveness of the investment. Some projects are considered to be sub-projects supporting the main projects such as investments #1, 5, 16 and 17. Those projects are expected to be deployed either at the end of RP3 or during RP4.
- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ✘
- Complex projects including elements that may support capacity improvements. Details on time and scale of capacity improvement impact are not provided.
- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ✘
- Complex projects including elements that may support capacity improvements. The low level of details provided in description does not allow to make assessment. The complexity of interlinked projects and sub-projects should be associated with an explanation on how to ensure the implementation on time. More information is needed.

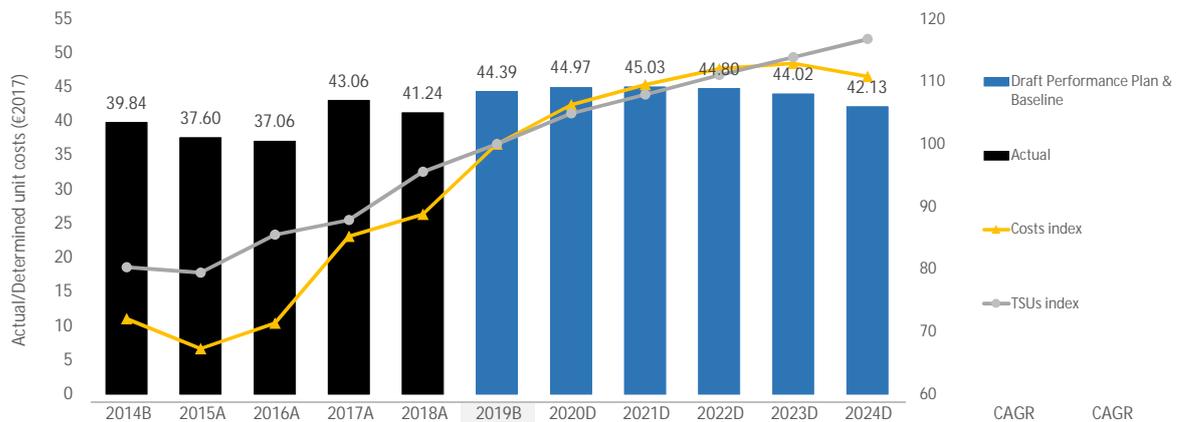
3.5.4 PRB Key Points ⓘ

- Poland has planned a high number of new investments, however Poland has delivered 87% of the CAPEX planned during RP2 to date (2015-2018).
- Major investments are complex projects including elements that may support capacity improvements.
- The low level of details provided in the investment description does not allow to make full assessment on capacity contribution and effectiveness of the investment.
- A time schedule to ensure implementation should be provided given the complexity of interlinked projects and sub-projects.

POLAND

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MPLN (nom)	661	614	650	786	826	-	1,018	1,064	1,105	1,130	1,126	-	+5.5%
Total costs	MPLN (2017)	665	621	658	786	819	922	980	1,010	1,033	1,042	1,022	+2.1%	+4.4%
TSU	'000	3,922	3,880	4,175	4,291	4,666	4,884	5,124	5,271	5,422	5,562	5,703	+3.1%	+3.8%
AUC/DUC	PLN (2017)	169.52	159.99	157.69	183.23	175.49	188.87	191.32	191.60	190.60	187.28	179.25		
Exchange rate	PLN:€				4.255									
AUC/DUC	€ (2017)	39.84	37.60	37.06	43.06	41.24	44.39	44.97	45.03	44.80	44.02	42.13		
Annual change	%		-5.6%	-1.4%	+16.2%	-4.2%	+7.6%	+1.3%	+0.1%	-0.5%	-1.7%	-4.3%	-1.0%	+0.6%

4.1.2 Summary of baseline review

"Is the DUC 2019 baseline consistent with the latest available forecast or is the deviation adequately justified?"	44.39 €2017	✘
<p>The 2019 baseline DUC value is +5.3% higher than the 2019 DUC forecast. Detailed justification is provided in Annex F of the performance plan, with regard to baseline costs, and Annex D of the performance plan, as far as it concerns baseline traffic.</p> <p>The proposed baseline value for en route costs is +5.0% (+10.4M€2017) higher than the 2019 forecast value (which is in turn +7.3% or +14.0M€2017 higher than the 2018 actual). This increase reflects additional financial needs for RP3, not reflected in 2019 forecast due to the limits imposed on PANSAs by national budgetary regulations. As such, PRB considers that these costs are included in the RP3 determined costs, but should not be part of the 2019 baseline costs, since they will not materialise in 2019.</p> <p>The TSUs forecast selected for the computation of en route 2019 baseline are slightly lower (-0.7%) than the TSUs foreseen for 2019 by STATFOR February 2019 base forecast. This deviation is explained by the use of a local forecast, reflecting actual traffic dynamic over the beginning of 2019.</p> <p>An adjusted version of the linear regression model was used to compute the 2019 baseline value.</p>		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-1.0%	✘
<p>Poland, in its draft performance plan, has presented a -1.0% CAGR decreasing DUC trend over the RP3 period. The proposed trend deviates by about +0.9 p.p. from the expected Union-wide RP3 DUC target. However, if the 2019 baseline were in line with the 2019 forecast costs, the RP3 DUC trend would amount to -0.1% CAGR reduction.</p>		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	0.6%	✘
<p>The long-term DUC trend (2014-2024), included in the draft Performance Plan, follows a +0.6% CAGR dynamic. This is significantly different from the -2.7% CAGR set at Union Wide level.</p>		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (40.35 €2017)?	+10.0%	✘
<p>The 2019 baseline DUC level is +10.0% higher than the average 2019 baseline DUC of the comparator group. It is noted that the DUC for Poland is expected to remain well above the average DUC of the comparator group over the whole RP3 period. The 2019 baseline DUC gap vis a vis the comparator group is reduced to +4.7% when a baseline value in line with 2019 forecast is considered.</p>		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		ⓘ
<p>The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend is +61.6M€2017 (+329.6M€2017 from the long term trend).</p> <p>Only the deviation from the RP3 DUC trend can be exclusively considered related to capacity measures. The deviation from the long term trend cannot be justified on the basis of capacity measures.</p>		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a



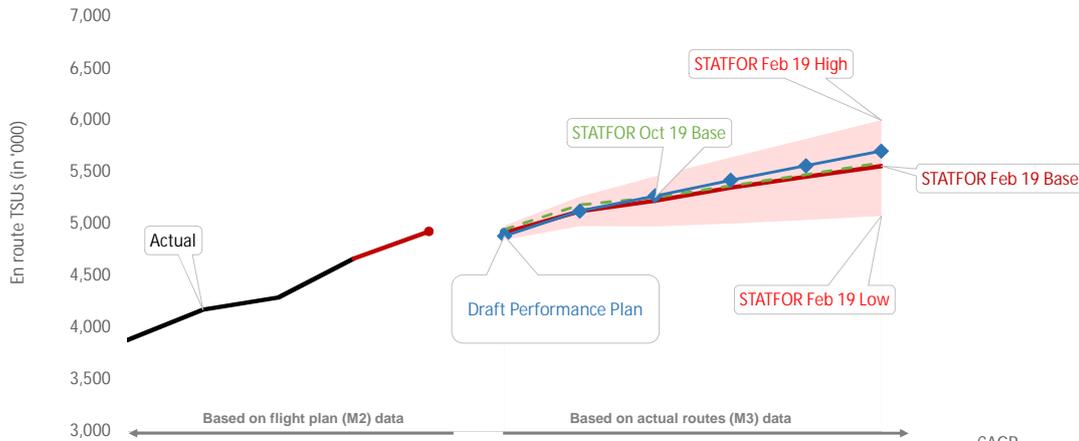
The PRB concludes that the cost-efficiency targets proposed by Poland should not be approved.

- Poland is not meeting any of the cost-efficiency criteria.

- The reported cost of capital is estimated to exceed the maximum risk exposure over the period by 57.5M€, similar to the total deviation from the RP3 DUC target requested for reaching capacity targets.

- Only the deviation from the RP3 DUC trend can be exclusively considered related to capacity measures. The deviation from the long-term trend cannot be justified on the basis of capacity measures.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	3,880	4,175	4,291	4,666								
Annual change	%		+7.6%	+2.8%	+8.8%								
STATFOR Feb 19 Base	'000 TSUs					4,927	4,916	5,123	5,225	5,349	5,454	5,559	+2.5%
Annual change	%					+5.6%	+5.4%	+4.2%	+2.0%	+2.4%	+2.0%	+1.9%	
STATFOR Oct 19 Base	'000 TSUs					-	4,947	5,184	5,258	5,370	5,478	5,590	+2.5%
Annual change	%					-	+6.0%	+4.8%	+1.4%	+2.1%	+2.0%	+2.0%	
Performance Plan	'000 TSUs						4,884	5,124	5,271	5,422	5,562	5,703	+3.1%
Annual change	%						+4.7%	+4.9%	+2.9%	+2.9%	+2.6%	+2.5%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (performance plan baseline, M3)	4,884		
2019F (as in the Reporting tables, M2)	4,895		
2019B/ 2019F	-0.22%	-0.22%	-0.25%

Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (performance plan baseline, M3)	4,884	
2019F (STATFOR Feb 19, M3)	L 4,846 B 4,916 H 4,983	-0.7%
2019F (STATFOR Oct 19, M3)	L 4,932 B 4,947 H 4,962	-1.3%

The traffic forecast, selected by Poland for the computation of the 2019 en route baseline (4,884 '000 TSUs) is slightly lower (-0.7%) than STATFOR February 2019 base forecast.

This baseline is in line with the 2019 forecast TSUs (4,895 '000) after the application of the three-months CRCO coefficient. The slight deviation from STATFOR is justified by Poland on the grounds of the actual traffic dynamic observed between January and July 2019 (+4.9% vs. same period in 2018). However, if considering the October 2019 STATFOR base forecast, the actual 2019 traffic is expected to be +1.3% higher than the baseline selected by Poland.

Using a slightly lower baseline than STATFOR increases the 2019 baseline DUC, which helps showing a better trend over RP3. However, had the STATFOR February base scenario been used, the impact would be marginal.

4.2.3 Review of the performance plan traffic forecast

✗ Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the performance plan in case of deviation from the STATFOR February 2019 Base forecast
 Poland deviates from the STATFOR February 2019 base forecast and adopts a local forecast for the en route TSUs over RP3. In fact, it is noted that Poland "after careful analysis of the past realisation of STATFOR forecast and evolution of traffic, as well as the local circumstances that were included in the traffic forecast preparation by STATFOR, decided to use for the performance plan for RP3 the SU and SU-L forecast based on its own elaboration". Detailed justification supporting the use of the local forecast is provided in Annex D of the performance plan.

Specifically, it is noted that, over RP2, actual en route TSUs were consistently above the various STATFOR base forecasts (often also above the high scenario). Additionally, local circumstances related to the "geographical and geopolitical situation" in Poland (e.g. significant traffic growth in certain regions, situation in Ukraine, unpredictable out-of-area traffic from Russia, avoidance of German airspace and application of eNM measures), not fully reflected by STATFOR, contributed to the selection of a local forecast.

Review of the performance plan traffic forecast

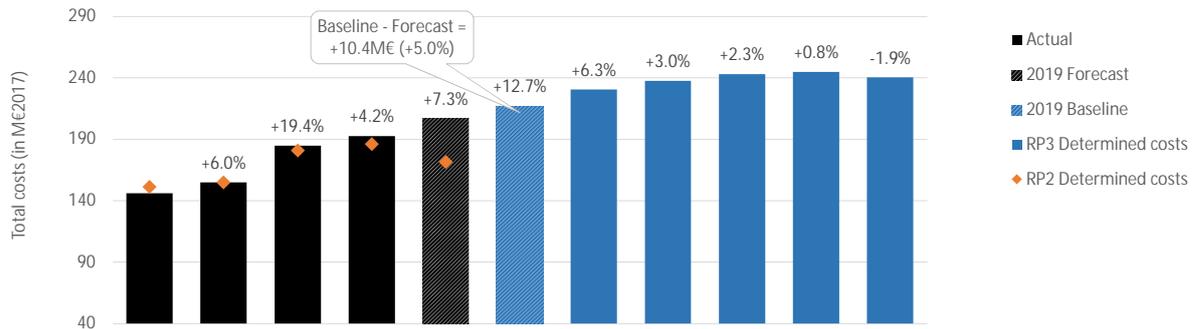
As far as it concerns the 2020-2024 period, the CAA decided to apply to its 2019 baseline a growth rate reflecting the arithmetic average between STATFOR high and base forecasts. The traffic evolution presented by the latest October forecast is slightly higher than the February base one, which reduces the gap between the performance plan and the STATFOR forecasts. Finally, it is noted that the airspace users, consulted on the choice to diverge from STATFOR base, supported the use of a local forecast.

All else being equal, using a higher traffic forecast over the 2020-2024 period improves the RP3 DUC trend.

4.2.4 PRB Key Points

- The traffic forecast proposed by Poland is not in line with the STATFOR February 2019 base forecast.

4.3.1 Overview of en route costs in RP2 and RP3



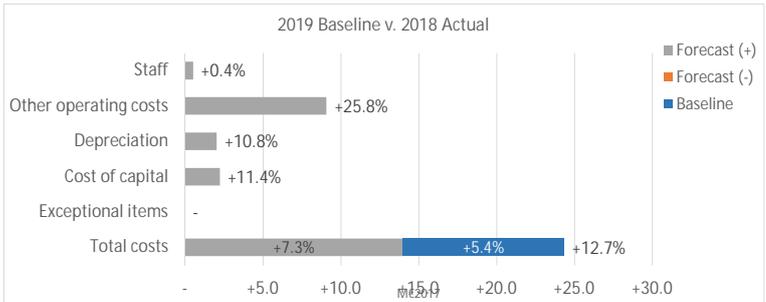
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MPLN (nom)	614	650	786	826	899	-	1,018	1,064	1,105	1,130	1,126	-	PLN:€
Annual change	%	-	+5.9%	+20.9%	+5.1%	+8.8%	-	-	+4.5%	+3.8%	+2.3%	-0.4%	-	4.25483
Inflation index	2017 = 100	98.6	98.4	100.0	101.2	103.2	103.2	105.2	107.2	109.5	111.9	114.5	+2.1%	-
Total costs	MPLN (2017)	621	658	786	819	878	922	980	1,010	1,033	1,042	1,022	+2.1%	-
Annual change	%	-	+6.0%	+19.4%	+4.2%	+7.3%	+12.7%	+6.3%	+3.0%	+2.3%	+0.8%	-1.9%	+2.1%	-
Total costs	M€ (2017)	146	155	185	192	206	217	230	237	243	245	240	+2.1%	-

Is inflation in performance plan in line with IMF (April 2019 forecast)? **Yes**

4.3.2 Baseline review

	M€ 2017	%
2019F v. 2018A	+14.0	+7.3%
2019F v. 2019 RP2 DC	+35.0	+20.4%
2019F v. average 2015-2018	+37.0	+21.8%

	M€ 2017	%
2019B v. 2019F	10.4	+5.0%



2019 forecast analysis

The 2019 forecast en route costs are +7.3% higher than the 2018 actual costs (+14.0 M€2017) and significantly higher than the 2015-2018 average actual costs (+21.8%, or +37.0M€2017). The main contributor to the deviation is PANSA.

The increase in 2019 forecast ANSP's costs, as compared to 2018 actual, is mainly due to significantly higher other operating costs (+25.8%, or +9.1M€2017). According to the information provided in Annex F of the performance plan, this increase mainly results from higher costs for training services (increase of about 2.4M€), related to the training of OPS staff. Additionally, the combined effect of higher costs for external services (due to a general upward trend in salaries and wages in the Polish economy at large) and higher infrastructure-related costs, resulting from the execution of PANSA's investment plan, also contribute to the increase.

Furthermore, depreciation costs and cost of capital increased in 2019 forecast (+4.2M€2017 aggregate) as a result of the new assets put into operation in 2018 and in 2019, resulting from the implementation of the investment plan.

Detailed justifications concerning the expected increase in costs for 2019 forecast are provided in Annex F of the performance plan.

In this respect, it should be noted that, during RP2, Poland had revised upward its en route determined costs for the years 2017-2019 (about +60M€ in nominal terms over the three years), while actual en route costs are expected to be broadly in line with the revised plan over the three years.

2019 baseline analysis

The proposed baseline costs value for en route is about +5.0% (+10.4M€2017) higher than the 2019 forecast costs. This baseline was calculated using an adjusted version of the linear regression model (i.e. regression based on 2015-2018 actual costs, adjusted by the ratio between 2019 forecast and 2019 costs). Additional adjustments were implemented in order to reflect the inclusion of small ANSPs in RP3 and the revision of the 2019 WACC for PANSAs.

According to the justification provided in Annex F of the performance plan, in order to comply with national budgetary regulations, in 2019 PANSAs "was required by its supervisory authorities to limit its costs to the values foreseen in the revised RP2 performance plan, despite additional financial needs stemming, among others, from current operational and technical requirements, higher traffic increase than foreseen in the revised RP2 performance plan and changes in certain legal acts, which put additional obligations on PANSAs". This has led the ANSP to take additional steps in order to limit its 2019 costs (e.g. postponement of certain projects, changing form of execution of certain activities or temporarily changing some internal practices). As a result, "taking this into consideration, PANSAs F2019 is considered to be underestimated".

The main elements and activities not covered by the 2019 forecast, but included in the 2019 baseline, are presented in Annex F of the performance plan. Although the Annex presents a detailed list of additional expenditures included in the 2019 baseline, it is understood that these expenditures represent costs that PANSAs is not actually expected to incur in 2019, due to the national budgetary limits mentioned above, but rather expected financial needs over the RP3 period. In such a case, PRB considers that these costs are included in the RP3 determined costs, but should not be part of the 2019 baseline costs, since they will not materialise in 2019.

On the other hand, two additional entities have been included in the scope of the en route charging zone compared to RP2 (i.e. WiM and Bydgoszcz MET providers). Since this constitutes a change in scope between RP2 and RP3, the inclusion of these costs in the baseline is justified. However, their impact on the total costs is marginal.

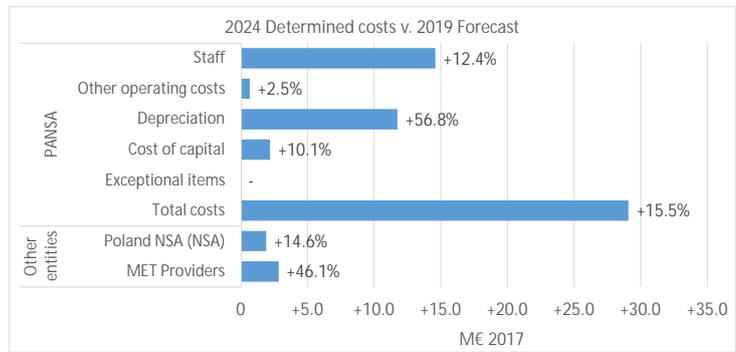
4.3.3 Review of the RP3 determined costs and incentives ✔

Review of cost elements

- ⓘ Investments (see details in 3.5)
- ✘ Cost of capital (see details in 4.3.1)
- ✔ Pension costs (see details in 4.3.2)
- ✔ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



As far as it concerns the RP3 determined costs, these are expected to increase by about +2.1% CAGR between 2019 baseline and 2024 (+23.5M€2017). Since the 2019 baseline is above the 2019 forecast costs, 2024 determined costs are about +33.8M€2017 (+16.4%) higher than the 2019 forecast.

The main contributor to this increase is PANSAs, the costs of which are expected to increase by +15.5% (+29.1M€2017) between 2019 forecast and 2024. Higher costs are mainly explained by higher staff costs (+12.4%, or +14.6M€2017), resulting from the combined effect of additional recruitment, especially of ATCOs and other OPS staff (to improve the capacity situation) and higher salaries (mainly due to basic salary increase for ATCOs and higher remuneration for ATCO students). Additionally, also depreciation costs are expected to increase significantly over the RP3 period (+56.8% or +11.8 M€ 2017), as a result of the execution of the RP3 investment plan (considered by PANSAs as required to tackle capacity issues). The consequent increase in the asset base is expected to impact also the cost of capital (+10.1%), despite the use of a lower WACC compared to RP2.

Finally, it is noted that also the other entities included in the en route charging zone (i.e. NSA and MET providers) are expected to contribute to this cost increase, although their impact is minor when compared to the main ANSP (+4.7M€2017 at aggregate level).

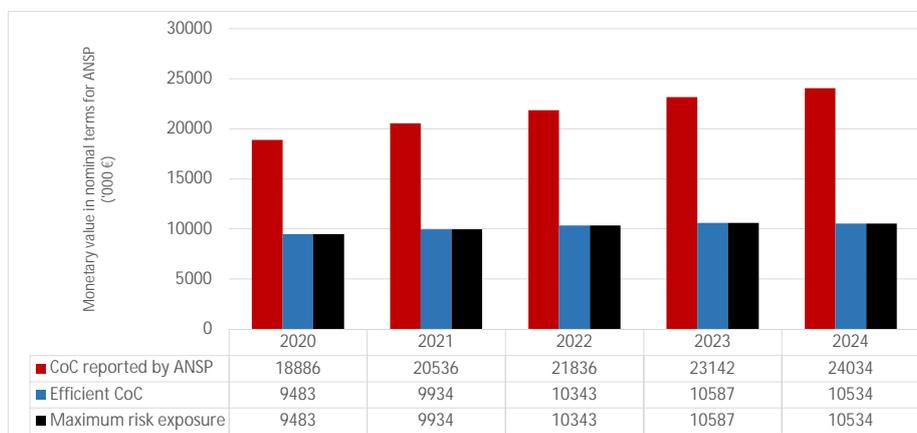
4.3.4 PRB Key Points ✘

- The 2019 cost forecast proposed by Poland is 7.3% above the 2018 value.
- The 2019 baseline proposed by Poland is 5% higher than the 2019 cost forecast. The baseline is computed using an adjusted version of the linear regression model. Part of the costs added to the baseline should not be included.
- Staff and depreciation costs are the major drivers of cost increase over RP3.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	215,529	225,771	235,069	240,609	239,410
Monetary value of Return on Equity	18,886	20,536	21,836	23,142	24,034
Ratio RoE/DC (%)	8.8%	9.1%	9.3%	9.6%	10.0%

4.3.A.2 Cost of capital comparison: reported in performance plan, efficient cost of capital, maximum risk exposure



	2020	2021	2022	2023	2024	Total 2020-2024
Difference CoC reported by ANSP v. Efficient ('000 €)	9403	10602	11493	12556	13500	57,554

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	6.3%	n/a								
Interest on debts	3.8%	n/a	4.3%	n/a	4.6%	n/a	4.6%	n/a	4.6%	n/a
Capital structure (% debt)	0.0%	n/a								
WACC	6.3%	3.2%	6.3%	3.0%	6.3%	3.0%	6.3%	2.9%	6.3%	2.8%

Is the interest on debts in line with the market? n/a

- The ANSP is fully financed through equity, thus no interest on debts is specified. It is not clear why PANSA reports the interest on debts to be used for the efficient cost of capital computation. Indeed, PANSA uses the real equity and debt structure (i.e. multiplying by zero the interest on debt).
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024 the reported cost of capital is 57.55M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 8.8%-10%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	268,960	293,556	312,749	332,600	346,880
Net current assets	31,301	32,931	34,412	35,323	35,214
Adjustments total assets	0	0	0	0	0
Total asset base	300,262	326,487	347,161	367,923	382,094

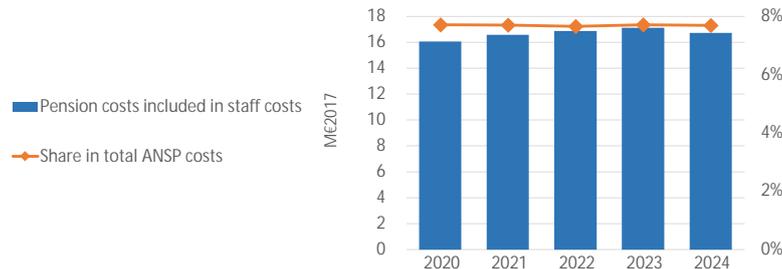
- The fixed asset base increases over the period, broadly in line with the investments as detailed in 3.5.
- The net current assets do not present major issues.
- The RAB does not include adjustments to the total asset base.
- The fixed asset base increases over RP3 mostly due to an increase in the fixed asset base.

4.3.A.5 PRB Key Points



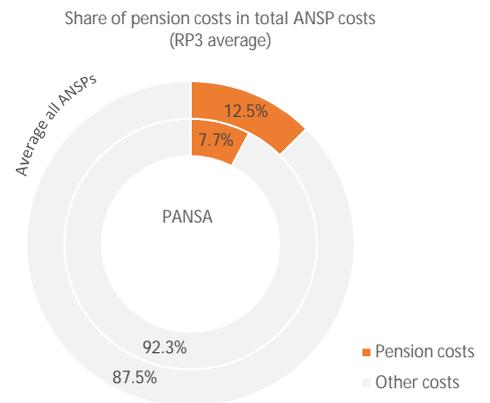
- The reported cost of capital is 57.55M€ above the efficient cost of capital over the period 2020-2024. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs (between 8.8%-10%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	ME2017	16.0	16.6	16.9	17.1	16.7
Year on year variation	% change		+3.2%	+1.9%	+1.5%	-2.4%
Share in total ANSP costs	%	7.7%	7.7%	7.7%	7.7%	7.7%
Year on year variation	p.p.		0.0p.p.	0.0p.p.	0.1p.p.	0.0p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2014? **Stable**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions n/a

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

The pension costs related to occupational "Defined contribution" and State pension schemes are dependent of the number of employees and their salaries. Therefore, PANSA's possible cost control mechanisms relate to the number of employees not exceeding the numbers foreseen in the RP3 performance plan and assumptions on remuneration level (sticking to the assumptions underlying the RP3 performance plan). PANSA is committed to following these assumptions on staff numbers and remuneration level as foreseen in the RP3 performance plan. In case of unforeseen increase in the level of remuneration or number of staff, which could lead to significant increase in the costs of this pension scheme, PANSA has a possibility to limit the level of contribution or to suspend the scheme for a limited period.

4.3.B.4 PRB Key Points ✓

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TRM

- Poland did not change the cost allocation methodology with respect to RP2.
 - PANSAs, for cost allocation purposes, uses the services cost calculation and profitability analysis system built on the basis of activity based costing methodology. The cost calculation system is based on a multi-step allocation principle. Some costs are allocated directly to the en route or terminal services (e.g. ACC ATCOs). Other costs, which are not directly linked with the provision of specific services (e.g. human resources or financial staff), are allocated using the allocation keys catalogue which is included in the model. Poland specifies that keys were constructed in order to reflect in the best possible way the distribution of costs borne in operational activity (e.g. number of operations, number of service units, staff complement, power utilisation etc.).

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

n/a

If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

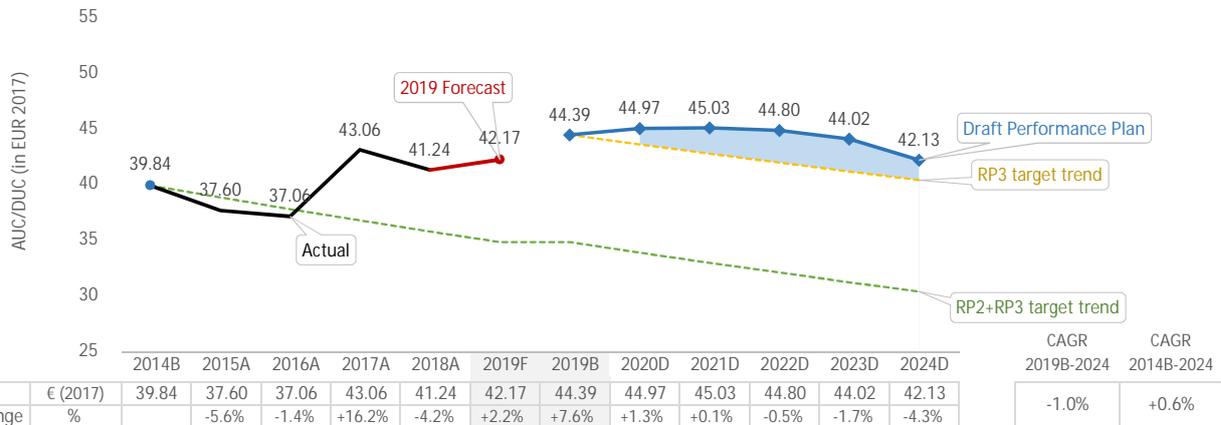
n/a

4.3.C.3 PRB Key Points



- Poland did not change the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-1.0%	Union-wide trend	-1.9%	Difference	+0.9p.p.
PP trend	+0.6%	Union-wide trend	-2.7%	Difference	+3.3p.p.
PP 2019 baseline	44.39	Average comp. group	40.35	Difference	+10.0%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the performance plan restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Poland proposes a -1.0% decreasing DUC trend over the RP3 period. The proposed trend deviates by about +0.9 p.p. from the Union-wide RP3 DUC trend target. As discussed in the costs section, the use of a baseline based on 2019 forecast costs would result in a significant deterioration of the RP3 trend (-0.1% CAGR).

Poland justifies this deviation on the ground of capacity reasons. In fact, as described in Annex R of the performance plan, the DUC trend is negatively influenced by the additional costs required to meet the RP3 capacity targets. Specifically, it is stated that “the capacity measures reflect the additional ATCOs necessary to handle the traffic (net increase over RP2 actual figures) as well as the CAPEX investments that are attributable to cost bases in RP3”. Based on the simulation provided by Poland, it is noted that “without the costs of staff and investments related to measures ensuring required capacity, Poland would reach the EU-wide target at the end of RP3 provided that local target would be at the level of -3.55%”.

As far as it concerns the other two assessment criteria (i.e. long term trend and DUC level consistency with the average DUC of the comparator group), Poland shows diverging trends as compared to the Union-wide values. The 2014-2024 DUC trend amount to +0.6%, while the 2019 baseline DUC is +10.0% higher than the average DUC of the comparator group. It is also noted the Polish DUC is expected to remain well above the average DUC of the comparator group over the whole RP3 period. Nevertheless, if the baseline for 2019 costs were in line with 2019 forecast, the deviation from the comparator group would improve to +4.7%.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets !

Deviation (in M€2017):	v. RP3 trend over the period 2020-2024	+61.6	v. RP2+RP3 trend over the period 2020-2024	+329.6
ATCO planning (en route) (see details in 3.2.2 (1b))				
	Cumulative change in ATCOs in OPS during RP3 (FTEs*)	+178.0	Additional ATCO costs (M€2017)*	+22.2
	* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	
Determined costs related to investments (en route)				
	Total determined costs of new major investments (in M€2017)	43.6	of which, related to capacity (see Section 3.5 for details)	34.6

Analysis

According to the information provided in the draft performance plan, the deviation from the Union-wide DUC target is necessary to meet the capacity targets over the RP3 period, also in the light of the significant traffic increase experienced in the last years.

In order to tackle the capacity problem, Poland plans to undergo a significant recruitment process, aimed at increasing the number of en route ATCOs by +66 FTEs (about 139 new licenses are expected to be issued across the different operational units, according to the information provided at Annex to the draft performance plan). It is noted that ATCOs staff cost is expected to increase also as a result of the growth in basic salary, foreseen by the remuneration scheme, and in ATCO students' remuneration, required to ensure the necessary intake of ATCOs. From the information presented above, it is noted that the estimated additional ATCO costs (+22.2M€2017), is close enough to the estimated staff costs deviation from the Union-wide RP3 target (+34.3M€2017), also considering the increase in remuneration for ATCOs and ATCO students.

As far as it concerns the cost of new investment, this is estimated at about +43.6M€2017. Based on the information provided in the draft performance plan, about 90% of this CAPEX is related to capacity (see Annex R for detailed explanation concerning investments). This is confirmed by the analysis on investments developed in Section 3.5, according to which investments in capacity amount to 34.6M€2017. Overall, this estimation is broadly in line with the deviation of depreciation costs from the expected RP3 trend (+30.9M€2017).

Overall, the impact of these measures on the RP3 determined costs for Poland seems consistent with the expected deviation from the RP3 Union-wide trend, estimated at +61.6M€2017. However, it should be noted that if the 2019 costs baseline were in line with the 2019 forecast, the overall deviation from the Union-wide RP3 target would be significantly higher (+115.9M€2017). The deviation from the Union-wide long-term trend is however not justified (+329.6M€2017).

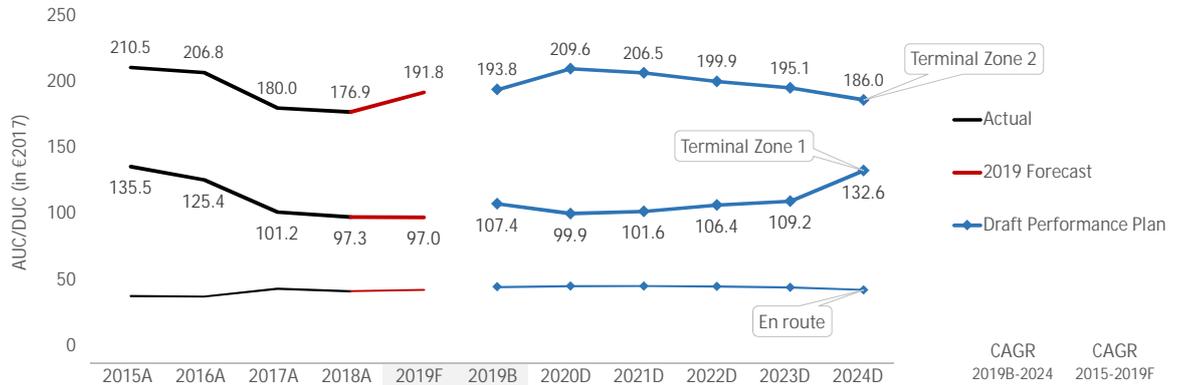
Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? Partially

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✘

- Poland does not meet the DUC trends and the comparator group criteria.
- Only the deviation from the Union-wide RP3 DUC trend may be considered exclusively for the purpose of achieving the capacity targets.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F	
AUC/DUC - Terminal Zone 1	€ (2017)	135.5	125.4	101.2	97.3	97.0	107.4	99.9	101.6	106.4	109.2	132.6	+4.3%	-8.0%
Annual Change	%		-7.4%	-19.3%	-3.8%	-0.3%	+10.4%	-7.0%	+1.7%	+4.7%	+2.7%	+21.3%		
AUC/DUC - Terminal Zone 2	€ (2017)	210.5	206.8	180.0	176.9	191.8	193.8	209.6	206.5	199.9	195.1	186.0	-0.8%	-2.3%
Annual Change	%		-1.8%	-13.0%	-1.7%	+8.4%	+9.6%	+8.2%	-1.5%	-3.2%	-2.4%	-4.7%		
AUC/DUC - En route	€ (2017)	37.6	37.1	43.1	41.2	42.2	44.4	45.0	45.0	44.8	44.0	42.1	-1.0%	
Annual Change	%		-1.4%	+16.2%	-4.2%	+2.2%	+7.6%	+1.3%	+0.1%	-0.5%	-1.7%	-4.3%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Warszawa/ Chopina (EPWA)	GROUP III	171.33	114.7	-33.1%	167.4	110.9	-33.8%
Bydgoszcz (EPBY)	GROUP IV	673.82	374.7	-44.4%	647.6	349.2	-46.1%
Gdansk (EPGD)	GROUP IV	673.82	155.4	-76.9%	647.6	162.2	-75.0%
Krakow - Balice (EPKK)	GROUP IV	673.82	165.8	-75.4%	647.6	160.4	-75.2%
Katowice - Pyrzowice (EPKT)	GROUP IV	673.82	174.7	-74.1%	647.6	158.1	-75.6%
Lublin (EPLB)	GROUP IV	673.82	276.9	-58.9%	647.6	297.9	-54.0%
Lodz - Lublinek (EPLL)	GROUP IV	673.82	466.5	-30.8%	647.6	614.0	-5.2%
Warszawa/ Modlin (EPMO)	GROUP IV	673.82	150.6	-77.6%	647.6	188.0	-71.0%
Poznan - Lawica (EPPO)	GROUP IV	673.82	294.3	-56.3%	647.6	276.4	-57.3%
Radom (EPRA)	GROUP IV	673.82	760.3	+12.8%	647.6	5163.3	+693.3%
Rzeszow - Jasionka (EPRZ)	GROUP IV	673.82	211.1	-68.7%	647.6	315.2	-51.3%
Szczecin - Goleniów (EPSC)	GROUP IV	673.82	242.8	-64.0%	647.6	241.0	-62.8%
Wroclaw/ Strachowice (EPWR)	GROUP IV	673.82	191.6	-71.6%	647.6	185.9	-71.3%
Zielona Gora - Babimost (EPZG)	GROUP IV	673.82	1863.7	+176.6%	647.6	1850.6	+183.8%
Olsztyn-Mazury (EPSY)	GROUP IV	673.82	-	-	647.6	1151.8	+77.1%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

As far as it concerns performance at terminal level, it is noted that the average DUC over the RP3 period for Warsaw airport in TCZ1 is well below (-33.8%) the median DUC of similar airports. Similarly, also the 14 airports included in TCZ2 show, on average, better performance than similar airports (with three exceptions).

In terms of DUC evolution over the RP3 period, the two TCZs follow different trends: while TCZ1 is expected to increase its DUC by +4.3% CAGR between 2019B and 2024 (+2.4% CAGR over the long-term trend), TCZ2 shows a -0.8% CAGR reduction over the same period (-0.5% CAGR between 2015-2024). These trends are higher compared to the DUC trend presented for en route.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (Performance plan baseline) - TCZ1	113.5			
2019F (STATFOR Feb 19)	L 110.5	L 112.5	L 114.6	+0.9%
2019F (STATFOR Oct 19)	L 107.4	L 107.8	L 108.2	+5.3%
2019B (Performance plan baseline) - TCZ2	139.5			
2019F (STATFOR Feb 19)	L 136.9	L 138.9	L 140.2	+0.4%
2019F (STATFOR Oct 19)	L 133.7	L 134.2	L 134.6	+3.9%

Costs

2019 forecast & baseline review	M€ 2017	%
2019 Forecast v. 2018 Actual - TCZ1	+1.1	+11.2%
2019 Forecast v. Avg. 2015-2018 Actual	+1.4	+14.3%
2019 Baseline v. 2019 Forecast	1.2	+10.7%
2019 Forecast v. 2018 Actual - TCZ2	+3.3	+14.1%
2019 Forecast v. Avg. 2015-2018 Actual	+5.4	+25.3%
2019 Baseline v. 2019 Forecast	0.3	+1.0%

As far as it concerns the 2019 baseline at terminal level, both TCZ1 and TCZ2 present higher baseline costs than the 2019 forecast costs (+1.2M€2017, or +10.7% for TCZ1 and +0.3M€2017, or +1.0% for TCZ2). It is noted that the 2019 forecast is itself significantly higher than the 2018 actual costs for both TCZs (+11.2% and +14.1% for TCZ1 and TCZ2 respectively), and in general higher than the 2015-2018 average actual costs.

The presence of specific factors at terminal level (i.e. lack of revision during RP2, significant deviation between actual and planned traffic, strong impact of other-than-PANSA entities on terminal cost-base) mandated the Polish CAA to adopt a different approach for the computation of the baseline values for TCZ1 and TCZ2 compared to the en route methodology (i.e. baseline values computed on the basis of the actual 2018 costs, including additional adjustments).

As far as it concerns the 2019 baseline TNSUs, these are based on a local forecast and computed as the arithmetic average between STATFOR February 2019 high and base forecasts. As a result, 2019 baseline is +0.9% and +0.4% higher than STATFOR base for TCZ1 and TCZ2 respectively. It is finally noted that the October 2019 forecast revised downward the traffic forecasts for 2019 for both the TCZs.

Traffic forecasts (terminal)

	I/L1	I/L2
✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?	No	No

Summary of justifications provided in the performance plan in case of deviation from the STATFOR February 2019 Base forecast

A local traffic forecast was used to estimate TNSUs over the RP3 period at terminal level. For both TCZ1 and TCZ2, local forecasts are computed as the arithmetic average between STAFOR February base and high scenarios. The presence of local circumstances related to the expected capacity constraints at Warsaw Chopin airport and the consequent traffic increase expected in other regional airports, is provided as the main justification for the selection of a local forecast.

Review of the performance plan traffic forecast

As mentioned above, it is noted that Poland proposes a local traffic forecasts based on the arithmetic average between STATFOR February 2019 base and high forecasts over RP3 for both TCZ1 and TCZ2. As a result, for TCZ1 the local forecast is on average +0.9% above the TNSUs foreseen in the STAFOR base scenario over the 2019-2024 period. For TCZ2, TNSUs are expected to be on average +2.3% higher than the base case scenario.

It is noted that the latest forecast (October 2019 base) has reviewed downward the expected TNSUs for both TCZ1 and TCZ2 over the RP3 period as compared to the February one. For both TCZs, the October forecasts is below the February low forecast for 2019 and 2020, and between the low and the base for the remaining years (2022-2024).

Determined costs (terminal)

✓ Is inflation in the performance plan in line with IMF (April 2019 forecast)? Yes

Cost elements - PANSA (terminal)

- 📌 Investments (see details in 3.5)
- ✗ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- Terminal costs (both TCZ1 and TCZ2) reflect about 15% of the total gate-to-gate determined costs. The share of investments and pension costs is consistent with this allocation.

- Terminal WACC and its parameters are equal to the ones of en route.

- As for en route, the RP3 costs increase foreseen at terminal level (+9.6ME2017 between 2019 forecast and 2024) is justified on the ground of capacity reasons. The main contributor to this costs increase is PANSAs (+22.9%, or +7.4ME2017), while the other entities account for about +2.2ME2017 increase.

- The main cost drivers at terminal level are related to the development of the new Solidarity Transport Hub in Warsaw, the necessity to invest in infrastructures to tackle capacity problem at Warsaw airport as well as the development of new MET and AWOS systems (+90.8% increase in depreciation costs). Additionally, the necessity to recruit additional ATCOs and the overall macroeconomic situation in Poland explain the expected increase in staff costs (+11.6%).

4.5.4 PRB Key Points

- The terminal RP3 DUC trend is +4.3% for TCZ1 and -0.8% for TCZ2, worse than the en route RP3 DUC trend of -1.0%.
- The terminal RP3 DUC trend is +4.3% for TCZ1, worse than the terminal RP2 DUC trend of -8.0%. The terminal RP3 DUC trend is -0.8% for TCZ2, worse than the terminal RP2 DUC trend of -2.3%.
- Warszawa Chopin, the main airport (included in TCZ1), had a DUC 33.1% lower than the average of its comparator group over RP2. The difference is expected to be -33.8% over RP3. The DUC of the airports included in TCZ2 ranges from 77.6% lower to 176.6% higher over RP2. The differences are expected to range from 75.6% lower to 697.3% higher over RP3.
- Poland used a custom traffic forecast for terminal traffic. The baseline of this forecast is higher (+0.9% for TCZ1 and +0.4% for TCZ2) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to increases in depreciation and staff costs.

PRB Assessment

PORTUGAL

Draft Performance Plan

Context and scope

Portugal

Performance Plan: Draft performance plan (Article 12) Dated: 21.11.2019
 Documents no: 1718, 1719, 1721, 1722, 1723, 1340, 1349, 1346, 1344, 1326, 1342, 1324, 1331, 1335, 1323, 1329, 1341, 1339, 1338, 1332, 1347, 1348, 1330, 1345, 1327, 1322, 1724, 1325, 1726, 1328, 1725

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 1.8%
 % Costs V. SES 1.5%

Scope

FAB: SW FAB

ANSPs: NAV Portugal (Continental)
 Estado Maior da Força Aérea
 Estado Maior da Armada
 IPMA

ATM/CNS
 Provision of SAR services
 Provision of SAR services
 Met ANSP

Other entities (as per Article 1(2) last para. of Regulation 2019/317): ANAC - Autoridade Nacional da Aviação Civil
 GAMA
 Estado Maior da Força Aérea
 Estado Maior da Armada
 NAV Portugal
 IPMA

National Supervisory Authority
 Authority for Aeronautical Meteorology
 Provision of SAR services
 Provision of SAR services
 ANSP
 Met ANSP

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Portugal Continental	n/a	No	No	No	
Terminal	Portugal - TCZ	11	No	No	No	
Changes in the CZs from RP2		Yes				
<p>Portugal plans to open a new airport in the Lisbon area (Montijo) which has been included in the terminal charging zone and is planned to start operations in 2022.</p> <p>In addition, Portugal has changed the allocation keys for the MET and NSA costs with respect to RP2. Whereas in RP2 these costs were fully allocated to en route, for RP3 they are allocated 15% to terminal 85% to en route.</p>						

Comparator group: Group C Other States in the comparator group: Bulgaria
 Croatia
 Czech Republic
 Hungary
 Poland
 Romania
 Slovakia
 Slovenia

Currency: € Exchange rate: 1.00000

1. Safety 

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
NAV Portugal	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Portugal should be approved.

-The EoSM safety targets are in line with the Union-wide performance targets.

-The PRB notes that some relevant measures to achieve the required safety performance targets have been described.

Interdependencies and trade-off between safety and other KPAs are addressed by actions identified within safety assessment processes. The performance plan declares that safety will not be compromised at any time.

The change management procedures are described, providing assurance of seamless transition and minimal impact on network performance.

2. Environment 

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.76%	1.75%	1.73%	1.73%	1.73%

PRB Assessment

The PRB concludes that the environment targets proposed by Portugal should be approved.

- NAV Portugal's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity 

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.23	0.23	0.16	0.12	0.12
National target for terminal and airport ANS ATFM arrival delay per flight (min)	3.12	3.47	2.69	2.47	2.07

PRB Assessment

The PRB concludes that the capacity targets proposed by Portugal should be approved.

- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

- The PRB will monitor in its "RP3 Watchlist" the implementation of the existing capacity plans and the planned increase of staffing levels to ensure that the targets are being met.

4. Cost-efficiency 

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	36.95	39.90	39.61	40.07	40.79	+1.1%	+2.5%
Target for determined unit cost (DUC) (€2017) - Terminal	141.74	143.26	160.58	169.39	170.53	n/a	+3.7%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Portugal should not be approved.

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.

- DUC baseline is lower than the average of the comparator group and one of the lowest Union-wide.

- The cost deviation from the RP3 DUC trend is higher than the deviation justified (117M€2017 vs. 81M€2017).

PRB recommendations

ENVIRONMENT

- Portugal should ensure that data is reported to understand the impact of re-organising its military airspace to enable more direct routings during times of segregation.

CAPACITY

- Portugal should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.

COST-EFFICIENCY

- Portugal should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.

- Portugal should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

PORTUGAL

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The proposed measures are relevant for improvements of EoSM in all five management objectives. The performance plan recognises that the Safety Risk Management area will need to be improved, however the conservative approach was chosen due to the recent methodology change (not described in detail) that needs to be evaluated. Considering current safety levels and proposed measures, the ANSP is likely to achieve safety target before the end of RP3.

1.1.3 Interdependencies and Trade-offs

The implementation of TOPSKY system is expected to improve the safety KPA. The appropriate measures are planned (training, sector split and team reinforcements) to ensure the safety is never compromised during the implementation process.

1.1.4 Change Management

Two major changes: Point Merge System in Lisbon TMA and Implementation of TOPSKY system, are foreseen during the RP3. They are accompanied with adequate change management processes allowing seamless transition and ensuring minimal negative impact on network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by Portugal should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.

- The PRB notes that some relevant measures to achieve the required safety performance targets have been described.

Interdependencies and trade-off between safety and other KPAs are addressed by actions identified within safety assessment processes. The performance plan declares that safety will not be compromised at any time.

The change management procedures are described, providing assurance of seamless transition and minimal impact on network performance.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
NAV Portugal	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3.

The high level measures are described such as: improvement of the monitoring process of safety indicators, implementation of corrective actions in line with last safety culture recommendations, implementation of just culture policy and procedures, implementation of the SMS to comply with Commission Implementing Regulation (EU) 2017/373, improvement of awareness initiatives under the scope of operational safety (newsletter, local workshops, etc.), new training structure for SMS and revision of the safety policy for NAV Portugal.

The proposed measures are relevant for improvements of EoSM in all five management objectives. The draft performance plan recognises that the Safety Risk Management area will need to be improved, however the conservative approach was chosen due to the recent methodology change (not described in detail), that needs to be evaluated. Considering current safety levels and proposed measures, the ANSP is likely to achieve safety target before the end of RP3.

1.3.1 Interdependencies and Trade-offs

The major change that have positive impact on safety is the implementation of TOPSKY system. This new system will contribute to the achievement of safety targets in the different KPA's, particularly in capacity and safety. The safety improvement is due to additional safety nets allowing safer traffic provision. Implementation of the TOPSKY is associated appropriate mitigations defined based on the safety assessment such as ATCO simulators training, sector splitting and team reinforcement. The safety will not be compromised during implementation of the system.

1.3.2 Change Management Practices

Two major changes are foreseen during the RP3 Period: implementation of Point Merge System in Lisbon TMA and Implementation of TOPSKY system.

The implementation of Point Merge System is accompanied by change management plan developed in cooperation with all involved stakeholders: Eurocontrol, IATA, Portuguese Air Force and main carriers operating in Lisbon, and in line with EU regulation with the involvement of the Portuguese NSA-ANAC.

The implementation of TOPSKY is accompanied by change management process developed by the COOPANS Alliance, which coordinates the management processes.

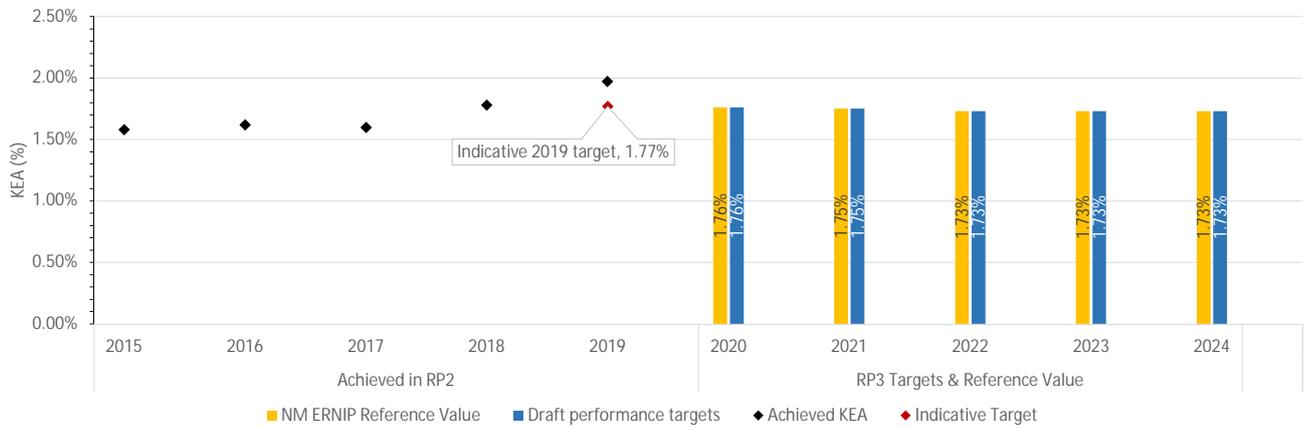
The applied procedures provide the assurance of seamless transition processes with limited negative impact on network performance.

PORTUGAL

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.76%	1.75%	1.73%	1.73%	1.73%
Draft performance targets	1.76%	1.75%	1.73%	1.73%	1.73%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by Portugal should be approved.
 - NAV Portugal's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
The concept of Free Route Airspace was fully implemented in Lisboa FIR, above FL 245, in May 2009. In May 2014 the extension of the concept was achieved to Santiago/Asturias airspace (FRASAI).		3.2.1(c)	Page 47
Major ERNIP Recommended Measures:	1	Reference in PP	Reference in ERNIP
Measure included within performance plan?		3.2.1(c)	Page 166
Free Route Airspace Santa Maria FIR - Phase 2	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Portugal achieved a KEA of 1.97% in 2019 and needs to meet an indicative target of 1.77% in 2019 to achieve the planned target of 1.76% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

Portugal has committed to restructuring existing military areas during RP3 to remove airspace constraints. Despite this commitment, the PRB notes that Portugal has not provided data in the past concerning the environmental performance indicators that gauge the level of civil-military coordination.

Portugal committed to extending the Lisbon FIR free-route airspace to adjacent airspaces in collaboration with its neighbours. Three major cross-border initiatives are planned with partners including the NM, UK, Spain and France to improve the flight efficiency in the SW Axis. To the South, Portugal is actively collaborating with Morocco to extend free-route airspace to Casablanca FIR. To the West, an improvement of the interface between Lisbon FIR and Santa Maria Oceanic is also planned in order to improve flexibility in flight planning for the Oceanic traffic to NAT region.

Several initiatives are planned to improve terminal capacity to avoid flight inefficiencies due to airport bottlenecks.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Portugal plan for an environmental incentive scheme?	✗
Portugal does not plan to apply an optional incentive scheme for the environment KPA.	

PORTUGAL

Capacity KPA

3.1.1 En route ATFM delay

Targets defined in the performance plan are consistent with the national reference values, as defined in the latest version of the NOP 2019-2024. Measures described in the performance plan are aligned with the NOP.

Analysis of current capacity profiles indicates that Portugal has adequate capacity levels if the traffic in RP3 would use the shortest route option, while potential capacity gap could be expected during the RP3 depending on the evolution and distribution of traffic demand (current route profiles).

It should be noted that increased ATCO numbers and measures described in the NOP indicate that an increase in ATCO numbers was not taken into account in the current capacity plan.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✗	⚠	⚠	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

For RP3, the proposed national targets are built based on estimation of the different components (reasons) for the delays, resulting in much higher figures for arrival ATFM delay than both the targets and the average observed performance in RP2. The performance at Lisbon and Porto was already below the performance of similar airports during RP2. The targets for RP3 further and notably deviate from the performance of similar airports.

The proposed targets for RP3 would represent a clear worsening of the delay situation even with the opening of Montijo airport.

3.1.3 Incentives

En route incentives: Pivot value is based on reference values published in NOP and further modulated based on percentage of CRSTMP only delays (attributed by ANSP) in the previous four years: 95.6% of reference value for 2020. Delay forecast in NOP shows that the ANSP is expected to miss the performance plan target in 2020 (all causes), and is likely to incur penalties. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives: Portugal has chosen to modulate the pivot values according to CRSTMP causes. The pivot value will be based on the national targets based on an ADF (Attributable Delay Factor), but the calculation of this ADF is not detailed.

The scheme is symmetric and includes a dead band of ±30%. The maximum bonus/penalty is only 0.5%. Given the high target and therefore high pivot values, this scheme does not seem to incentivise, to improve or maintain the current performance. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

Investment projects are in line with the capacity enhancement measures introduced by the NOP 2019-2024. All projects are complex, which may result in volatility of the deployment process.

All capacity measures including investments projects are expected to bring only about 1% annual increase in capacity along the RP3. Other and new existing investments may address capacity improvements.

3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets proposed by Portugal should be approved.

- The PRB notes that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.
- The PRB will monitor in its "RP3 Watchlist" the implementation of the existing capacity plans and the planned increase of staffing levels to ensure that the targets are being met.

3.2.1 Overview of en route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	+5.1%	+10.8%	+9.7%	+3.3%						
Actual ATFM delay per flight (movements)	0.48	0.21	0.19	0.19						
ANSP reference values						0.23	0.23	0.16	0.12	0.12
ANSP national targets						0.23	0.23	0.16	0.12	0.12
Forecast with eNM/ANSPs measures*					0.15	0.36				
Forecast w/o eNM/ANSPs measures*					0.15	0.36		0.14-0.35		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✗	⚠	⚠	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The performance plan refers to the capacity enhancement measures described in the NOP 2019-2024 (latest edition), such as:

- The Cross-border FRA and optimum sector design alignment with main traffic flows: FRA with Spain, France and UK (part of NM action plan) and FRA extension to Casablanca FIR;
- Implementation of ATFCM procedures;
- Staffing improvements - recruitment at maximum capacity;
- New procedures for dynamic sectorisation and flexible opening schemes.

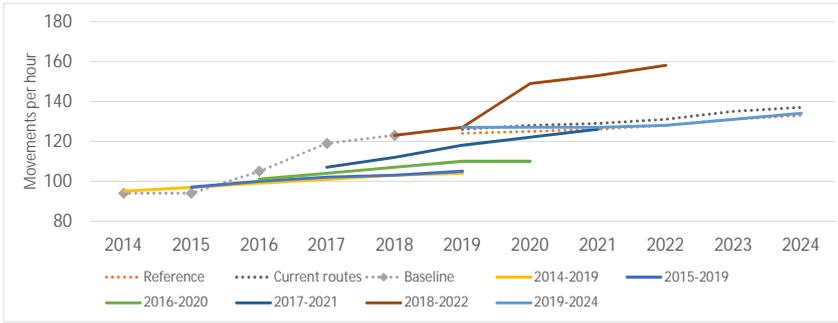
Measures described in the performance plan are aligned with the latest version of NOP.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Lisbon ACC (LPPC)	Additional ATCOs in OPS to start working in the OPS room	0	12	24	23	6	24	24	+64
	ATCOs in OPS to stop working in the OPS room	0	8	8	10	4	9	6	
	ATCOs in OPS to be operational at year-end	142	146	162	175	177	192	210	
Total - NAV Portugal (en route)	Additional ATCOs in OPS to start working in the OPS room	0	12	24	23	6	24	24	+64
	ATCOs in OPS to stop working in the OPS room	0	8	8	10	4	9	6	
	ATCOs in OPS to be operational at year-end	142	146	162	175	177	192	210	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Lisbon ACC (LPPC)



- Historical data shows that the baseline values grow during the observed period. Planned profiles from 2014 till 2026 were higher than the achieved baseline value, while for 2017 and 2018 higher baseline values were achieved than the planned ones.

- The capacity plans of first few years of the RP3 planned for marginal increase of capacity while at the same time traffic grew between around 5% and 10% - allowing delay to be generated. 2018 capacity plan was aligned with the traffic evolution and network requirements.

- The latest planned capacity profiles shows figures that are at or slightly above the reference scenario (up to 0.8%) while at the same time below the current route profiles between 0.8% and 3%. This means that if traffic shifts towards the current route scenario, that Portugal may have a capacity gap.

- It should be noted that the current NOP indicates that capacity planning is constrained by the implementation of a new ATC System in 2021 with training sessions expected prior implementation and dual shadow operation after implementation.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						124	125	126	128	131	133
Current routes						126	128	129	131	135	137
Baseline	94	94	105	119	123						
2014-2019	95	97	99	101	103	104					
2015-2019		97	100	102	103	105					
2016-2020			101	104	107	110	110				
2017-2021				107	112	118	122	126			
2018-2022					123	127	149	153	158		
2019-2024						127	127	127	128	131	134

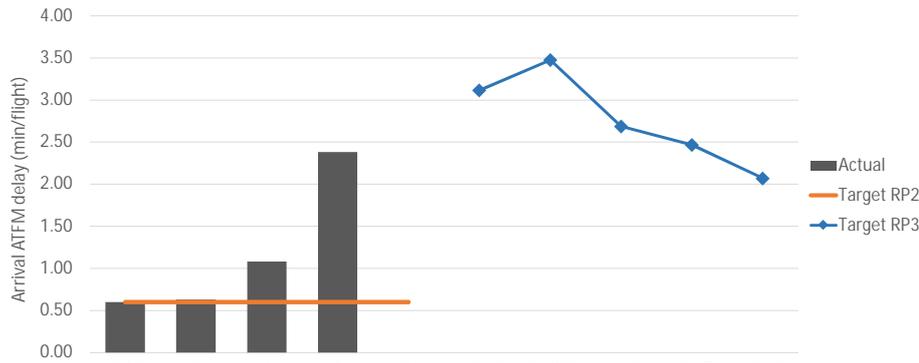
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- The capacity targets proposed by Portugal are equal to the national reference values, contributing to the achievement of the Union-wide performance targets. Target values are below NOP delay forecast values in 2020, 2023, 2024.
- Capacity plans indicate that Portugal has adequate capacity levels if traffic uses the shortest routes, but if the traffic shifts towards the current route scenario then capacity gap may be expected.
- Capacity plan measures are aligned with the latest edition of the NOP, but the increased ATCO numbers (as presented in the RP3 performance plan - by more than 40%) indicate that this increase was not taken into account in the current capacity plan.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.60	0.63	1.08	2.38	-	3.12	3.47	2.69	2.47	2.07
Porto (LPPR)	0.87	0.93	1.22	2.03	-	2.48	2.87	2.36	2.30	2.23
Lisbon (LPPT)	0.79	0.88	1.65	3.82	-	5.06	5.35	4.25	3.75	3.10
Santa Maria (LPAZ)	0.00	0.00	0.00	0.00	-	0.02	0.02	0.02	0.02	0.02
Cascais (LPCS)		0.00	0.00	0.00	-	0.02	0.02	0.77	0.02	0.02
Flores (LPFL)	0.00	0.00	0.00	0.00	-	0.02	0.02	0.02	0.02	0.02
Faro (LPFR)	0.06	0.00	0.00	0.02	-	0.10	0.68	0.10	0.09	0.09
Horta (LPHR)	0.00	0.00	0.00	0.00	-	0.02	0.02	0.02	0.02	0.02
Madeira (LPMA)	0.01	0.02	0.06	0.07	-	0.03	0.81	0.03	0.79	0.03
Ponta Delgada (LPPD)	0.00	0.00	0.00	0.00	-	0.02	0.02	0.02	0.02	0.02
Porto Santo (LPPS)	0.00	0.00	0.00	0.00	-	0.02	0.02	0.02	1.33	0.02
Montijo AirBase (LPMT)*	0.00	0.00	0.00	0.00	-	0.00	0.00	0.02	0.02	0.02

* This airport was not in the scope of RP2 so its past performance is not reflected in the graphic above for 2015-2018.

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Portugal's terminal delays are driven by the performance at Lisbon and Porto, where the delays exceeded significantly the targets during RP2, especially in 2018. The lack of capacity in Lisbon and weather delays in Porto are the main reasons. The plan for RP3 uses the STATFOR base forecast (February 2019) and presents targets that have been calculated using linear regression of the delays due to ATC Capacity, Aerodrome Capacity, Airspace Management and Weather at Lisbon and Porto, and then an estimation of delays due to other reasons.

The use of linear regression is not very adequate to establish the targets for several reasons:

- it is based only on three years (2016-2018), which leads to low reliability (RP2 values too low as shown in the performance plan);
- delays vs. traffic do not follow a linear relation;
- to establish the targets based on the forecasting of the delays assumes there is no improvement in performance, so it does not incentivise any change.

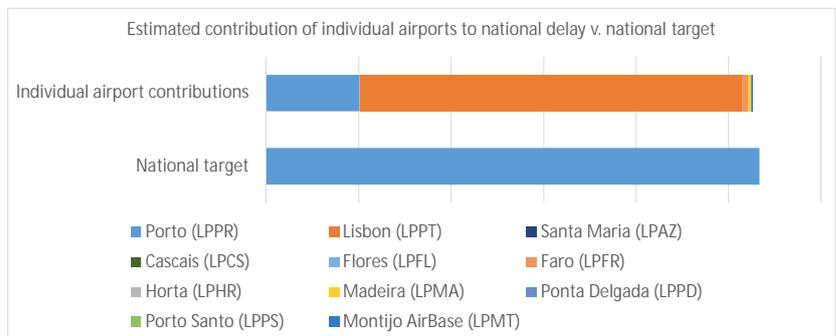
The only reduction in delays considered is due to the opening of Montijo airport.

The estimation of delays for other regulation reasons (O-P-T) is almost eight times higher than those registered in 2016-2018. The main reason for these delays are implementations of new systems and procedures, but no mitigation measures are mentioned in the plan.

In summary, the proposed targets for RP3 would represent a clear worsening of the delay situation and even with the opening of Montijo airport, the targets are far from the performance in the past.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Porto (LPPR)	2.45
Lisbon (LPPT)	4.30
Santa Maria (LPAZ)	0.02
Cascais (LPCS)	0.17
Flores (LPFL)	0.02
Faro (LPFR)	0.21
Horta (LPHR)	0.02
Madeira (LPMA)	0.34
Ponta Delgada (LPPD)	0.02
Porto Santo (LPPS)	0.28
Montijo AirBase (LPMT)	0.01
National Target	2.76



The main contributors to arrival ATFM delays in Portugal according to the plan would be Lisbon and Porto, as it has been the case in the past. According to the targets and past traffic share, the national target contribution coincides with the 98.5% of the airports' targets contribution.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Porto (LPPR)	GROUP III	0.25	1.31	+1.06	2.45	+2.20
Lisbon (LPPD)	GROUP III	0.25	1.90	+1.65	4.30	+4.40
Santa Maria (LPAZ)	GROUP IV	0.01	0.00	-0.01	0.02	+0.01
Cascais (LPCS)	GROUP IV	0.01	0.00	-0.01	0.17	+0.16
Flores (LPFL)	GROUP IV	0.01	0.00	-0.01	0.02	+0.01
Faro (LPFR)	GROUP IV	0.01	0.02	+0.01	0.21	+0.20
Horta (LPHR)	GROUP IV	0.01	0.00	-0.01	0.02	+0.01
Madeira (LPMA)	GROUP IV	0.01	0.04	+0.03	0.34	+0.33
Ponta Delgada (LPPD)	GROUP IV	0.01	0.00	-0.01	0.02	+0.01
Porto Santo (LPPS)	GROUP IV	0.01	0.00	-0.01	0.28	+0.27
Montijo AirBase (LPMT)	GROUP IV	0.01	0.00	-0.01	0.01	+0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The past performance of Lisbon and Porto was below the performance of similar airports. As the targets for RP3 considerably higher than the delays observed in RP2, these targets further and notably deviate from the performance of similar airports.

3.3.5 PRB Key Points



- For RP3, the proposed national targets are built based on estimation of the different components (reasons) for the delays, resulting in much higher figures for arrival ATFM delay than both the targets and the average observed performance in RP2. The performance at Lisbon and Porto was already below the performance of similar airports during RP2. The targets for RP3 further and notably deviate from the performance of similar airports.
- The proposed targets for RP3 would represent a clear worsening of the delay situation even with the opening of Montijo airport.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±20.0%	0.750%	0.750%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.23	0.23	0.16	0.12	0.12
Alert threshold (Δ Ref. value in fraction of min)	±0.052	±0.052	±0.050	±0.050	±0.050
Performance Plan targets	0.23	0.23	0.16	0.12	0.12
Pivot values for RP3	0.22	0.22	0.15	0.11	0.11

Threshold review

Threshold is symmetrical around pivot value, pivot value is not based on reference values published in NOP but is based on % of CRSTMP only delays (attributed by ANSP) in previous four years (2014-2018): 95.6% of reference value.

Modulation review

Several modulations in force: initial modulation of pivot value informed by update of reference value published in November release of NOP from previous year. Additional modulation of pivot value according to share of CRSTMP delay causes (as attributed by ANSP) over the previous four years.

Review of financial advantages/disadvantages

Both maximum bonus, and maximum penalty are fixed at 0.75% of revenue. For 2020, bonus is triggered at 0.176 and full bonus due at 0.169 minutes per flight (76.5% and 73% of reference value published in NOP). For 2020, penalty is triggered at 0.264 and full penalty due at 0.272 minutes per flight (115% and 118% of reference value published in NOP). NOP delay forecast is 0.36 for 2020 (full penalty likely) and between 0.14 and 0.35 minutes per flight for 2021-2024.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±30.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.456	±0.592	±0.344	±0.388	±0.297
Performance Plan targets	3.12	3.47	2.69	2.47	2.07
Pivot values for RP3	0.91	1.18	0.69	0.78	0.59

Threshold review

The terminal incentive scheme includes a dead band of ±30% of the CRSTMP pivot value, enough to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Portugal has chosen to modulate the pivot values according to CRSTMP causes. This pivot value is presented for 2020 and the value for following years is to be set annually. The plan explains that the pivot value is obtained by multiplying the ADF (Attributable Delay Factor) by the target for year n.

Nevertheless, it is not clear how that ADF is calculated. According to the pivot value and target for 2020, the ADF chosen for 2020 is higher than the past share of CRSTMP delays with respect to the total observed delays, and it ADF seems to be calculated based on the different expected delays for each delay reason, as explained in the Annex Q of the performance plan. Portugal is expected to clarify each year how the pivot value and ADF is calculated, if based on historical data or on the expected components of the delay target.

Review of financial advantages/disadvantages

The scheme is symmetric. The maximum bonus/penalty is only 0.5%.

Given the high target and therefore high pivot values, the past CRSTMP delays (0.26 minutes delay per arrival average in RP2) would have almost always resulted in the maximum bonus.

3.4.3 Additional capacity incentive schemes n/a

En route incentives:

- Pivot value is based on reference values published in NOP and further modulated based on percentage of CRSTMP only delays (attributed by ANSP) in the previous four years: 95.6% of reference value for 2020.
- Delay forecast in NOP shows that the ANSP is expected to miss the performance plan target in 2020 (all causes), and is likely to incur penalties. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

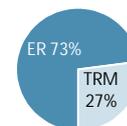
- Portugal has chosen to modulate the pivot values according to CRSTMP causes. The pivot value will be based on the national targets based on an ADF (Attributable Delay Factor), but the calculation of this ADF is not detailed.
- The scheme is symmetric and includes a dead band of $\pm 30\%$. The maximum bonus/penalty is only 0.5%. Given the high target and therefore high pivot values, this scheme does not seem to incentivise, to improve or maintain the current performance.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	13.9	25.3	28.3	27.4	28.8	123.7	
	En route	M€ (nominal)	9.9	20.7	21.4	18.9	19.3	90.3
	Terminal	M€ (nominal)	4.0	4.6	6.9	8.5	9.6	33.5

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	TOPLIS - TOPSKY ACC	The project scope is the replacement of Lisbon ACC ATM system in line with the SES/SESAR deployment requirements. The new ATM system being equal to the other COOPANS systems will be compliant with the Single Sky interoperability requirements. Yearly deployments of new builds of the system are planned during the RP3 period.	85.9	Yes	Yes	44.2	0.0
2	TOPLIS - TOPSKY TWR's	The project scope is the replacement of the Lisbon FIR TWR's ATM systems (Porto, Cascais, Faro, Porto Santo and Madeira) by new ones in line with the SES/SESAR deployment requirements. New similar systems will be deployed in the Lisbon Airport (under new major investment 4) and as well on the Montijo new Airport (under new major investment 3).	7.8	No	No	0.0	3.4
3	Lisbon Airport Expansion (ATM, CNS and Infrás)	The project scope is the deployment of the ATM and CNS systems (surveillance), as well as a new TWR building at the Lisbon airport to support the airport capacity expansion.	11.3	No	Yes	0.1	1.4
4	Montijo Airport (ATM, CNS and Infrás)	The project scope is the deployment of the ATM and CNS systems (communications, approach landing, surveillance and meteorological), as well as the ANS systems buildings at the new airport in the Lisbon area at Montijo.	17.9	No	Yes	0.2	4.4
Total:						44.5	9.3

Airspace user feedback regarding major investments

The airspace users do not support the RP3 investment programme of Portugal, due to the lack of details of a cost benefit analysis for the major investments. The airspace users also raised their concerns regarding the CAPEX planned and financed through RP2 but not deployed until RP3 and the possibility of double charging.

Review of investments

New major investments represent 43% of the total determined costs of investments over RP3. These investments for RP3 are justified and the ANSP does not expect to roll the RP2 investment projects to RP3. In line with this, 2015-2018 actual CAPEX is 114% of the planned one for the same period and the overspend amounts to 5.75M€.

The RP2 plan was fully delivered, except for two investments: SSR Mode S and Lisbon Terminal approach Radar replacement (actual CAPEX was lower than originally planned by the end of 2018). However, it is uncertain if the unspent CAPEX for the these two projects will be reimbursed to the airspace users. The determined costs of investment are not consistent with the lifecycle of Investments #1 and #2.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
3	Lisbon Airport Expansion (ATM, CNS and Infrás)	Network, Local	Capacity, Cost-efficiency	The project scope is the deployment of the ATM and CNS systems (surveillance), as well as a new TWR building at the Lisbon airport to support the airport capacity expansion.
4	Montijo Airport (ATM, CNS and Infrás)	Network, Local	Capacity, Cost-efficiency	The project scope is the deployment of the ATM and CNS systems (communications, approach landing, surveillance and meteorological), as well as the ANS systems buildings at the new airport in the Lisbon area at Montijo.

Additional information

No additional information provided by the ANSP.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	0.0	64.5	2.7	2.7	5.0	6.7	7.3	24.4
Existing investments			11.1	10.4	10.0	6.8	7.2	45.5

Description and justification of other new and existing investments in fixed assets planned over RP3

Other new investments represent 20% of the total determined costs of investments over RP3, while existing investments represent 37%. The other investments are mostly related with the replacing of end of life CNS systems as well with the ANS buildings maintenance. Some new CNS technologies are planned to be deployed (e.g. GBAS and windshear systems at Madeira airport). No more detailed information regarding the investments were provided in the performance plan or in the annexes attached to it.

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand



According to the NOP 2019-2024, Portugal will provide sufficient capacity during RP3 owing to introduced measures, which include investment projects enlisted in the performance plan. With the exception to the Investment #2, all other projects are estimated to contribute to the improvement of overall capacity by either supporting other capacity measures or by providing additional capacity. Both, the level of contribution and the investment scale appropriate to the demand are difficult to assess due to low level of details provided in the description of the investment projects. The effectiveness of the investments should have to be assessed on additional data to explain why all introduced measures, including the investments projects, are expected to bring only about 1% annual increase in capacity along the RP3.

Investment #1 is replacement of the ACC ATM system at Lisbon;

Investment #2 is replacement of regional airports' TWR's ATM system contributing to improved overall ATM systems' interoperability across Portugal. Difficult to assess contribution to the capacity improvement;

Investment #3 is a complex project approved as a capacity measure in the NOP, which may result in increase of the Lisbon ATM and airport capacity;

Investment #4 is a complex project approved as a capacity measure in the NOP. The new airport is to provide additional capacity to the constrained Lisbon airport.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan



The investment plan follows the capacity plan of Portugal provided in the NOP 2019-2024. According to the NOP, most of the major investments are part of the approved capacity measures for the RP3, which, if implemented as planned, are expected to provide required capacity. All projects are complex, which may result in volatility of the deployment process. Although the major investments are planned to be operational in the middle of RP3, no capacity gaps are foreseen during the beginning of RP3 due to existing capacity or other measures. Expected benefits to the airspace users are difficult to assess as the relatively high expenditures will offer only small annual capacity increase with low capacity buffer.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented



Due to low capacity buffer along the whole RP3, the impact on capacity in case of the enlisted projects that are delayed or postponed, will have to be evaluated. The investments' interdependency is not known. The new airport at Montijo (Investment #4) is expected to provide additional capacity to the Lisbon airport, which will be at the same time subject to other investments.

3.5.4 PRB Key Points

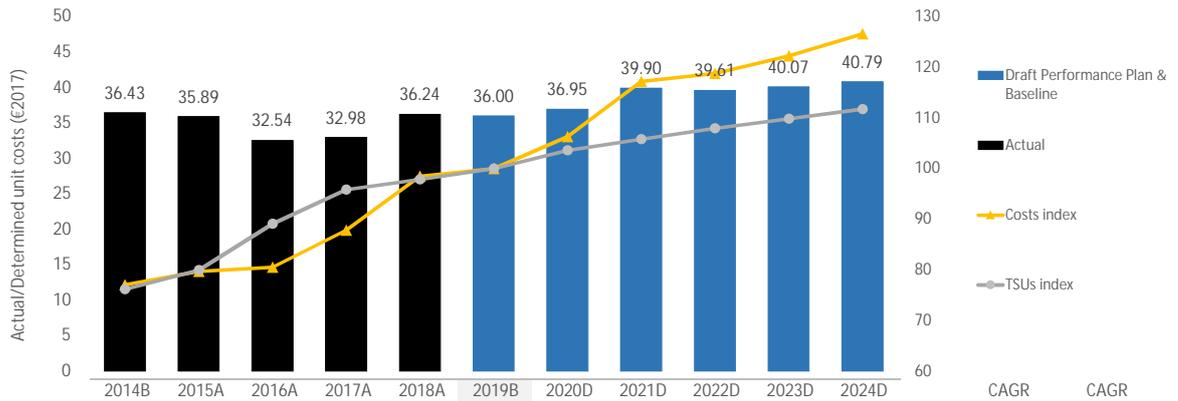


- There is limited information regarding the investments.
- Investments are in line with the capacity enhancement measures introduced by the NOP 2019-2024.
- Projects are complex, which may result in volatility of the deployment process.
- All capacity measures including investments projects are expected to bring only about 1% annual increase in capacity along the RP3.
- More detailed information is needed to assess the impact of investments on capacity. Other and new existing investments may address capacity improvements, but the level of detail provided on those projects is low to make an appropriate assessment.

PORTUGAL

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	107	111	113	125	141	-	156	174	179	187	197	-	+6.3%
Total costs	M€ (2017)	109	113	114	125	140	142	151	166	168	173	180	+4.8%	+5.1%
TSU	'000	3,001	3,150	3,510	3,777	3,856	3,940	4,082	4,168	4,253	4,327	4,402	+2.2%	+3.9%
AUC/DUC	€ (2017)	36.43	35.89	32.54	32.98	36.24	36.00	36.95	39.90	39.61	40.07	40.79		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	36.43	35.89	32.54	32.98	36.24	36.00	36.95	39.90	39.61	40.07	40.79		
Annual change	%		-1.5%	-9.3%	+1.3%	+9.9%	-0.6%	+2.6%	+8.0%	-0.7%	+1.2%	+1.8%	+2.5%	+1.1%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	36.00 €2017	ⓘ
--	-------------	---

Portugal uses the STATFOR February 2019 base forecast for the en route traffic baseline.

As for the 2019 cost baseline, Portugal applies a linear approximation method using the historical actual costs of 2015 and 2018. For RP3, Portugal has also changed the allocation keys between en route and terminal for the MET and NSA costs with respect to RP2. While in RP2 these were fully allocated to en route, in RP3 15% of these costs will be allocated to terminal and therefore baseline and forecast are not directly comparable. Had the same allocation keys as in RP2 been used for RP3, the costs baseline would still be +0.9M€2017 (or +0.7%) higher than the costs forecast.

4.1.3 Summary of cost-efficiency assessment results

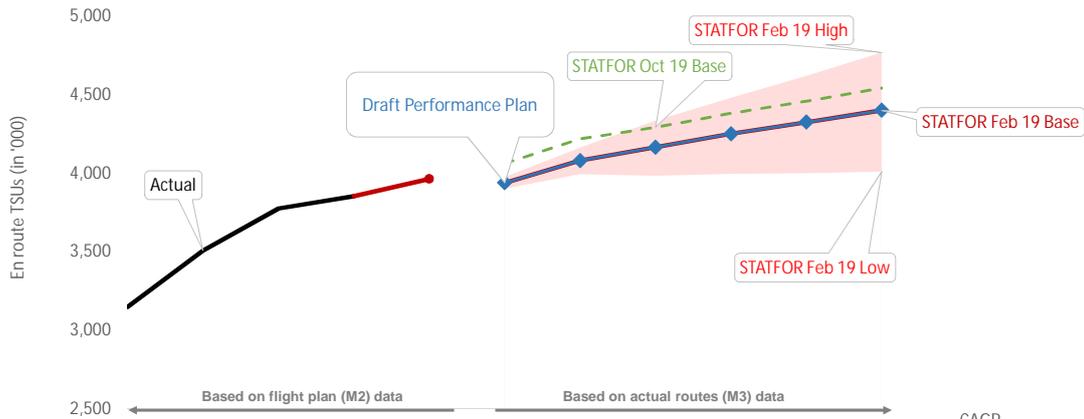
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	2.5%	✗
Portugal does not meet the RP3 trend assessment criteria, with an RP3 trend of +2.5% p.a.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	1.1%	✗
Portugal does not meet the long-term (RP2 and RP3) assessment criteria, with a long-term trend of +1.1% p.a.		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (41.40 €2017)?	-13.0%	✓
Portugal meets the DUC level assessment criteria, with a DUC 2019 baseline -13.0% better than its comparator group. It should be noted that the DUC at the end of RP3 (2024) would be +2.1% worse than the comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?	117.2 M€2017	✗
Portugal submitted a capacity-building plan with a complete set of measures which are considered adequate to meet its targets. However, the evidence provided in terms of costs estimation of these capacity-building measures is insufficient to fully account for the deviation from the trends.		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Portugal should not be approved.

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group and one of the lowest Union-wide.
- The cost deviation from the RP3 DUC trend is higher than the deviation justified (117M€2017 vs. 81M€2017).

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	3,150	3,510	3,777	3,856								
	Annual change	%	+11.4%	+7.6%	+2.1%								
STATFOR Feb 19 Base	'000 TSUs					3,965	3,940	4,082	4,168	4,253	4,327	4,402	+2.2%
	Annual change	%				+2.8%	+2.2%	+3.6%	+2.1%	+2.1%	+1.7%	+1.7%	
STATFOR Oct 19 Base	'000 TSUs					-	4,064	4,220	4,295	4,384	4,461	4,544	+2.3%
	Annual change	%				-	+5.4%	+3.8%	+1.8%	+2.1%	+1.8%	+1.9%	
Performance Plan	'000 TSUs						3,940	4,082	4,168	4,253	4,327	4,402	+2.2%
	Annual change	%					+2.2%	+3.6%	+2.1%	+2.1%	+1.7%	+1.7%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (PP baseline, M3)	3,940			2019B (PP baseline, M3)	3,940	
2019F (as in the Reporting tables, M2)	3,965			2019F (STATFOR Feb 19, M3)	L 3,901 B 3,940 H 3,977	=B
2019B/ 2019F	-0.62%	-0.63%	-0.64%	2019F (STATFOR Oct 19, M3)	L 4,053 B 4,064 H 4,075	-3.05%

Portugal uses the STATFOR February 2019 base forecast and has applied the CRCO M3/M2 February coefficient for the calculation of the 2019 traffic baseline.

It is to be noted that the evolution of the traffic to date (end of October) shows an increase of +5.4% with respect to the same period of 2018, which is higher than foreseen in February.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

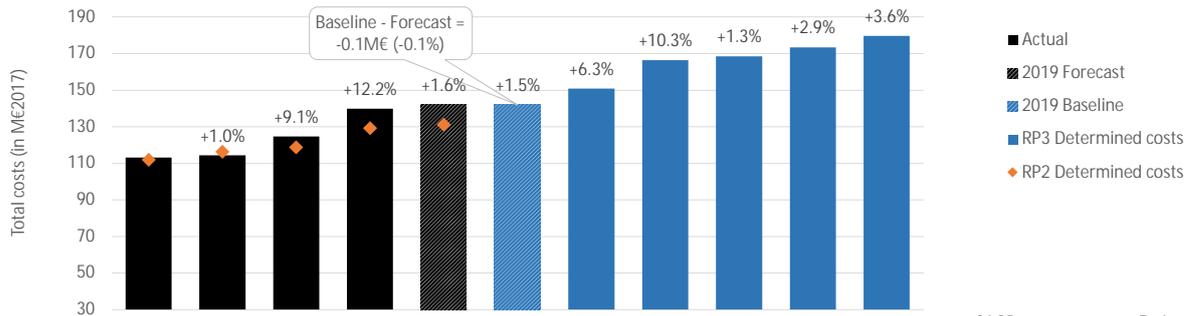
Review of the PP traffic forecast

Portugal uses the STATFOR February 2019 base forecast for RP3, which forecasts an average increase of +2.2% p.a. for the 2019-2024 period.

4.2.4 PRB Key Points

- No major issues identified.

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	ME (nom)	111.0	112.7	124.6	141.2	144.7	0.0	156.0	174.0	178.9	187.3	197.3	-	€:€
Annual change	%	-	+1.5%	+10.5%	+13.3%	+2.5%	-	-	+11.6%	+2.8%	+4.7%	+5.4%	+1.8%	1.00000
Inflation index	2017 = 100	97.8	98.4	100.0	101.2	102.2	102.2	103.9	105.7	107.6	109.7	111.9	-	-
Total costs	ME (2017)	113	114	125	140	142	142	151	166	168	173	180	+4.8%	-
Annual change	%	-	+1.0%	+9.1%	+12.2%	+1.6%	+1.5%	+6.3%	+10.3%	+1.3%	+2.9%	+3.6%	+4.8%	-
Total costs	ME (2017)	113.1	114.2	124.6	139.7	142.0	141.9	150.8	166.3	168.5	173.4	179.6	+4.8%	-

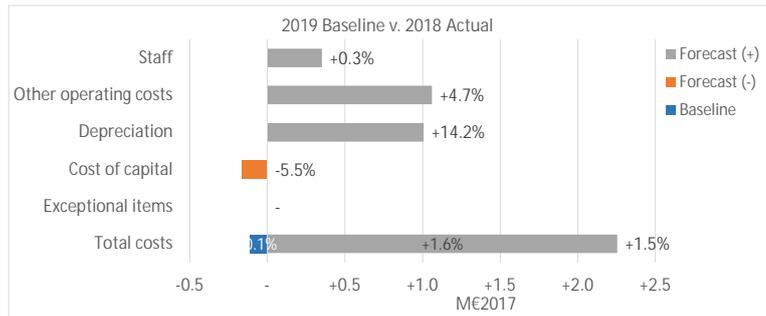
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

The inflation percentage submitted by Portugal in its performance plan slightly differs from the IMF April 2019 forecast for the year 2022 (1.76% by IMF vs. 1.80% in the performance plan) and is consistent with IMF forecast for the rest of the years of the 2019-2024 period. The index deviation by 2024 is only -0.04 p.p.

4.3.2 Baseline review

2019 forecast analysis	ME2017	%
2019F v. 2018A	+2.3	+1.6%
2019F v. 2019 RP2 DC	+10.9	+8.3%
2019F v. average 2015-2018	+19.1	+15.5%

2019 baseline analysis	ME2017	%
2019B v. 2019F	-0.1	-0.1%



2019 forecast analysis
The 2019 costs forecast is +2.3ME2017 (or +1.6%) higher than the 2018 actuals and +10.9ME2017 (or +8.3%) higher than the RP2 determined costs.

According to the performance plan, the costs evolution shown in the graphic in section 4.3.1 above is influenced by the fact that during 2015 and 2016, Portugal was still under the EU rescue conditions, which did not allow to increase salaries or pay overtime despite a significant increase in traffic (+4.3% in 2015 and +11.4% in 2016).

Due to the above, the costs in these years were abnormally low and only by the end of 2017 the measures implemented to cope with the traffic increase (airspace architecture changes and ATCO overtime) started having an effect on the costs, with the situation normalising in 2018.

The level of the 2019 costs forecast represents the continuation of the above-mentioned measures to provide capacity and cope with the traffic increase, which is again significant in 2019 (+5.4% year-to-date compared to 2018).

It is however relevant that, due to the high traffic increase experienced, Portugal revised its RP2 performance plan with the revision affecting the determined costs of the years 2018 and 2019.

2019 baseline analysis

Portugal used a linear approximation method for the calculation of the 2019 costs baseline using the historical actual costs of 2015 and 2018 resulting in a value of 141.9ME2017. Portugal discarded using the linear regression method because it considers 2016 and 2017 as exceptional years (see above) which would inadequately bias the result. It also discarded using a moving average because it does not allow to take into consideration the impact of the evolution of the service units which, for Portugal is particularly important due to the large traffic increase experienced.

The cost baseline was calculated using different allocation keys between en route and terminal for the MET and NSA costs than those used in RP2. Whereas in RP2 these were fully allocated to en route, in RP3 15% of these costs will be allocated to terminal and therefore baseline and forecast are not directly comparable.

Having had the same allocation keys as in RP2 been used for RP3, the costs baseline would have been +0.9ME2017 (or +0.7%) higher than the costs forecast.

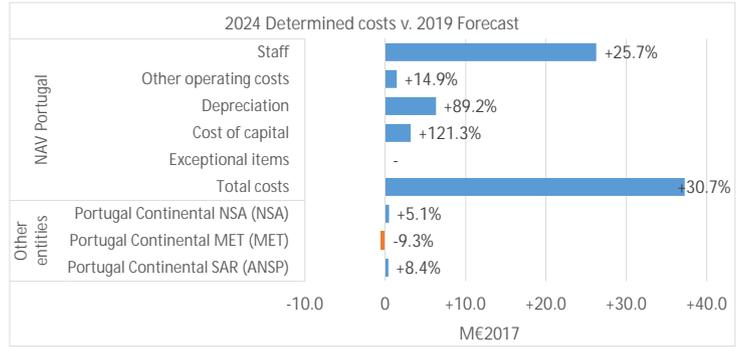
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 🚩 Investments (see details in 3.5)
- ✅ Cost of capital (see details in 4.3.1)
- ✅ Pension costs (see details in 4.3.2)
- 🚩 Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.75%
Maximum penalty (% of determined costs)	0.75%
Additional incentives?	No



The ANSP costs in 2024 are +30.7% (or +37.3M€2017) higher than in 2019, which represents an increase of +5.5% p.a.

The main driver for this increase is the staff costs, which are +25.7% (26.3M€2017) higher in 2024 than in 2019, although there is a significant increase also in depreciation and cost of capital.

The increase in staff costs partly reflects an increase in the number of ATCOs (+37 FTEs) during the period, however, it is also affected by increases in the average unit employment costs (approximately +3% p.a. in real terms; estimation derived from section 3.4.3 of the performance plan).

The increase in depreciation costs and cost of capital is directly linked to the investment plan, in particular the implementation of the new ATM system (COOPANS Topsky) programmed for 2021.

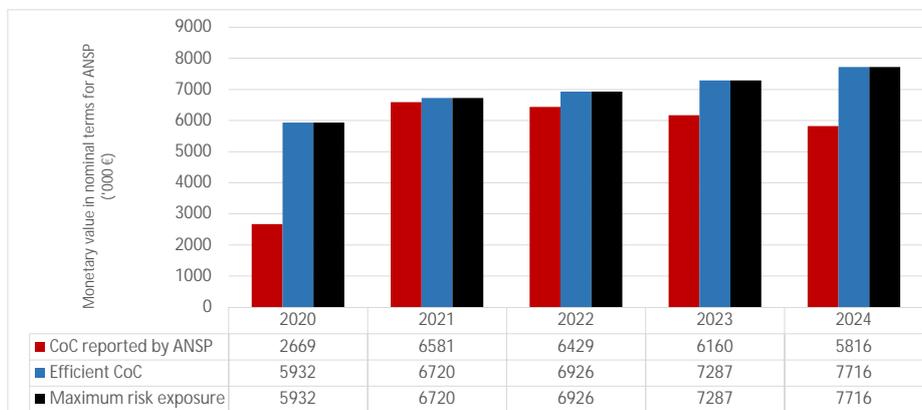
4.3.4 PRB Key Points

- The 2019 baseline value is +8.3% higher than the determined costs, while Portugal revised its performance plan for RP2, in particular the costs for 2018 and 2019. On the other hand, traffic increase is again strong in 2019.
- Costs increases during RP3 are linked to capacity measures (ATCOs and investments), but there is also 3% of annual salary increases in real terms for all staff.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	134,816	152,724	157,410	165,622	175,361
Monetary value of Return on Equity	2,669	6,581	6,429	6,160	5,816
Ratio RoE/DC (%)	2.0%	4.3%	4.1%	3.7%	3.3%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	5.8%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	5.8%	12.9%	5.8%	5.9%	5.8%	6.2%	5.8%	6.8%	5.8%	7.7%

Is the interest on debts in line with the market? n/a

- The ANSP is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

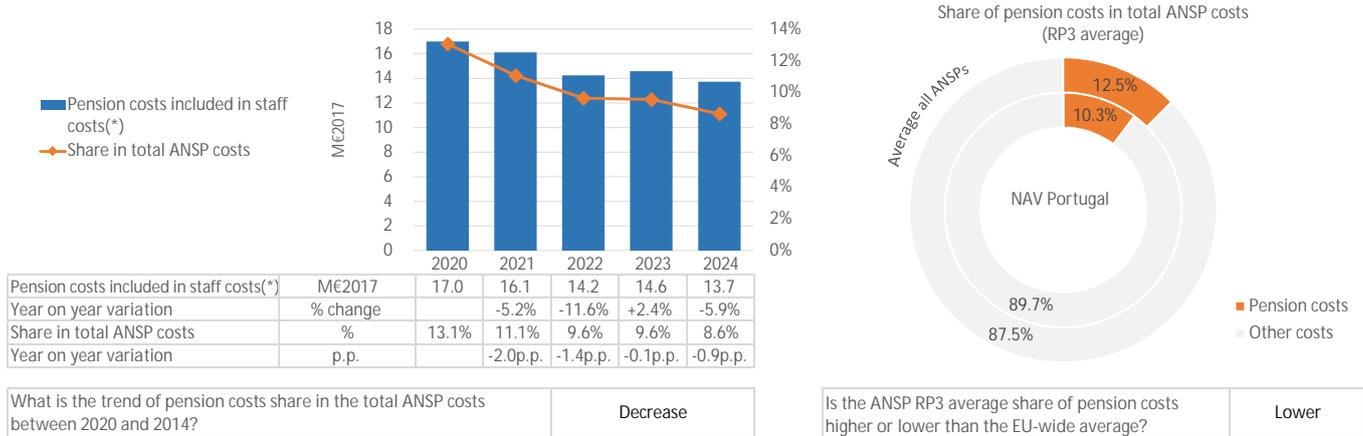
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	26,438	93,769	90,893	85,928	79,671
Net current assets	19,654	19,898	20,149	20,463	20,775
Adjustments total assets	0	0	0	0	0
Total asset base	46,092	113,667	111,043	106,391	100,446

- The fixed asset base registers a significant increase over the period. This is in line with the investments described in section 3.5 of this document.
- The net current assets present no major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base registers a significant increase over the period. This is in line with the increase in the fixed asset base.

4.3.A.5 PRB Key Points

- Despite a large increase in the regulated asset base, the RP3 cost of capital is in line with the maximum risk exposure and does not present any major issues.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **Yes**

For the "NAV SINCTA Pension Fund", which covers all ATCOs employed before 30 September 2007 and who are entitled to old-age, disability and surviving dependant's pension supplements, all annual costs are reported as staff costs in the reporting tables. However, as in the previous reference period, it is expected that the annual contribution to the Fund will be higher than the cost. These extra payments (shown in section 3.4.3.4 of the performance plan table as "costs in respect of non-recurring deficit repair") are not included in the determined costs.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer contribution rate to this scheme is planned to remain at 23.75% for all years of RP3, which is the same as before RP3. It should be noted that this percentage includes not only pension costs but also contribution to public health care. (*) This explains the difference between the pension costs reported in the reporting tables and shown in the graphic above, and those submitted in the performance plan which include the public health care contribution and are therefore significantly higher.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer contribution rates to the defined contribution pension schemes are planned to remain at 8.17% for ATCOs and 5% for non-ATCOs for all years of RP3, which are the same as before RP3.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

NAV Portugal has three defined benefit pension schemes for different categories of staff and depending on their recruitment date. In all cases the actuarial assumptions are planned to remain unchanged for all years of RP3.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

NAV Portugal transitioned from defined benefit (DB) to defined contribution (DC) pension schemes for ATCOs (2007) and non-ATCOs (2012). It is understood that the planned decrease in pension costs between 2020 and 2024 is mainly due to the fact that DB pension costs are planned to decrease in a greater proportion than the increase in DC pension costs as the share of staff covered by the DB scheme (relatively more expensive than the DC scheme) is reducing over time.

For the only remaining DB scheme (early retirement plan for ATCOs) Portugal reports in the performance plan that one potential action to manage the cost increase in this item is the possibility to negotiate with the ATCO Union the increase in the age limit for performing operational duties.

4.3.B.4 PRB Key Points

- No major issues have been identified. ✓

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

Portugal modified the allocation between en route and terminal.

Portugal mentioned in the additional information to the Annex A of the performance plan that there are adjustments in the cost allocation between en route and terminal, namely for MET ANSP and NSA. For the MET ANSP (IPMA), the Air Navigation NSA (ANAC) and the MET NSA (GAMA), a sharing key was used to distribute costs between en route (85%) and terminal (15%).

The cost baseline was adjusted to incorporate the effect of change in allocation criteria between en route and terminal.

Cost allocation is based on the type of activity. Cost centres are defined in accordance with its organisational structure and cover all the activities. Cost allocation is based on the final service provided by each cost-centre to each charging zone.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

Yes

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

Portugal justifies the changes from RP2 to RP3 as "In RP3, and seeking for a more equitable allocation of MET services cost, the distribution has changed, now also including the terminal segment"

2.2. Are these changes in cost allocation duly described and justified?

Partially

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

Yes

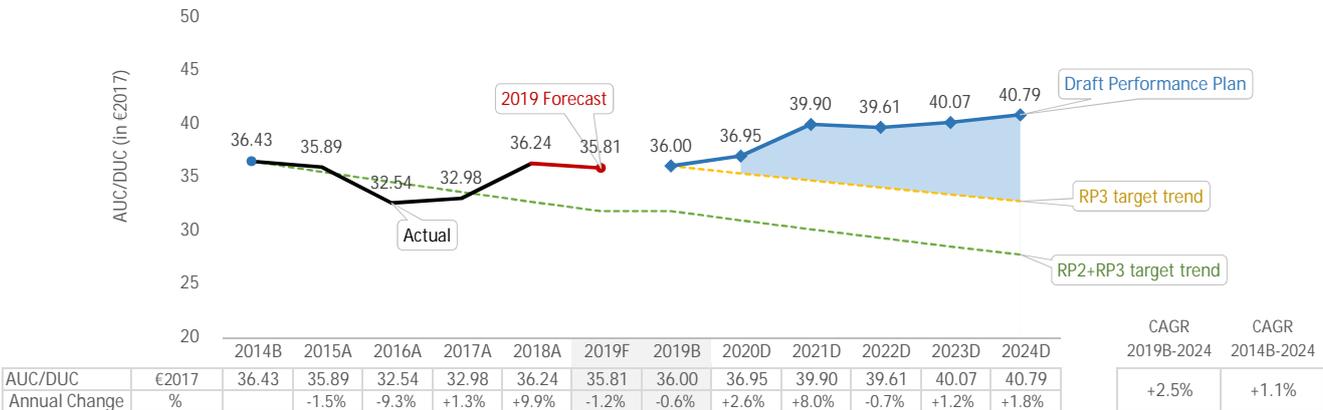
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

Baseline and en route cost base decrease, since part of MET costs are now allocated to terminal.

4.3.C.3 PRB Key Points ⓘ

- Portugal has adjusted the cost allocation between en route and terminal for MET and NSA.
- Differently from RP2, Portugal is now allocating 15% of their MET and NSA costs to en route.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	+2.5%	Union-wide trend	-1.9%	Difference	+4.4p.p.
PP trend	+1.1%	Union-wide trend	-2.7%	Difference	+3.8p.p.
PP 2019 baseline	36.00	Average comp. group	41.40	Difference	-13.0%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Portugal does not meet the RP3 or long term trend assessment criteria with trends (+2.5% and +1.1%) significantly worse than the Union-wide target trends. It is acknowledged that the long term trend is affected by the change of cost allocation methodology between en route and terminal described in section 4.3.C, however, it can be roughly estimated that, had the new methodology been applied during RP2, the long term trend would be approximately +1.2%.

Portugal meets the DUC level assessment criteria with a 2019 DUC baseline -13.0% better than its comparator group. However, it should be noted that by 2024, Portugal's DUC would be slightly (+2.1%) higher than its comparator group.

Portugal considers its cost-efficiency targets consistent with paragraph 1.4 (d)(i) of Annex IV of the Performance and Charging Regulation since the cost deviation from the Union-wide trends is necessary in order to build capacity and meet its capacity targets.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): v. RP3 trend over the period 2020-2024 +117.2 v. RP2+RP3 trend over the period 2020-2024 +217.4

ATCO planning (en route) (see details in 3.2.2 (1b))

Cumulative change of ATCOs in OPS during RP3 (FTEs*) +154.0 Additional ATCO costs (M€2017)* +36.8
 * assuming recruitment on 1st July of the year * calculated using ACE2017 ATCO in OPS unit costs

Determined costs related to investments (en route)

Total determined costs of new major investments (in M€2017) 44.5 of which, related to capacity (see Section 3.5 for details) 44.5

Summary of the measures put in place to achieve the capacity targets

Analysis

The cumulative costs (sum of the determined costs over 2020-2024) are higher than the level of costs strictly needed to achieve the RP3 cost-efficiency target in each year of RP3 by 117.2M€2017.

Portugal states in its performance plan that without the above mentioned measures, the DUC RP3 trend would be approximately -1% p.a. so it would still not be consistent with the Union-wide target. However, Portugal does not provide a full cost breakdown of the above mentioned capacity related measures. In order to provide a rough estimation of whether this deviation of 117.2M€2017 is proportionate to with the measures taken, the two following cost items can be considered:

- The cumulative additional costs for ATCOs planned to start working in the ACC can be estimated at around 36.8M€2017 based on the average unit cost for ATCO in OPS reported in the ACE 2017 report. This does not include training costs.
- The cost of the Topsy system implementation plus other smaller capacity-related projects is reported to be 44.5M€2017 over RP3.

Based on this rough estimation, at least 81.3M€2017 can be directly attributed to capacity related measures. As mentioned above, no estimation of the cost of the airspace design changes and point-merge implementation is provided in the performance plan, nor an estimation of the training costs for the additional ATCOs recruited during RP3. This means that, whereas the cost of capacity-related measures is certainly higher than the estimated 81.3M€2017, there is not enough evidence in the performance plan to fully justify the cost deviation of 117.2M€2017.

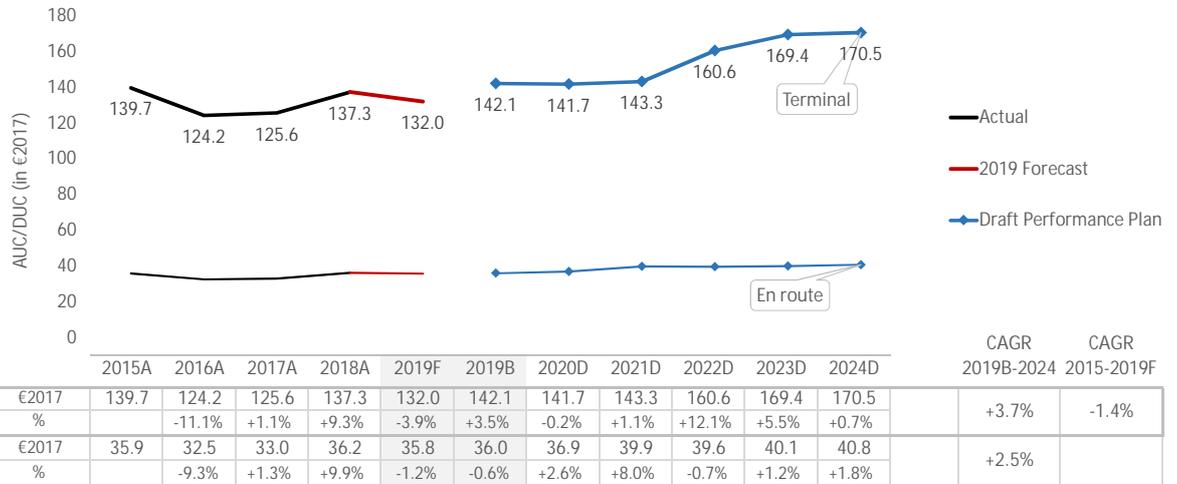
- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points 

- DUC trends are not consistent with neither the Union-wide RP3 DUC trend nor the Union-wide long term trend.
- DUC baseline is lower than the average of the comparator group, and one of the lowest Union-wide.
- The capacity targets are deemed to be consistent. However, the cost deviation from the RP3 DUC trend is higher than the deviation justified (117M€2017 vs 81M€2017). Portugal should provide more evidence in terms of cost breakdown for all the capacity measures.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Montijo AirBase (LPMT)	GROUP IV	673.8	-	-	647.6	-	-
Lisbon (LPPT)	GROUP III	171.3	57.6	-66.4%	167.4	68.6	-59.0%
Santa Maria (LPAZ)	GROUP IV	673.8	1269.6	+88.4%	647.6	1638.9	+153.1%
Flores (LPFL)	GROUP IV	673.8	1545.8	+129.4%	647.6	1396.6	+113.6%
Faro (LPFR)	GROUP IV	673.8	151.0	-77.6%	647.6	165.7	-74.4%
Horta (LPHR)	GROUP IV	673.8	997.9	+48.1%	647.6	1107.5	+71.0%
Madeira (LPMA)	GROUP IV	673.8	391.5	-41.9%	647.6	463.7	-28.4%
Ponta Delgada (LPPD)	GROUP IV	673.8	196.4	-70.9%	647.6	205.2	-68.3%
Porto (LPPR)	GROUP III	171.3	110.4	-35.6%	167.4	116.8	-30.2%
Porto Santo (LPPS)	GROUP IV	673.8	1607.2	+138.5%	647.6	1871.7	+189.0%
Cascais (LPCS)	GROUP IV	673.8	-	-	647.6	3830.1	+491.4%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

- The comparison of cost-effectiveness performance (past and planned) of the airports included by Portugal in its terminal charging zone in relation to their comparator groups can be seen above.
 - It is notable that during RP2, the two main airports in Portugal, Lisbon and Porto, had an average unit cost significantly lower than the median of its comparator group (-66.1% and -35.0% respectively), a trend that will continue during RP3 although the average difference will be slightly reduced to -57.4% and -27.5% respectively.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	286.3			
2019F (STATFOR Feb 19)	L 281.7	B 286.3	H 290.1	=B
2019F (STATFOR Oct 19)	L 287.2	B 288.2	H 289.3	-0.66%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	-0.1	-0.2%
2019 Forecast v. Avg. 2015-2018 Actual	+5.8	+18.2%
2019 Baseline v. 2019 Forecast	2.9	+7.6%

TNSUs:

- As for en route, the terminal traffic baseline used by Portugal corresponds to the STATFOR February 2019 base forecast.

Costs:

- Also as for en route, Portugal uses a linear approximation method for the calculation of the 2019 costs baseline using the historical actual costs of 2015 and 2018 resulting in a value of 40.7M€2017.
 - The cost baseline was calculated using different allocation keys between en route and terminal for the MET and NSA costs than those used in RP2. Whereas in RP2 these were fully allocated to en route, in RP3 15% of these costs will be allocated to terminal and therefore baseline and forecast are not directly comparable.
 - Had the same allocation keys as in RP2 been used for RP3, the costs baseline would be +1.4M€2017 (or +3.7%) higher than the costs forecast.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

Review of the PP traffic forecast

Portugal uses the STATFOR February 2019 base forecast for RP3, which forecasts an average increase of +1.5% p.a. for the 2019-2024 period.

Determined costs (terminal)

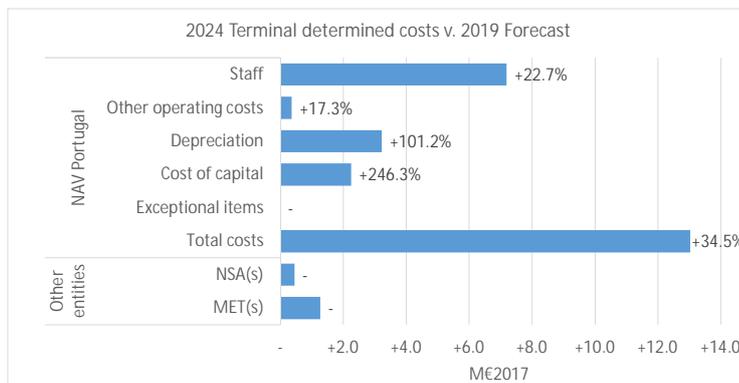
○ Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

Cost elements - NAV Portugal (terminal)

- ⓘ Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



The share of terminal investment costs (27%) is higher than share of terminal costs in the total determined costs (24%).

Terminal WACC and its parameters are equal to the ones for en route.

The RP3 terminal DUC trend is +3.7%, higher than the en route DUC for the same period (+2.5%).

Overall, the costs in 2024 are planned to be +34.5% (or +13.0M€2017) higher than in 2019. The main drivers for the cost increase, as for en route, are staff costs (+22.7%, or 7.2 M€) but significant increases are also planned in depreciation and cost of capital.

The rationale for this cost increase is the capacity-enhancing measures planned in the terminal zone, in particular in the Lisbon area since the main capacity constraint at this moment in Portugal is Lisbon airport. For this reason, a second airport in Lisbon (Montijo) is planned to start operations in 2022.

The project for the new airport with the subsequent need of additional controllers, plus the implementation of the new ATM (Topsky) system in the control towers and APP units of all four TMAs (Lisbon, Porto, Faro and Madeira) explain the cost evolution observed.

4.5.4 PRB Key Points ✖

- The Terminal RP3 DUC trend is +3.7%, worse than the en route RP3 DUC trend of +2.5%.
- The Terminal RP3 DUC trend is +3.7%, worse than the Terminal RP2 DUC of -1.4%.
- Lisbon and Porto, the main airports, had a DUC 66.4% lower and 35.6% lower, respectively, than the average of their comparator group over RP2. The differences are expected to be -59.0%, and -30.2%, respectively, over RP3. The other airports included in the performance plan range from a DUC -77.6% lower to +129.4% higher over RP2. The differences are expected to range from 77.4% to 491.4% higher over RP3
- Portugal used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to an increase in staff costs.

PRB Assessment

ROMANIA

Draft Performance Plan

Context and scope

Romania

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21.11.2019
 Documents no: 1742, 1751, 1747, 1748, 1749, 1750, 1125, 1127, 1126, 1128

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 2.3%
 % Costs V. SES 2.1%

Scope

FAB: DANUBE FAB

ANSPs: ROMATSA

- ATS- AIS- CNS- MET- ATM- ASM

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 Romanian Civil Aeronautical Authority (RCAA)

Competent authority
 Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Romania	n/a	No	No	No	
Terminal	Romania - TCZ	2	No	No	No	
Changes in the CZs from RP2	no					

Comparator group: Group C Other States in the comparator group: Bulgaria, Croatia, Czech Republic, Hungary, Poland, Portugal, Slovakia, Slovenia

Currency: RON Exchange rate: 4.56629

1. Safety ✓

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
ROMATSA	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Romania should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.

The PRB notes that formalised approach assuring that safety has priority over other KPAs has been established and that the changes to ATM functional system will not deteriorate safety. The PRB notes that change management practices described are sufficient to control impact on safety in particular.

2. Environment ✓

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.55%	1.48%	1.40%	1.40%	1.40%

PRB Assessment

The PRB concludes that the environment targets proposed by Romania should be approved.

- ROMATSA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity ✓

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.14	0.14	0.07	0.04	0.04
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.50	0.50	0.50	0.30	0.15

PRB Assessment

The PRB concludes that capacity targets proposed by Romania should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully and NM measures are realised, Romania will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes, that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency ✗

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	36.54	37.42	38.10	37.15	36.81	+0.2%	+1.6%
Target for determined unit cost (DUC) (€2017) - Terminal	252.65	250.33	249.50	241.57	241.34	n/a	-0.1%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Romania should not be approved.

- Romania is not meeting the Union-wide RP3 trend nor the Union-wide long term trend.
- Romania is consistent with the average DUC baseline of the comparator group.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.

PRB Recommendations

SAFETY

- Romania should define measures to improve maturity levels in the area of Safety Risk Management, including explicit measures at the NSA level derived from Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Romania should continue ensuring it offers direct routings where possible and implement an effective SEE FRA.
- Romania should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.

CAPACITY

- Romania should revise the incentive schemes so that they have a material impact on the revenues and motivate the ANSP to improve its performance.
- Romania should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.

COST-EFFICIENCY

- Romania should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Romania should justify the terminal RP3 cost-efficiency targets with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards

ROMANIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The PRB notes that specific measures will be decided based on year-to-year review of the Eurocontrol CANSO Standard of Excellence in Safety Management Systems (SoE in SMS) questionnaire results. Although ROMATSA has already achieved the required C level in four out of five Management Objectives, specific measures in Safety Risk Management could be relevant. Explicit measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be also provided.

1.1.3 Interdependencies and Trade-offs

The performance plan underlines that NSA and ROMATSA have established the formalised approach assuring that safety has priority over other KPAs and that the changes to ATM functional system will not deteriorate safety performances. Additionally, some other metrics are used to monitor the safety levels. The performance plan indicates that resources have been allocated in order to maintain the safety activities during RP3.

1.1.4 Change Management

The CAA defined and supported the change management practices to be applied. Given the level of details provided in the draft performance plan, these practices should, if applied, be sufficient to control the impact on safety in particular.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Romania should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are insufficiently described to demonstrate how the ANSP will improve maturity levels over RP3 to specifically address Safety Risk Management.
- The PRB will closely monitor the implementation of proposed measures derived from CANSO Standard of Excellence in Safety Management Systems during RP3 in its "RP3 watchlist".

The PRB notes that formalised approach assuring that safety has priority over other KPAs has been established and that the changes to ATM functional system will not deteriorate safety. The PRB notes that change management practices described are sufficient to control impact on safety in particular.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets compliant	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
ROMATSA	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan indicates that during RP1 and RP2, ROMATSA achieved or exceeded the safety targets. A similar approach is planned for RP3. The specific measures will be decided based on yearly review of application of the Eurocontrol CANSO Standard of Excellence in Safety Management Systems (i.e. SoE in SMS). Some explicit measures in the area of Safety Risk Management could be relevant for ROMATSA as it need to improve from level C to D.

Moreover, the measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

1.3.1 Interdependencies and Trade-offs

The implementation of ATM 2015+ system is planned during RP3 with the aim of satisfying the capacity demand. The draft performance plan underlines that the NSA and ROMATSA have established a formalised approach assuring that safety has priority over other KPAs and that the changes to ATM functional system will not deteriorate safety performance. Additionally, some metrics are used to monitor the safety levels.

The draft performance plan indicates that the resources have been assured to maintain the safety activities during RP3.

1.3.2 Change Management Practices

The change management practices to be applied are defined and supported by the NSA. Considering the level of details provided in the draft performance plan, these practices should, if applied, be sufficient to control impacts on safety.

ROMANIA

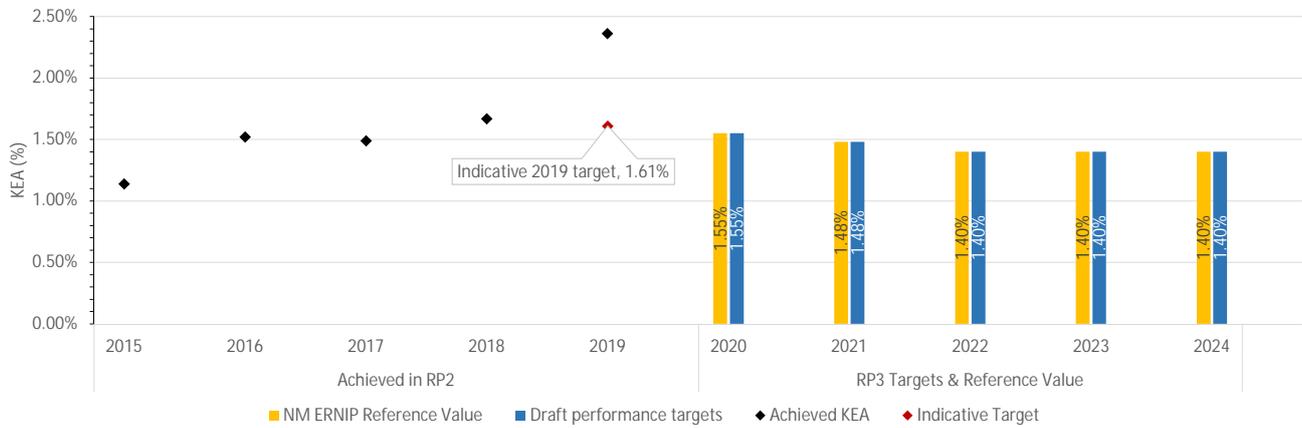
Environment KPA

2.1 Summary of environment key data and assessment results

Romania

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.55%	1.48%	1.40%	1.40%	1.40%
Draft performance targets	1.55%	1.48%	1.40%	1.40%	1.40%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Romania should be approved.
 - ROMATSA's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? ROMATSA extended its FRA operations from SEEN to SEE (24-hour cross border FRA with Romania and Bulgaria) between FL105 and FL660.	✓	Reference in PP 3.2.1(c)	Reference in LSSIP Page 73
Major ERNIP Recommended Measures: Measure included within performance plan?	2	Reference in PP Implemented	Reference in ERNIP Page 90
Implementation of SEEN FRA Phase 2	✓	3.2.1(c)	Page 121
Implementation of SEE FRA	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Romania achieved a KEA of 2.36% in 2019 and needed to meet an indicative target of 1.61% in 2019 to achieve the planned target of 1.55% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

ROMATSA has a dedicated team responsible for ensuring civil-military coordination and expect larger requirements from military users since new fighters with advanced capabilities will be procured and increase the military airspace requirements. To counteract this, Romania pledged to improve its FUA processes including A-FUA.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Romania plan for an environmental incentive scheme?	✗
Romania does not plan to apply an optional incentive scheme for the environment KPA.	

ROMANIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En-route ATFM delay

Targets defined in the performance plan are consistent with the national reference values during the RP3. It should be noted that national capacity targets in last two years of RP3 are lower than the NOP forecasted delay.

Analysis of the Romania planned capacity profiles indicate that Romania may face a capacity gap, if traffic flows shift towards shortest routes. Romania is working with the NM to counter these effects.

There may be a minor inconsistency within the performance plan, between capacity enhancement measures, national targets and planned capacity profile. However, based on historical performance and the measures outlined in order to enhance capacity, the targets are deemed achievable.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	ⓘ	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

Proposed national targets for the first three years are set at 0.50 minutes per arrival, more than double of the observed average performance during RP2. Local forecast estimates a CAGR (in IFR movements) of 3.4%.

Two airports at Bucharest (Otopeni and Băneasa) are included in the performance plan. Performance is massively driven by Otopeni that represents 96% of that terminal traffic.

While in RP2, the Bucharest Otopeni performance was better than similar airports, the proposed targets for RP3 would imply a notable increase in delays, resulting in worse performance than observed for similar airports in RP2.

3.1.3 Incentives

En route incentives:

Pivot value is not based on reference values published in NOP but is based on % of CRSTMP-only delays (attributed by ANSP) in previous year (2018): 31,4% of reference value. Delay forecast in NOP shows that the ANSP is expected to achieve performance plan targets (all causes) for two years of RP3, and miss performance plan targets for two other years. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal incentives:

The pivot values are modulated on CRSTMP based on target all causes and adjusting each year to actual CRSTMP share in year n. The penalty (only 0.5%) together with the low risk of not meeting the targets (given the fact that past delays are well below the target) does not seem to incentivise to improve or maintain the current performance. - The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

The RP3 performance plan has introduced two major investment in total of 6.8M€ in RP3, one of which could be related to the capacity improvement based on the description provided in the performance plan.

The capacity relevant project is described within approved capacity improvement measures in the NOP 2019-2024. The investment represents an overhaul referencing many capacity-improvement relevant SESAR AFs.

The level of contribution to the capacity improvement however is hard to assess due to generic description of the complex project. The project will provide technical support to other approved capacity measures.

The needs for investments are in general justified by the performance plan as investments into the core technical system to support planned capacity improvement measures.

It is anticipated that the new ATM system will bring an important capacity increase in Romania during RP3. The cost of other new and existing investments is

3.1.5 PRB conclusions

The PRB concludes that capacity targets proposed by Romania should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully and NM measures are realised, Romania will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes, that the incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.

3.2.1 Overview of en-route ATFM delay per flight ✓



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+6.1%	-2.2%	+8.5%	+9.6%						
Actual ATFM delay per flight	0.03	0.00	0.01	0.12						
ANSP reference values						0.14	0.14	0.07	0.04	0.04
ANSP national targets						0.14	0.14	0.07	0.04	0.04
Forecast with eNM/ANSPs measures*					0.12	0.12				
Forecast w/o eNM/ANSPs measures*					0.12	0.12		0.05-0.08		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	⚠	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

There are three major capacity enhancement measures listed in the performance plan:

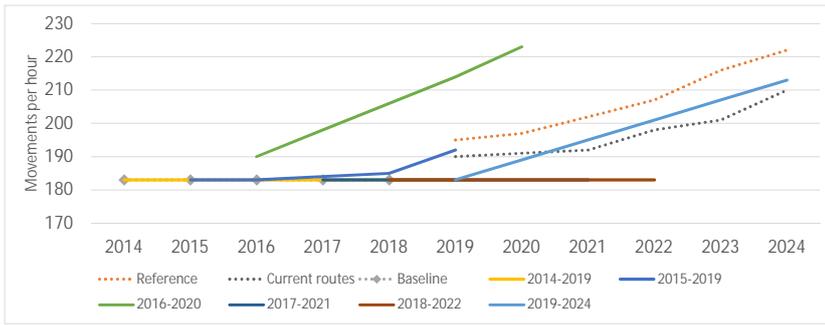
- Implementation and continuous improvement of the new ATM system with advanced functionality;
- Airspace configuration: resectorisation and/or full utilization of Romanian airspace, full cross-border FRA implementation with Bulgaria and Hungary, SEEN FRA implementation;
- Intensive ATCO recruitment and training programme (started already in 2017) to cope with the significant retirement wave which is imminent.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Bucharest ACC (LRBB)	Additional ATCOs in OPS to start working in the OPS room	25	12	12	24	12	24	24	+46
	ATCOs in OPS to stop working in the OPS room	1	4	7	9	3	9	22	
	ATCOs in OPS to be operational at year-end	237	245	250	265	274	289	291	
Total - ROMATSA (en-route)	Additional ATCOs in OPS to start working in the OPS room	25	12	12	24	12	24	24	+46
	ATCOs in OPS to stop working in the OPS room	1	4	7	9	3	9	22	
	ATCOs in OPS to be operational at year-end	237	245	250	265	274	289	291	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC)

Bucharest ACC (LRBB)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						195	197	202	207	216	222
Current routes						190	191	192	198	201	210
Baseline	183	183	183	183	183						
2014-2019	183	183	183	183	183	183					
2015-2019		183	183	184	185	192					
2016-2020			190	198	206	214	223				
2017-2021				183	183	183	183	183			
2018-2022					183	183	183	183	183		
2019-2024						183	189	195	201	207	213

- Historical data shows that baseline values remained flat during the past years. Planned profiles followed this for most of the years, except in 2015 and 2016, when higher capacity profiles were planned. However, these were never realized, and planning reverted back to maintaining the actual baseline value. This led to a slight increase in delays when traffic grew by almost 10% in 2018.

- The capacity plan has been constantly adapted to the traffic evolution and the network requirements. Bucharest ACC did not generate delays above the local reference values in RP2, except in 2018 due to the implementation of the new system.

- The latest planned capacity profile shows figures below the current routes profile for the first year of RP3, then exceeding it for the remaining years. Planned capacity profile values are for all years in RP3 below the reference profile values. This means that if traffic flows shift toward the shortest routes, Romania may have a capacity gap.

- The link between planned capacity enhancement measures is hard to establish. Measures from the performance plan would induce one-off increases in capacity, however the capacity profile shows a steady growth of around 3% annually.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures

n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps

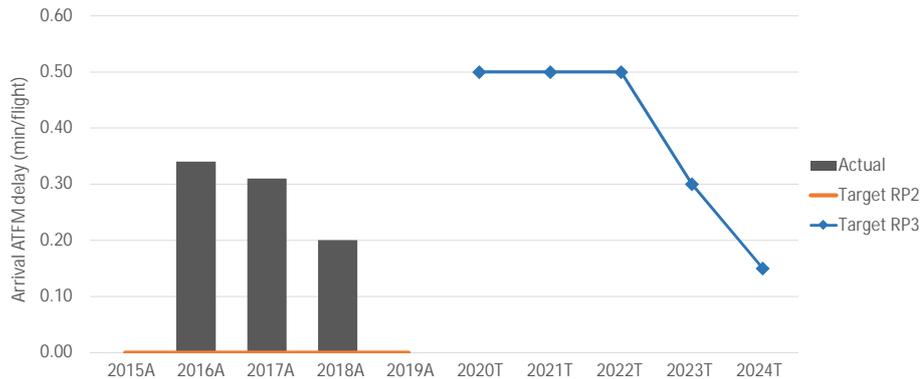
n/a

3.2.6 PRB Key Points



- National targets are equal to national reference values. For the first two years of RP3, these are, however, above the NOP delay forecast values. For the last three years, targets are either within the forecasted delay range, or below it.
- Capacity plans indicate that Romania may face a capacity gap, if traffic flows shift towards shortest routes. Romania is working with the NM to counter these effects.
- There may be a minor inconsistency within the performance plan, between capacity enhancement measures, national targets and planned capacity profile. However, based on historical performance and the measures outlined in order to enhance capacity, the targets are deemed achievable.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.00	0.34	0.31	0.20	-	0.50	0.50	0.50	0.30	0.15
Bucharest/ Otopeni (LROP)	0.00	0.35	0.32	0.21	-	0.51	0.51	0.51	0.31	0.16
Bucharest/ Băneasa (LRBS)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00

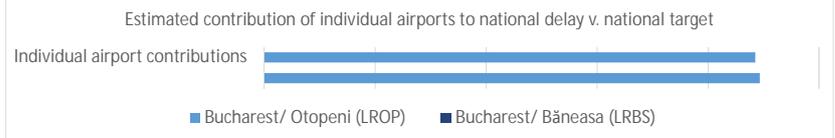
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

In RP2, Romania largely surpassed the ambitious arrival ATFM delay target of zero delays in 2016, 2017 and 2018. For RP3, the proposed national targets for the first three years are set at 0.50 minutes per arrival, more than double of the observed average performance during RP2.

During RP2 the actual traffic levels in the TCZ were higher than anticipated. For RP3, and due to several factors, Romania has used the STATFOR high forecast that estimates a CAGR (in IFR movements) of 3.4%.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Bucharest/ Otopeni (LROP)	0.40
Bucharest/ Băneasa (LRBS)	0.00
National Target	0.39



Bucharest Băneasa, following past performance, is not expected to generate any delays during RP3. The national performance is driven by Bucharest Otopeni, as it represents 96% of the traffic at these airports.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Bucharest/ Otopeni (LROP)	GROUP III	0.25	0.23	-0.02	0.40	+0.15
Bucharest/ Băneasa (LRBS)	GROUP IV	0.01	0.00	-0.01	0.00	-0.01

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

During RP2, both Romanian airports showed slightly better performance than similar airports. The proposed targets for RP3 for Bucharest Otopeni represent notably higher delays than the past observed performance for similar airports.

3.3.5 PRB Key Points

- Proposed national targets for the first three years are set at 0.50 minutes per arrival, more than double of the observed average performance during RP2. Local forecast estimates a CAGR (in IFR movements) of 3.4%.
- Two airports at Bucharest (Otopeni and Băneasa) are included in the performance plan. Performance is massively driven by Otopeni that represents 96% of that terminal traffic.
- While in RP2, the Bucharest Otopeni performance was better than similar airports, the proposed targets for RP3 would imply a notable increase in delays, resulting in worse performance than observed for similar airports in RP2.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.14	0.14	0.07	0.04	0.04
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.14	0.14	0.07	0.04	0.04
Pivot values for RP3	0.04	0.04	0.02	0.01	0.01

Threshold review

Threshold is symmetrical around pivot value, pivot value is not based on reference values published in NOP but is based on % of CRSTMP only delays (attributed by ANSP) in previous year (2018): 31.4% of reference value.

Modulation review

Several modulations in force: Initial modulation of pivot value informed by update of reference value published in November release of NOP from previous year. Additional modulation of pivot value according to share of CRSTMP delay causes (as attributed by ANSP) in previous year.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty fixed at 0.5% of revenue. Delay forecast in NOP shows that the ANSP is expected to achieve performance plan targets (all causes) for two years of RP3, and miss performance plan targets for two other years. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±10.0%	0.500%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.028	±0.028	±0.028	±0.017	±0.008
Performance Plan targets	0.50	0.50	0.50	0.30	0.15
Pivot values for RP3	0.06	0.06	0.06	0.03	0.02

Threshold review

The terminal incentive scheme includes a dead band of 10% of the CRSTMP pivot value (deadband: 0.050 - 0.061 minutes delay per arrival). The 10% dead band might be too small to be able to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Romania has chosen to modulate the pivot values in a two-fold way: according to CRSTMP causes and also for each year n according to a formula that will readjust the share of CRSTMP (with respect to the all causes targets) to be the same as the actual share in the observed performance in year n. The initial share applied (to be verified and reviewed for each year n based on actual share) is 11.2%, which was the correct proportion in 2018. Therefore the modulation of the pivot values seems correct and valid, but the basis for the modulation (national target all causes) is higher than past performance for Romania and also worse than past performance of similar airports.

Review of financial advantages/disadvantages

The terminal incentive scheme is symmetric. The penalty (only 0.5%), together with the low risk of not meeting the targets (given the fact that past delays are well below the target), does not seem to incentivise to improve or maintain the current performance.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ⚠

En route:

- Pivot value is not based on reference values published in NOP but is based on % of CRSTMP-only delays (attributed by ANSP) in previous year (2018): 31,4% of reference value.
- Delay forecast in NOP shows that the ANSP is expected to achieve performance plan targets (all causes) for two years of RP3, and miss performance plan targets for two other years. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

Terminal Incentives:

- The pivot values are modulated on CRSTMP based on target all causes and adjusting each year to actual CRSTMP share in year n.
- The penalty (only 0.5%) together with the low risk of not meeting the targets (given the fact that past delays are well below the target) does not seem to incentivise to improve or maintain the current performance.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	21.5	22.8	23.0	21.6	21.7	110.6
En route	M€ (nominal)	19.6	20.9	21.1	19.8	19.9	101.3
Terminal	M€ (nominal)	1.9	1.9	1.9	1.9	1.9	9.3

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	MULTIFUNCTIONAL BUILDING FACILITIES (B-dul Ion Ionescu de la Brad no.5)	The building will provide/assure: -meeting and teleconference rooms -classrooms and training facilities for ANS staff (theoretical and practical) -Operational Contingency Room facility (CR 2) space from actual site relocation (remote location outside the city) -Data Recovery Center as required by Cyber Security Management Standard	7.5	No	No	0.4	0.0
2	ATM System 2015+ Phase 2	The "ATM2015+ System" project addresses the flight data processing systems, surveillance data processing systems, human-machine interface systems and the introduction of CPDLC capability. The roadmap of the project includes the following stages of STEP 1 development: the baseline system - phase 1, operational as of the 8th April of 2019 and phase 2 that is planned to be operational in 2020 and will include enhanced functionalities. More details can be found in section 2.1 of the performance plan.	8.6	Yes	Yes	6.4	0.0
Total:						6.8	0.0

Airspace user feedback regarding major investments

Airspace users noted that during RP2 and its revision, ROMATSA realised a significant underspending in nearly all cost categories. Considering the significant investment plans of RP3, airspace users do not support the RP3 performance plan unless Romania first clarifies its intentions regarding the sums collected but unspent during RP2. Moreover, airspace users urged Romania to detail the nature and benefits of the investments in RP3 in order to reassure the users that they will not pay twice for the same investments.

Review of investments

New major investments represent 6% of the total determined costs of investments over RP3. The Investment #2 has been listed in RP2 performance plan but has not been realised. In line with this, 2015-2018 actual CAPEX is 41.7% of the planned values for the same period. The amount underspent is 54.98M€. It is uncertain if this amount will be returned to the airspace users in case that RP2 CAPEX programme is not delivered.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
1	MULTIFUNCTIONAL BUILDING FACILITIES (B-dul Ion Ionescu de la Brad no.5)	Local	None	Facility services, building assets

Additional information

The performance plan provides a limited explanation regarding the Investment #1. The investment is supposed to enable an increased level of safety by relocating the contingency room and data recovery centre for en route services. The building will also lead to a reduction in costs by providing ROMATSA with facilities that are currently rented elsewhere as well as provide supplementary income from services provided to third parties.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	75.8	68.8	4.7	7.0	9.4	9.6	11.3	42.1
Existing investments			15.9	14.1	11.9	10.5	9.0	61.6

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 38% of the total determined costs of investments over RP3, while existing investments represent the 56%. ROMATSA claims to have taken a conservative approach to the Investment Plan for RP3 to mitigate the risk of investments being delayed, as it was the case during RP2 due to insufficient human resources allocated as well as lengthy public procurement procedures. Romania details the investment plan in Annex E of the performance plan. However, there are discrepancies between the total numbers provided in Annex E of the performance plan and the values provided in section 2.1 of the performance plan.
--	---

3.5.3 Review of investments contribution to capacity

- a) Investment levels contribute to the provision of capacity that is scaled to demand 

ROMATSA has taken a conservative approach to the investment plan for RP3 to mitigate the risk of investments being delayed, as it was the case during RP2 due to insufficient human resources allocated, as well as lengthy public procurement procedures.

National targets are consistent with the reference values. Investment #2 (ATM System 2015+ Phase II) is described within approved capacity improvement measures in the NOP 2019-2024. The project represents an overhaul referencing many capacity-improvement relevant SESAR AFs. The level of contribution to the capacity improvement, however, is hard to assess due to generic description of the complex project. The project will provide technical support to other approved capacity measures.

The needs for investments are in general justified by the performance plan as investments into the core technical system to support planned capacity improvement measures. Romania takes part in existing FRA extensions in 2019 and 2020. It is not clear whether the investments addresses the ATCO number issue (huge retirement outlook) foreseen for Romania in the coming years. Investment #1 (Multifunctional building facilities) is not relevant to capacity and general information provided in the performance plan.

- b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan 

Due to low level of detail provided on the enlisted projects and complexity, it is not possible to assess the dispatch and effect of investments related to the capacity enhancements.

- c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented 

The baseline part of the capacity relevant project (Investment #2) is already operational since 2019. It will become fully operational in 2020. The period in between 2019 and 2020 is considered as familiarisation period. It is anticipated that the new ATM system will bring an important capacity increase in Romania during RP3.

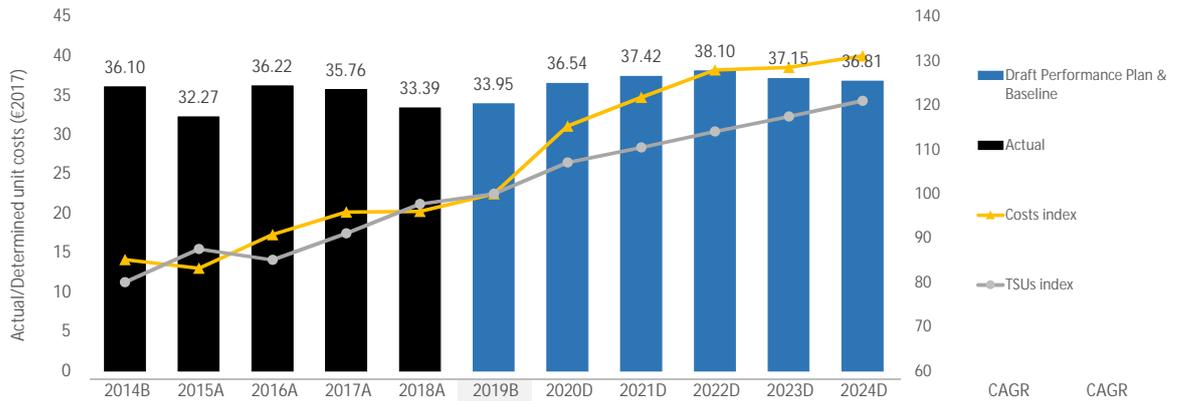
3.5.4 PRB Key Points

- Romania CAPEX execution level (2015-2018) is 47.5% of the planned values.
- More detailed information is needed to assess the impact of investments on capacity.

ROMANIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MRON (nom)	692	674	728	777	805	-	1,017	1,100	1,183	1,215	1,268	-	+6.2%
Total costs	MRON (2017)	689	674	735	777	778	810	933	986	1,036	1,041	1,062	+5.6%	+4.4%
TSU	'000	4,182	4,571	4,443	4,757	5,101	5,222	5,593	5,769	5,957	6,134	6,318	+3.9%	+4.2%
AUC/DUC	RON (2017)	164.83	147.37	165.39	163.28	152.49	155.05	166.86	170.86	173.98	169.65	168.07		
Exchange rate	RON:€				4.566									
AUC/DUC	€ (2017)	36.10	32.27	36.22	35.76	33.39	33.95	36.54	37.42	38.10	37.15	36.81		
Annual change	%		-10.6%	+12.2%	-1.3%	-6.6%	+1.7%	+7.6%	+2.4%	+1.8%	-2.5%	-0.9%	+1.6%	+0.2%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified? 33.95 €2017 ✘

The 2019 baseline TSUs selected in the performance plan are -2.1% lower than the STATFOR February base forecast and match the 2019 TSUs of the RP2 revised performance plan for Romania (performance plan revised for the years 2018-2019).

The choice of a lower 2019 baseline traffic for Romania (compared to STATFOR February base) is supported by the latest available TSU figures. Indeed, based on year-to-date observations, actual TSUs for 2019 are even -2.6% lower than the baseline chosen by Romania (cumulative data until September 2019, inclusive).

Baseline costs are +4.1% above 2018 actual costs. They reflect the determined costs (in nominal terms) adopted in the RP2 performance plan, which was revised for the years 2018-2019. However, the change in allocation of costs between en route and terminal for meteorological services would impact RP3 en route total costs by 0.33%. The APP/TWR combined cost are embedded in different services detailed in the reporting tables, therefore a precise calculation of the impact on the total cost is difficult to perform.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? 1.6% ✘

The RP3 DUC trend for Romania of +1.6% is worse than the Union-wide trend of -1.9%. This is driven by significant planned cost increases (+32.8% over entire period) resulting primarily from growth in staff costs.

b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? 0.2% ✘

The long-term DUC trend for Romania of +0.2% is not achieving the the Union-wide DUC trend of -2.7% p.a.

c) DUC level (2019 baseline) lower than the average of comparator group (C) average (41.66 €2017)? -18.5% ✔

Romania 2019 baseline DUC is -18.5% below the average of the comparator group. Similarly, the DUC is expected to remain -9.1% below the average of comparator group by the end of RP3.

d) Deviation exclusively due to measures necessary to achieve the capacity targets? ✘

The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend is +154.1M€2017 (+245.1M€2017 from the long-term trend).

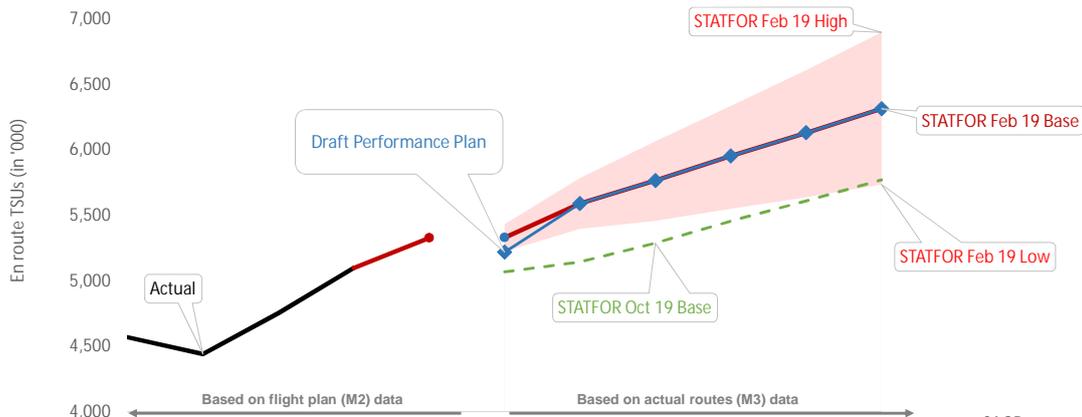
The cost deviations are not exclusively considered related to capacity measures.

e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? n/a

4.1.4 PRB conclusions ✘

- The PRB concludes that the cost-efficiency targets proposed by Romania should not be approved.
- Romania is not meeting the Union-wide RP3 trend nor the Union-wide long term trend.
- Romania is consistent with the average DUC baseline of the comparator group.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	4,571	4,443	4,757	5,101								
Annual change	%		-2.8%	+7.1%	+7.2%								
STATFOR Feb 19 Base	'000 TSUs					5,331	5,333	5,593	5,769	5,957	6,134	6,318	+3.4%
Annual change	%					+4.5%	+4.6%	+4.9%	+3.1%	+3.3%	+3.0%	+3.0%	
STATFOR Oct 19 Base	'000 TSUs					-	5,071	5,146	5,290	5,460	5,613	5,775	+2.6%
Annual change	%					-	-0.6%	+1.5%	+2.8%	+3.2%	+2.8%	+2.9%	
Performance Plan	'000 TSUs					5,222	5,593	5,769	5,957	6,134	6,318		+3.9%
Annual change	%						+2.4%	+7.1%	+3.1%	+3.3%	+3.0%	+3.0%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	5,222		
2019F (as in the Reporting tables, M2)	5,222		
2019B/ 2019F	0.00%	+0.05%	-0.10%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	5,222			
2019F (STATFOR Feb 19, M3)	L 5,224	B 5,333	H 5,435	-2.1%
2019F (STATFOR Oct 19, M3)	L 5,039	B 5,071	H 5,096	+3.0%

The baseline TSUs selected in the performance plan are -2.1% below the STATFOR February 2019 base forecast for 2019.

Romania has selected RP2 2019 determined TSUs as the baseline TSUs for RP3 cost-efficiency targets. As detailed in RP3 performance plan section 3.4.1, part c): "given the high volatility from the first 6 months of 2019 we consider that for 2019 the forecast used in the revised RP2 plan is more accurate".

The choice of lower 2019 baseline traffic for Romania compared to STATFOR February 2019 base forecast is supported by the latest available TSU figures, which show that actual TSUs for 2019 were -2.6% below planned for 2019 (cumulative data until September 2019, included).

RP2 determined TSUs were defined in M2 methodology, whereas the baseline should reflect the M3. Considering the CRCO correction coefficients (+0.05% for 3 months and -0.10% for 12 months), the effect on the 2019 baseline TSUs is marginal.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

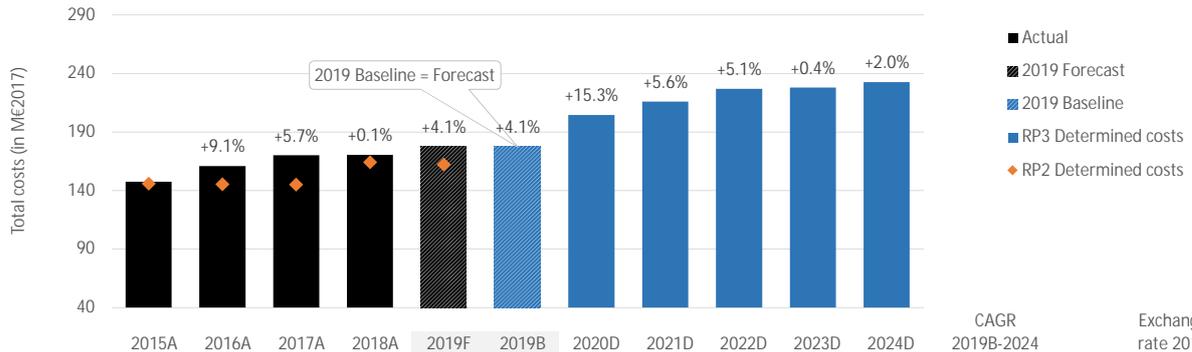
Review of the PP traffic forecast

The selected TSU forecast underlying the proposed cost-efficiency targets for RP3 (2020-2024) is in line with STATFOR February 2019 base forecast.

4.2.4 PRB Key Points

- The baseline TSUs selected in performance plan are -2.1% below the STATFOR February 2019 base forecast for 2019. This choice is supported by the latest available TSU figures, which show that actual TSUs for 2019 were -2.6% below planned for 2019 (cumulative data until September 2019, included).
- Considering the CRCO coefficient, the traffic for the baseline value is in line with the forecast.
- No major issues are identified for the forecast from 2020 to 2024.

4.3.1 Overview of en route costs in RP2 and RP3



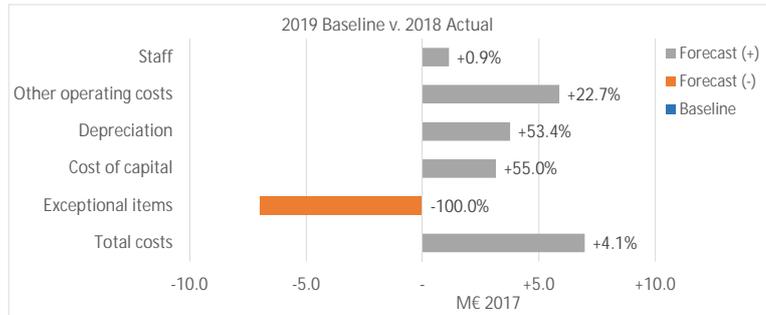
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MRON (nom)	674	728	777	805	860	-	1,017	1,100	1,183	1,215	1,268	-	RON:€
Annual change	%		+8.1%	+6.7%	+3.7%	+6.8%	-	-	+8.2%	+7.5%	+2.7%	+4.4%	-	4.56629
Inflation index	2017 = 100	100.0	98.9	100.0	104.1	107.5	110.7	113.8	116.7	119.6	122.7		+2.7%	
Total costs	MRON (2017)	674	735	777	778	810	810	933	986	1,036	1,041	1,062		
Annual change	%		+9.1%	+5.7%	+0.1%	+4.1%	+4.1%	+15.3%	+5.6%	+5.1%	+0.4%	+2.0%	+5.6%	
Total costs	M€ (2017)	148	161	170	170	177	177	204	216	227	228	233	+5.6%	

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€ 2017	%
2019F v. 2018A	+7.0	+4.1%
2019F v. 2019 RP2 DC	+15.1	+9.3%
2019F v. average 2015-2018	+15.1	+9.3%

2019 baseline analysis	M€ 2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 cost forecast reported by Romania, in nominal terms, is in line with latest adopted RP2 determined costs for 2019. It should be noted that Romania revised upward its en route determined costs for the years 2018-2019 (some +45.5M€2017 over the two years) during RP2.

The 2019 forecast costs, in real terms, are above 2018 actual costs (+4.1%, or +7.0M€2017), primarily due to much higher forecast other operating costs (+22.7%, or +5.9M€2017), depreciation (+53.4%, or +3.8M€2017) and cost of capital (+55.0%, or +3.2M€2017). According to the information provided in the RP3 performance plan, the forecast increase in other operating costs is justified by the related ATCO recruitment and training costs. On the other hand, the increase in depreciation costs and cost of capital, both of which are directly related to the value of assets in operation, is not fully detailed.

The change in allocation of MET costs from 75% to 80% en route would impact the RP3 en route total cost of +0.33% on average (more details in section 4.3.C of this document).

2019 baseline analysis

The 2019 baseline costs are in line with 2019 forecast costs, in real terms. However, the change in allocation of MET costs from 75% to 80% en route would impact the RP3 en route total cost in +0.33% on average. The APP/TWR combined cost are embedded in different services detailed in the reporting tables, therefore a precise calculation of the impact on the total cost is difficult to perform.

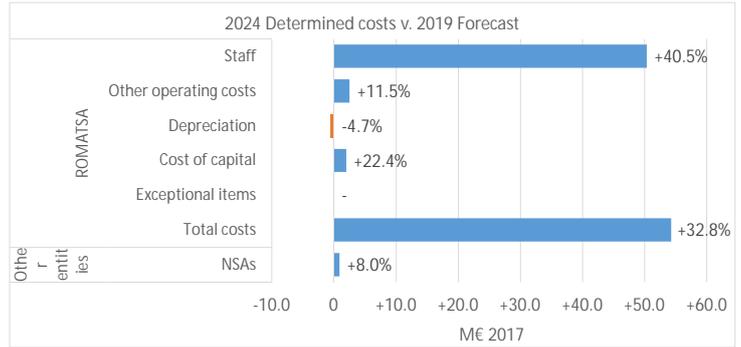
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ! Investments (see details in 3.5)
- ✓ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ! Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



Over RP3, the costs are planned to increase by +5.6% annually, between 2019 forecast and 2024, resulting in an overall increase of +31.1%. The major contributor to this planned increase in costs is ROMATSA (+32.8%, or +54.3M€2017 overall).

For ROMATSA, the planned increase in costs is driven almost solely by additional staff costs (+40.5%, or +50.3M€2017), which according to the information in Annex R of the performance plan is explained by:

- A significant intake of ATCOs (already started during RP2) is planned to continue over RP3 to cover the retirement of ATCOs. According to the information in RP3 performance plan, a net increase of +46 ATCOs is foreseen in Bucharest ACC by the end of RP3, while the 49% of en route ATCOs are expected to retire by 2033 (major driver for the proposed recruitment plan);
- An additional "compensation for personnel covering inflation and workload increase due to traffic growth and complexity";
- An increase of social security contributions primarily due to removal of the ceiling for the contribution, which led to an overall increase in gross staff costs. It is important to note that the impact of these different cost drivers is not separately quantified in the performance plan.

The number of support staff will remain mostly unchanged over the RP3, while a reduction of some 6% is foreseen for administrative personnel.

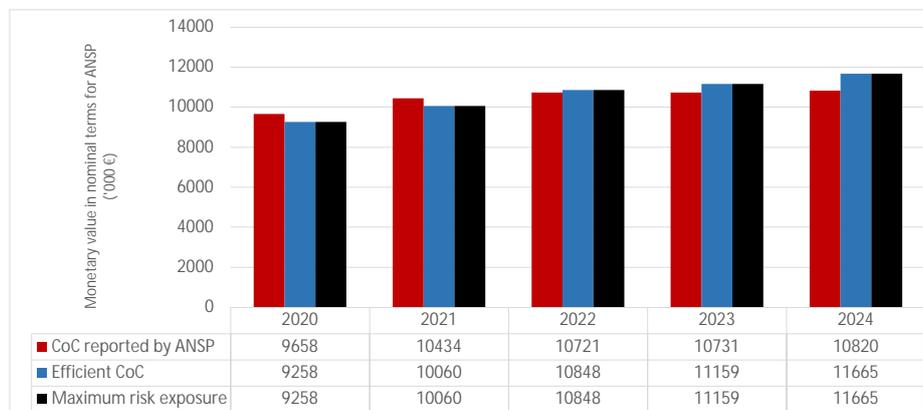
4.3.4 PRB Key Points

- Romania revised its performance plan during RP2.
- The 2019 cost forecast proposed by Romania is +4.1% above the 2018 value. This is due to the planned recruiting of ATCOs, high increase in other operating costs, depreciation and cost of capital.
- The 2019 baseline proposed by Romania is in line with the 2019 forecast. However, the change in allocation of costs between en route and terminal for meteorological services would impact RP3 en route total costs by 0.33%. The APP/TWR combined cost are embedded in different services detailed in the reporting tables, therefore a precise calculation of the impact on the total cost is difficult to perform.
- The costs are planned to grow by +5.6% annually, resulting in an overall increase of +31.1%. The main driver is the increase in staff costs due to the ATCOs recruitment plan. However, details in cost contributions are not provided.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	210,399	228,635	246,544	253,624	265,114
Monetary value of Return on Equity	9,658	10,434	10,721	10,731	10,820
Ratio RoE/DC (%)	4.6%	4.6%	4.3%	4.2%	4.1%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.6%	n/a								
Interest on debts	0.0%	n/a								
Capital structure (% debt)	0.0%	n/a								
WACC	7.6%	7.3%	7.6%	7.4%	7.6%	7.7%	7.6%	7.9%	7.6%	8.2%

Is the interest on debts in line with the market? n/a

- ROMATSA is fully financed through equity, thus no interest on debts is specified.
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

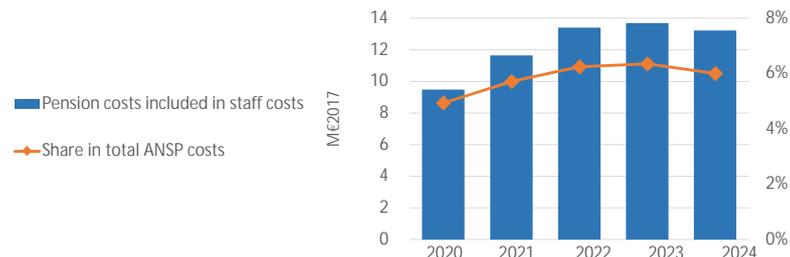
Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	111,627	120,775	124,376	124,604	125,899
Net current assets	14,782	15,791	15,951	15,848	15,719
Adjustments total assets	0	0	0	0	0
Total asset base	126,409	136,566	140,326	140,452	141,618

- The fixed asset base slightly increases over the period. This is in line with the investments described in section 3.5 of this document.
- The net current assets do not present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base will slightly increase over RP3, due to the increase of the fixed asset base and the net current assets.

4.3.A.5 PRB Key Points

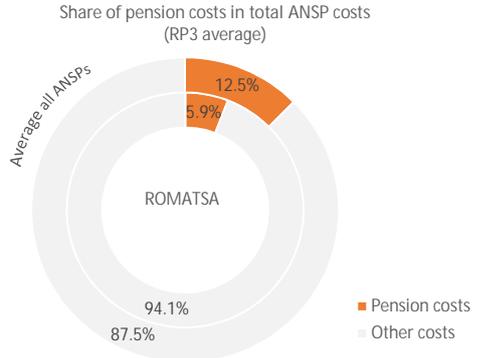
- The cost of capital is in line with the maximum risk exposure and does not present major issues.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	9.5	11.6	13.4	13.7	13.2
Year on year variation	% change		+22.6%	+15.2%	+2.0%	-3.4%
Share in total ANSP costs	%	4.9%	5.7%	6.2%	6.4%	6.0%
Year on year variation	p.p.		0.8p.p.	0.5p.p.	0.1p.p.	-0.3p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Increase**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

n/a

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

For the state pension contributions, it should be noted that as of 1 January 2018, after Government Emergency Ordinance 79/2017, all pension contributions were moved from the employer to the employee. As such, these pension costs are not explicitly identified in the data submitted by Romania, since they are part of the staff costs (i.e. included in the gross salary paid to the employees).

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

n/a

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **Yes**

Annual percentage increase in salaries is anticipated to decrease from 4.57% in 2020 to 4.04% in 2024.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

According to the information in the RP3 performance plan, what concerns the State pension costs: "The contribution and its methodology is set by law and although for now it has been transferred entirely to the employee, there might be future changes through which the contribution will be again split between employer and employee."

4.3.B.4 PRB Key Points ✔

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TRM

Romania updated the cost allocation methodology with respect to RP2: "the methodology for cost allocation has been updated to reflect the current regulatory framework, but the criteria for allocation of ROMATSA's costs between en route and terminal remain unchanged as compared with the RP2".

The methodology for allocation of costs between en route and terminal is based on type of services (ATM, APP, CNS, SAR, AIS, MET).

Cost allocation between en route and terminal is currently done on a statistical basis. For each territorial unit that serves both en route and terminal, the costs were allocated based on the following criteria: in accordance with the organisational structure, in proportion to the average distance flown or time spent, and in proportion to the personnel.

1.2. Are the criteria for cost allocation clearly defined and justified?	Yes	If not, what are the issues identified? n/a
--	-----	--

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?	Yes	If yes, description and justification of the changes from RP2 to RP3 specified in the PP Although the criteria for cost allocation have not changed since RP2, the allocation percentages for the following elements differ: RP2: combined APP/TWR (32% en route), RP3: combined APP/TWR (40% en route); RP2: MET (75% en route), RP3: MET (80% en route).
--	-----	---

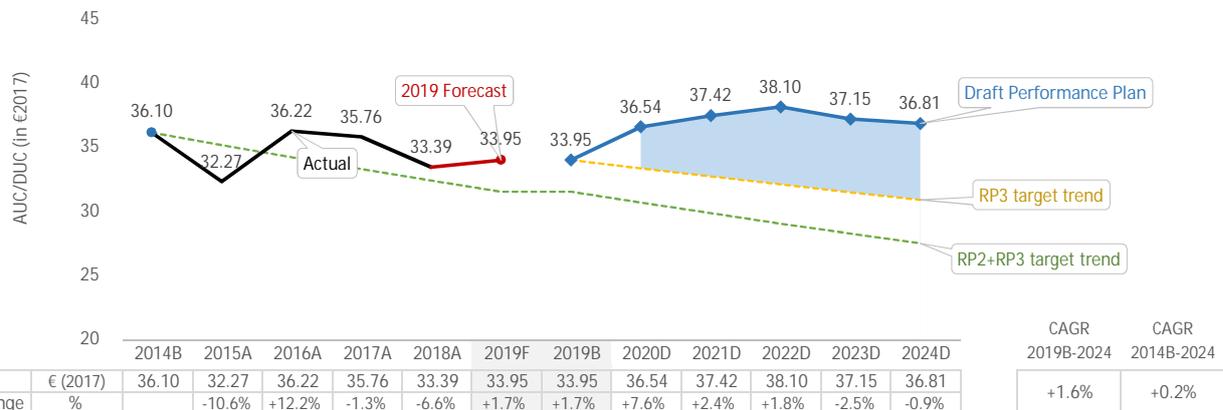
2.2. Are these changes in cost allocation duly described and justified?	No	If, not what are the identified issues? Specific justifications are not provided.
---	----	--

2.3. Is there an impact on the determined costs and/or baseline?	n/a	If yes, description of the impact of the changes in methodology in the determined costs and/or baseline The change in allocation of MET costs from 75% to 80% en route would impact the RP3 en route total cost of +0.33% on average. The APP/TWR combined cost are embedded in different services detailed in the reporting tables, therefore a precise calculation of the impact on the total cost is difficult to perform.
--	-----	--

4.3.C.3 PRB Key Points 1

- Romania updated the RP3 cost allocation methodology to reflect the current regulatory framework. However, the criteria used for costs allocation remain the same as in RP2.
- Criteria for cost allocation does not present major issues, however it is difficult to precisely access the impact of the change on the total determined costs.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- DUC consistency with the Union-wide RP3 DUC trend
- DUC consistency with the Union-wide long-term DUC trend
- DUC level consistency

PP trend	+1.6%	Union-wide trend	-1.9%	Difference	+3.5p.p.
PP trend	+0.2%	Union-wide trend	-2.7%	Difference	+2.9p.p.
PP 2019 baseline	33.95	Average comp. group	41.66	Difference	-18.5%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 and long-term DUC trends of, respectively, +1.6% and +0.2% p.a. planned for Romania are both significantly above the Union-wide target trends. It is acknowledged that the long term trend is affected by the change of cost allocation methodology between en route and terminal described in section 4.3.C, however it can be roughly estimated that, had the new methodology been applied during RP2, the long term trend would be approximately -0.1%.

Romania 2019 baseline DUC is -18.5% below the average of the comparator group. Similarly, Romania DUC is expected to remain -9.1% below the average of comparator group by the end of RP3.

This is due to major cost increases planned over RP3, which, according to the information presented in the RP3 performance plan, in part, are attributable to the planned significant intake of ATCOs in OPS. See section 4.3.3 of this document for details on the drivers behind the planned cost evolution.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017):	v. RP3 trend over the period 2020-2024	+154.1	v. RP2+RP3 trend over the period 2020-2024	+245.1
ATCO planning (en route) (see details in 3.2.2 (1b))				
	Cumulative change in ATCOs in OPS during RP3 (FTEs*)	+121.0	Additional ATCO costs (M€2017)*	+15.4
	* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	
Determined costs related to investments (en route)				
	Total determined costs of new major investments (in M€2017)	6.8	of which, related to capacity (see Section 3.5 for details)	6.4

Analysis

Romania is estimated to deviate from the Union-wide RP3 DUC trend by +154.1M€2017 cumulatively over RP3, +245.1M€2017 from the Union-wide long term trend.

The estimated cumulative additional costs for ATCOs planned to be working in Bucharest ACC by the end of RP3 constitute around 15.4M€2017 (approximated using the average unit cost for ATCO in OPS reported by ROMATSA in ACE 2017 report), which is significantly below the total planned cumulative increase in staff costs of +153.7M€2017. It should be noted that the approximated costs for additional ATCOs in OPS may be underestimated, since they do not reflect the legislative changes in Romania in force as of 2018, which is understood to have resulted in an increase of gross salaries for all employees, including ATCOs in OPS. However, it is unlikely that, even taking into account these changes, the gap between planned and estimated staff costs decreases significantly.

Considering that only 21.8M€2017 of additional cumulative costs can be attributed to capacity measures (+15.4M€2017 for additional staff and +6.4M€2017 for investments related to capacity), it cannot be established that the deviation in costs over RP3 is exclusively due to capacity related measures.

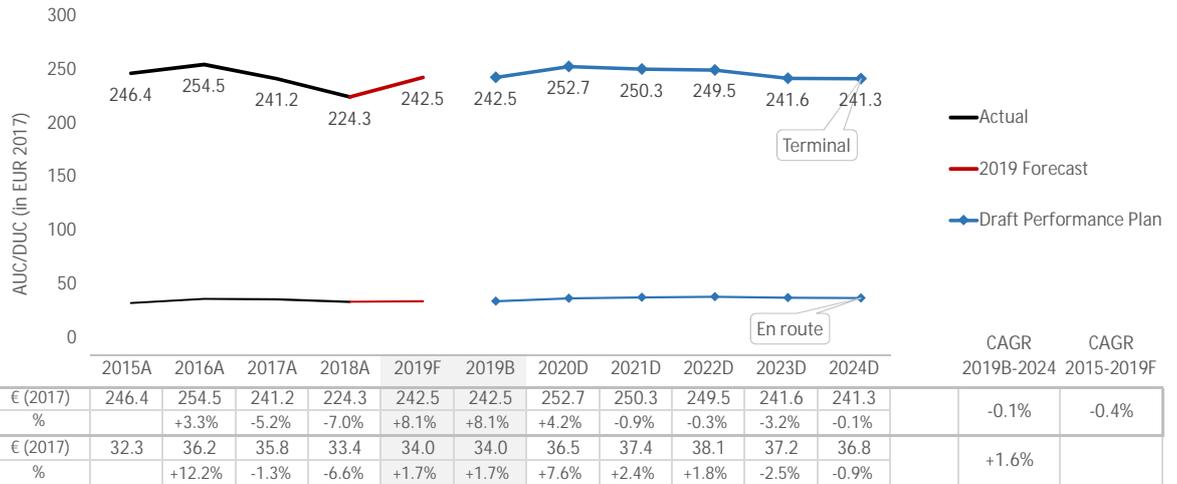
- Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets? No

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points 

- The DUC trend proposed is not meeting neither the RP3 DUC trend nor the long term DUC trend targets.
- Romania is consistent with the average DUC baseline of the comparator group.
- The cost deviations from cost-efficiency trends are not exclusively considered related to capacity measures.

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Bucharest/ Băneasa (LRBS)	GROUP IV	673.82	4776.7	+603.9%	647.6	2432.8	+275.7%
Bucharest/ Otopeni (LROP)	GROUP III	171.33	198.2	+15.7%	167.4	220.8	+31.9%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Average DUCs for Bucharest / Băneasa and Bucharest / Otopeni airports are planned to be +275.7% and +31.9% higher than median DUCs of their respective comparator groups over RP3.

4.5.3 Traffic and Cost review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	74.5			
2019F (STATFOR Feb 19)	L 72.1	L 73.3	L 74.4	+1.6%
2019F (STATFOR Oct 19)	L 72.1	L 72.5	L 72.7	+2.8%

Costs

2019 forecast & baseline review	ME 2017	%
2019 Forecast v. 2018 Actual	+1.8	+11.0%
2019 Forecast v. Avg. 2015-2018 Actual	+2.6	+16.6%
2019 Baseline v. 2019 Forecast	0.0	+0%

TNSU baseline:

- Baseline 2019 TNSUs selected in performance plan are +1.6% higher than the STATFOR February 2019 base forecast for 2019.
- Romania has selected RP2 2019 determined TNSUs as the 2019 baseline for RP3 terminal DUC.

Terminal cost baseline:

- Baseline 2019 costs, in real terms, are in line with forecast costs for 2019. As for en route, Romania has chosen its latest adopted RP2 determined costs for 2019, in nominal terms, as forecast.
- Baseline costs are some +11.0% higher than actual terminal costs for 2018.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

- Significant growth in the number of tourists, in particular in Bucharest-Ifov region (served by the two airports included in the Romanian TCZ).
- Planned expansion of capacity at Otopeni airport.
- Planned re-opening of Băneasa airport for commercial flights starting from 2020;
- Expected growth of national air traffic with number of carriers servicing internal routes connecting Bucharest with other major cities.

Review of the PP traffic forecast

- The TNSU forecast selected in the performance plan is in line with STAFOR Feb. 2019 high TNSU growth forecast, which was chosen based on the justifications provided in the box above.
- As explained in the box above, this reflects the planned expansion of Otopeni airport as well as reopening of Băneasa airport for commercial flights starting from 2020, both of which are expected to contribute to the TNSU growth in the terminal charging zone.
- Airspace users expressed their reservation towards the choice of high TNSU forecast unless "more and better evidences are shared". It is understood that these evidences have been provided in the Annex D of the performance plan.

Determined costs (terminal)

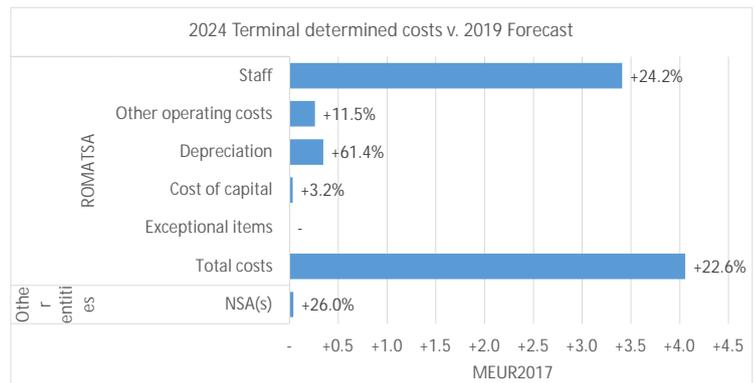
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - ROMATSA (terminal)

- 📌 Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (8%) is lower than the share of terminal total costs (9%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The terminal DUC trend over RP3 planned for Romanian TCZ (-0.1% p.a.) is much better than that planned for en route (+1.6% p.a.).
- Over RP3, the terminal costs are planned to increase by some +22.6% (+4.1M€2017). The drivers behind this planned increase, especially linked to the evolution of staff costs (+24.2%, or +3.4M€2017), are similar to those described in detail for en route in section 4.3.3 and mostly reflect the planned intake of ATCOs in OPS for terminal service provision.

4.5.4 PRB Key Points ✗

- The terminal RP3 DUC trend is -0.1%, which is better than the en route RP3 DUC trend of +1.6%.
- The terminal RP3 DUC trend is -0.1%, which is worse than the terminal RP2 DUC trend of -0.4%.
- Bucharest Otopeni, the main airport, had a DUC higher (+15.7%) than the median of its comparator group over RP2. The difference is expected to become +31.9%, over RP3.
- Romania used a custom traffic forecast for terminal traffic. The baseline of this forecast is higher (+1.6%) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to staff costs.

PRB Assessment

SLOVAKIA

Draft Performance Plan

Context and scope

Slovakia

Performance Plan: Draft performance plan (Article 12) Dated: 25.09.2019
 Documents no: 1352, 1355, 1354, 1356, 1350, 1351, 1353, 1357, 1358, 1359, 1360, 1362, 1363, 1365, 1364, 1361, 1698

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 0.5%
 % Costs V. SES 0.5%

Scope

FAB: FAB CE

ANSPs: LPS SR
 SHMU

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 Transport Authority

ASM, ATFM, ATC, FIS, Alerting Services, AIS, SAR, CNS
 MET

NM, CRCO
 National Supervisory Authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Slovakia	n/a	No	No	No	
Terminal	n/a	n/a	n/a	n/a	n/a	
Changes in the CZs from RP2		Yes				
No terminal charging zone has been included in the RP3 performance plan.						

Comparator group: Group C Other States in the comparator group: Bulgaria, Croatia, Czech Republic, Hungary, Poland, Portugal, Romania, Slovenia

Currency: € Exchange rate: 1.00000

1. Safety 

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
LPS SR	Safety policy and objectives	B	B	B	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	B	B	C	C	C
	Safety promotion	B	C	C	C	C
	Safety culture	B	B	B	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Slovakia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures proposed for the ANSPs and NSA are found insufficient to achieve the RP3 safety targets levels.
- The PRB will closely monitor the implementation of measures over the RP3 to ensure that sufficient measures are defined and that the maturity levels do not degrade between RP2 and RP3 in its "RP3 watchlist".

The PRB notes that no investments are needed to achieve the safety performance targets.

The PRB understands that that change management processes and transition plans are applied according to required regulation.

2. Environment 

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	2.10%	2.05%	1.99%	1.99%	1.99%

PRB Assessment

The PRB concludes that the environment targets proposed by Slovakia should be approved.

- LPS's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity 

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.60	0.60	0.50	0.30	0.10
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	n/a	n/a	n/a	n/a	n/a

PRB Assessment

The PRB concludes that the capacity targets proposed by Slovakia should not be approved.

- National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in 2020, 2021, 2022, and 2023.
- The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency 

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	45.17	44.30	43.37	42.48	41.72
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a

CAGR 2014-2024	CAGR 2019-2024
-3.1%	-2.4%
n/a	-

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Slovakia should be approved.

- Slovakia is meeting the Union-wide RP3 DUC trend and Union-wide long term DUC trend.
- Slovakia is not consistent with the average DUC baseline of the comparator group.

PRB Recommendations

SAFETY

- Slovakia should, considering the proposed starting levels, define measures for all the management objectives to achieve the RP3 safety targets levels.
- Slovakia should ensure consistency between safety levels achieved for RP2 in 2019 and planned starting levels for RP3.

ENVIRONMENT

- Slovakia has implemented the major FRA and ENRIP measures and is encouraged to work with its partners to ensure it joins SEE FRA in 2023.
- Slovakia noted that airspace user route choices may impact its ability to deliver the environmental performance targets. To influence this, Slovakia should invoke point (b) of Article 32 of Commission Implementing Regulation (EU) 2019/317, which enables charging modulation to incentivise airspace routings that are shorter in distance.

CAPACITY

- Slovakia should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets in each calendar year of RP3.
- Slovakia should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.
- Slovakia should revise the incentive scheme so that it has a material impact on the revenues and motivates the ANSP to improve its performance.

SLOVAKIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

However, the maturity levels at the start of RP3 seems to be lower than the ones that will be achieved by the end of RP2.

1.1.2 Measures planned to reach the target (if applicable)

Although the draft performance plan argues that the ANSP has already very mature safety levels, according to the RP3 starting levels as per draft performance plan, the ANSP will need to improve in all management objectives. The described measures, mainly in occurrence reporting, are not considered relevant neither sufficient to achieve the RP3 targets levels.

1.1.3 Interdependencies and Trade-offs

Interdependencies with other KPAs are addressed by specific procedures developed by ANSP to monitor the impact on safety. The draft performance plan declares that safety will not be compromised at any time.

1.1.4 Change Management

Although no significant changes are currently foreseen in the ANSP, the oversight of changes in the field of ATM/ANS is being done by CAA following Commission Implementing Regulation (EU) 2017/373 and Commission Regulation (EU) 2015/340.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Slovakia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures proposed for the ANSPs and NSA are found insufficient to achieve the RP3 safety targets levels.
- The PRB will closely monitor the implementation of measures over the RP3 to ensure that sufficient measures are defined and that the maturity levels do not degrade between RP2 and RP3 in its "RP3 watchlist".

The PRB notes that no investments are needed to achieve the safety performance targets.

The PRB understands that that change management processes and transition plans are applied according to required regulation.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
LPS	Safety policy and objectives	B	B	B	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	B	B	C	C	C	✓	
	Safety promotion	B	C	C	C	C	✓	
	Safety culture	B	B	B	C	C	✓	

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

LPS starts RP3 with maturity levels that are lower than the RP3 targets. These levels are gradually improved during RP3 to reach the RP3 targets in 2024.

The draft performance plan describes the existing processes in the area of occurrence reporting and Just Culture. According to RP3 starting targets levels as per draft performance plan, the ANSP will need to improve in five management objectives. Thus, described measures are not considered as relevant and sufficient.

1.3.1 Interdependencies and Trade-offs

No implementation is required to achieve the RP3 safety target levels. Interdependencies with other KPAs are addressed by specific procedure developed by ANSP to monitor the impact on safety. The draft performance plan declares that safety will not be compromised at any time.

1.3.2 Change Management Practices

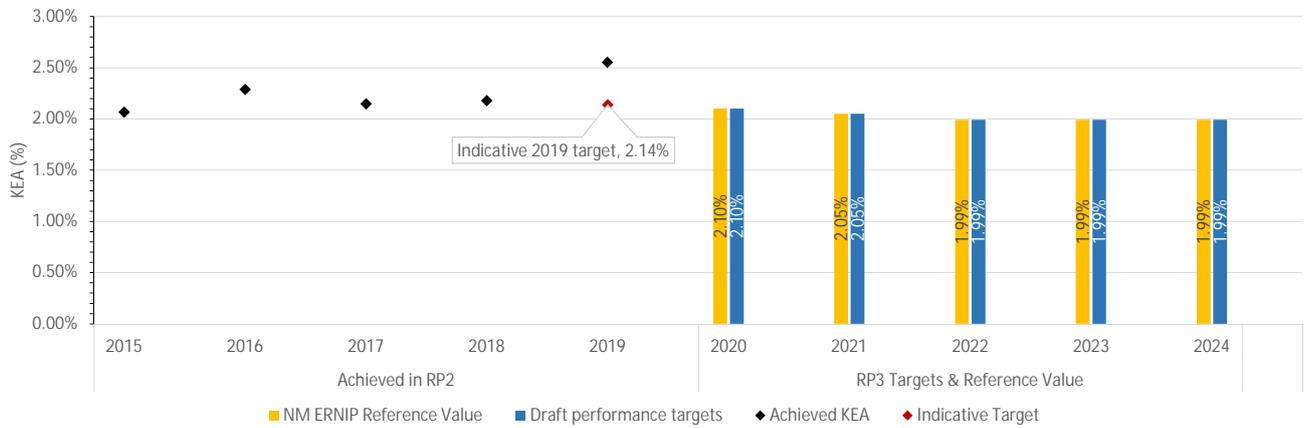
The performance plan indicates that there are no significant changes currently foreseen in the LPS SR. Additionally, it notes that oversight of changes in the field of ATM/ANS is being done by CAA following Commission Implementing Regulation (EU) 2017/373 and Commission Regulation (EU) 2015/340.

SLOVAKIA

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	2.10%	2.05%	1.99%	1.99%	1.99%
Draft performance targets	2.10%	2.05%	1.99%	1.99%	1.99%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by Slovakia should be approved.
 - LPS's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? In April 2019, 24-hour BRAFRA (Bratislava FRA) was implemented within Slovakian airspace.	✓	Reference in PP 3.2.1(b)	Reference in LSSIP Page 42
Major ERNIP Recommended Measures: Measure included within performance plan?	2	Reference in PP Implemented	Reference in ERNIP Page 101
Free Route Airspace Bratislava - BRAFRA (FL245 - 660)	✓	Implemented	Page 90
SEEN FRA Phase 2	✓		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Slovakia achieved a KEA of 2.55% in 2019 and needed to meet an indicative target of 2.14% in 2019 to achieve the planned target of 2.10% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

In April 2019, 24-hour BRAFRA (Bratislava FRA) was implemented within Slovakian airspace. LPS SR is a participant of the SEEN FRA, which enables airspace users to plan their flights freely across the airspace of four states - Bulgaria, Hungary, Romania and Slovakia as of 6 December 2018 during limited night hours.

LPS SR is expected to extend this to a 24-hour cross-border FRA in 2021/2022, subject to evaluation of the experience gained from SEEN FRA. Doing so will strengthen its ability to achieve the targets.

Finally, the airspace restructuring program that Slovakia has planned will ensure its airspace is designed for expected traffic and is anticipated to improve both capacity and environment KPAs.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Slovakia plan for an environmental incentive scheme? Slovakia does not plan to apply an optional incentive scheme for the environment KPA.	✗
--	---

SLOVAKIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Slovakia proposes target values, which are significantly higher than national reference values in the first four years of RP3, but gradually converge towards the reference values, finally becoming equal to the reference value in 2024.

NOP delay forecast values are significantly higher than national reference values (difference is 0.82 to 1.44 minutes per flight in 2024), and are also higher than the national targets proposed by Slovakia (difference is ranging from 0.2 minutes per flight in 2020 to between 0.82 and 1.44 minutes per flight in 2024).

Slovakia justifies this deviation with the unforeseen high traffic growth of recent years, which was above 10% in 2018. Insufficient ATCO capacity is also identified as the main reason behind deteriorating capacity performance.

Existing capacity plans and the NOP delay forecast indicate that target values set by Slovakia are ambitious, and require structural changes in the traffic flows to be realistic.

Slovakia presented detailed capacity enhancement measures, which are seen effective in increasing capacity, but it still remains doubtful if these are sufficient in closing the capacity gap if traffic continues to flow on current routes.

- Performance plan capacity target is consistent with the reference value	✗	✗	✗	✗	✓
Deviation target v. reference value (minutes per flight)	0.42	0.41	0.34	0.21	0.00
- NOP delay forecast is lower or equal to the PP capacity target	✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

n/a

3.1.3 Incentives

En route: No bonuses are possible, maximum penalty is set at 0.5% of determined costs.

The pivot value is not based on reference values published in NOP for the first four years of RP3. The pivot values will be modulated based on % of CRSTMP-only delays (attributed by ANSP) in the previous three years. Delay forecast in NOP shows that the ANSP is likely to incur penalties. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive. The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

3.1.4 Investments

One major investment project in line with ATM Master Plan and SESAR concept without direct focus on capacity targets achievement.

The total amount of 6.59M€ will be reimbursed to airspace users in RP3 that corresponds to the difference in planned and actual depreciation in RP2 and the cumulative amount of cost of capital from RP2.

In RP3, the total cost of other new investments is nearly six times higher and cost of existing investments is about 24 times higher than the major investment.

3.1.5 PRB conclusions

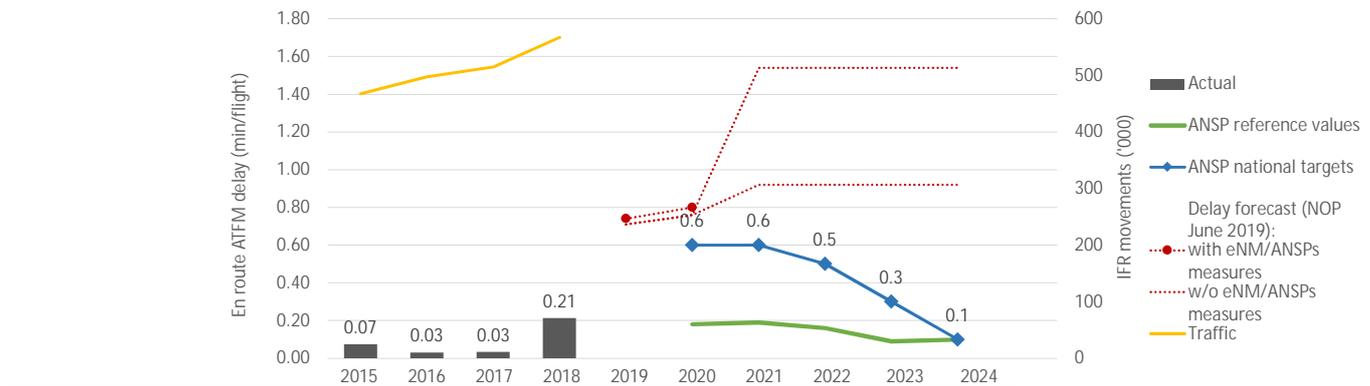
✗

The PRB concludes that the capacity targets proposed by Slovakia should not be approved.

- National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in each year of the reference period.

- The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.

3.2.1 Overview of en route ATFM delay per flight



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+7.2%	+6.4%	+3.5%	+10.1%						
Actual ATFM delay per flight	0.07	0.03	0.03	0.21						
ANSP reference values					0.18	0.19	0.16	0.09	0.10	
ANSP national targets					0.60	0.60	0.50	0.30	0.10	
Forecast with eNM/ANSPs measures*					0.74	0.80				
Forecast w/o eNM/ANSPs measures*					0.71	0.76		0.92-1.54		

* NOP June 2019

- Performance plan capacity target is consistent with the reference value		✗	✗	✗	✗	✓
Deviation target v. reference value (minutes per flight)		0.42	0.41	0.34	0.21	0.00
- NOP delay forecast is lower or equal to the PP capacity target		✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP

Description of capacity enhancement measures

Slovakia has outlined short- and long term capacity enhancement measures in the performance plan. For the short term, the listed measures are:

- Addressing current insufficiency of ATCO staff and training additional ATCO personnel;
- Introducing East/West sector configuration in 2020 to better accommodate the change in flight patterns and divide the busiest sector;
- Optimisation of sector opening times;
- Finalisation of ATM system hardware upgrade in 2020 to reduce ATCO workload;
- Possible extension of SEEN FRA periods, while also considering other cross-border FRA options as necessary.

On the long-term, the listed measures are:

- Intensive ATCO recruitment and training;
- Air/Ground Datalink functionality to be operational in 2021, capacity increase expected in 2022;
- Continued implementation of improved ATFCM techniques (DAM/STAM);
- Increasing the number of sectors from five to eight, once ATCO staff is sufficient;
- FAB CE level enhanced sectorisation, Central/South East Europe airspace restructuring project;
- FRA implementation according to PCP.

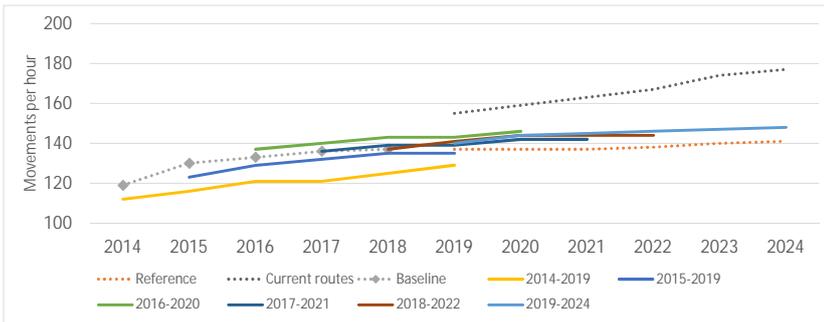
Measures outlined in the performance plan are fully in line with those of the NOP, and are seen as effective measures to enhance capacity. There are still doubts with regard to these measures being sufficient to reach the target values, especially in 2024.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Bratislava ACC (LZBB)	Additional ATCOs in OPS to start working in the OPS room	0	0	10.64	6.258	1.962	0.7	6	+23
	ATCOs in OPS to stop working in the OPS room	0	0.65	1.7	0	1.3	0	0	
	ATCOs in OPS to be operational at year-end	54.29	53.64	62.58	68.838	69.5	70.2	76.2	
Total - LPS (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	10.64	6.258	1.962	0.7	6	+23
	ATCOs in OPS to stop working in the OPS room	0	0.65	1.7	0	1.3	0	0	
	ATCOs in OPS to be operational at year-end	54.29	53.64	62.58	68.838	69.5	70.2	76.2	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) i

Bratislava ACC (LZBB)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						137	137	137	138	140	141
Current routes						155	159	163	167	174	177
Baseline	119	130	133	136	137						
2014-2019	112	116	121	121	125	129					
2015-2019		123	129	132	135	135					
2016-2020			137	140	143	143	146				
2017-2021				136	139	139	142	142			
2018-2022					137	141	144	144	144		
2019-2024						140	144	145	146	147	148

- Historical data shows that Slovakia has already been planning for increased capacity profiles since 2016, and was able to cope with the traffic increase without exceeding the delay target values until 2018, when traffic grew by over 10%.

- Current capacity plans are set above the reference profile with difference growing from three movements per hour in 2019 to seven in 2024. However, the currently planned capacity profile is significantly below current routes profile, with the difference growing over RP3 from 10.7% to 19.6%. This indicates that if traffic continues to flow via the currently used route structure, Slovakia will experience a capacity gap.

- NOP delay forecast values show dramatically higher values than the target values (0.92 - 1.54 minutes per flight vs. 0.6, 0.5, 0.3, 0.1 minutes per flight respectively between 2021-2024). This indicates that a shift in traffic structure towards the shortest routes and/or serious capacity enhancement measures are needed from the Member State in order to reach the target.

- The currently planned capacity profile contains an 2.8% increase from 2019 to 2020. Between 2020 and 2024 the plan contains a yearly increase of 0.6%. This profile does not seem to correspond to the measures which have been outlined in the performance plan. Either the planned capacity profiles should be updated, or additional measures should be introduced by the Member State.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps i

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure i
The performance plan contains no additional measures compared to the set of measures included in the NOP. The NOP renders these measures as effective in enhancing capacity, however maintains that a capacity gap is still to be expected for Slovakia.
- b) Measures proposed by the NM are implemented in the Performance Plan ✓
Measures proposed by the NM are fully implemented in the performance plan.
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM ✓
Measures are fully implemented in the performance plan.
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values ✗
There is no information in the performance plan regarding additional measures proposed by the NSA.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements) ✓
Staffing plans are described in detail, and are seen as effective in addressing the capacity gap closure (at least partially). The performance plan contains an increase of over 42% in ATCO numbers over RP3 years).
- f) Flexible use of operational staff is planned and ensured ✓
The performance plan contains measures regarding optimised sector opening times and also measures addressing the current insufficiency of ATCO staff.
- g) Limitations of ATM system/infrastructure is mitigated ✓
The performance plan contains measures which are targeting the limitations of ATM systems, such as a hardware update and the introduction of Air/Ground DataLink functionality. The underlying reason behind the capacity gap is not technical limitations, but the structural lack of capacity and the dramatic increase in traffic.

- Slovakia proposes target values which are significantly higher than national reference values in the first years of RP3, but gradually converge towards the reference values, finally being equal to the reference value in 2024.
- The NOP delay forecast values are significantly higher than national reference values (difference is 0.82 to 1.44 minutes per flight in 2024), and are also higher than the national targets proposed by Slovakia (difference is ranging from 0.2 minutes per flight in 2020 to between 0.82 and 1.44 minutes per flight in 2024).
- Slovakia justifies this deviation with the unforeseen high traffic growth of recent years, which was above 10% in 2018. Insufficient ATCO capacity is also identified as the main reason behind deteriorating capacity performance.
- Existing capacity plans and the NOP delay forecast indicate that target values set by Slovakia are ambitious, and require structural changes in the traffic flows to be realistic.
- Slovakia presented detailed capacity enhancement measures, which are seen effective in increasing capacity, but it still remains doubtful if these are sufficient in closing the capacity gap if traffic continues to flow on current routes.

3.3. Arrival ATFM delay per flight (not applicable)

Slovakia

Slovakia has not established any terminal charging zone for RP3.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	0.000%	0.500%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.18	0.19	0.16	0.09	0.10
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.60	0.60	0.50	0.30	0.10
Pivot values for RP3	0.60	0.60	0.50	0.30	0.10

Threshold review

There is no possibility for bonus. For determination of penalty only: the pivot value is not based on the reference values published in the NOP for the first four years of RP3, instead it is based on national targets. For the final year, the pivot value is based on the reference values published in the NOP.

Modulation review

Modulation is applied through use of CRSTMP only mechanism. The performance plan states that the pivot value will be weighted according to the CRSTMP proportion of delay, as reported by the ANSP, for the previous three years. The pivot values have not been adjusted in the performance plan to date.

Review of financial advantages/disadvantages

No bonus is possible. A maximum penalty of 0.5% of revenue is possible. Delay forecasts in the NOP for all causes of delay range from 0.76 to 1.54 minutes per flight over RP3. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme n/a

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ⚠

En route:

- No bonuses are possible, maximum penalty is set at 0.5% of determined costs.
- The pivot value is not based on reference values published in NOP for the first four years of RP3. The pivot values will be modulated based on % of CRSTMP-only delays (attributed by ANSP) in the previous three years.
- Delay forecast in NOP shows that the ANSP is likely to incur penalties.
- As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, thus the incentive scheme does not have a material impact on the revenue at risk.

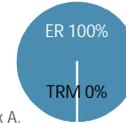
3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	7.5	7.7	7.9	7.7	8.0	38.8
En route	M€ (nominal)	7.5	7.7	7.9	7.7	8.0	38.8
Terminal	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

- The numbers presented in this table do not correspond with the values presented below due to inconsistencies between the performance plan and its annex A.

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Data Link Service Implementation	Data Link Service Implementation in the ATM system	5.9	Yes	Yes	1.5	0.1
Total:						1.5	0.1

Airspace user feedback regarding major investments

Airspace users highly welcomed Slovakia's decision to reimburse in RP3 the unspent RP2 CAPEX.

Airspace users noted that for the purpose of defining performance in RP3, projects should be clearly linked to the achievement of the performance targets and justified by costs and benefits. Slovakia has addressed this request by providing the Annex C of the performance plan with additional information about benefits of investment projects.

Review of investments

Major new investments represent 4% of the total determined costs of investments over RP3. This category of investments covers only one project, Data Link Service Implementation. In fact, 2015-2018 actual CAPEX delivery reaches 33% and the amount underspent is 35M€. This is the reason why some of projects described as "other new and existing investments" will constitute a continuation of projects started in RP2 (i.e. DLS Service implementation and deployment of VoIP pilot platform). However, LPS SR ensures that will not double charge airspace users for those investments: "firstly the costs related to investment actions included in costs for RP2 are not part of RP3's costs, and secondly, the costs associated with investment actions that have not been carried out in RP2 are deducted from costs for RP3 and thus effectively returned to users". The difference between the planned and actual depreciation in RP2 amounts to 5.12M€ and the correspondent cost of capital for investments in RP2 represents 1.47M€. The total amount of costs to be returned to the airspace users during RP3 is 6.59M€.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	14.9	14.9	0.4	1.3	2.4	2.3	2.4	8.8
Existing investments			7.3	7.1	6.7	7.5	7.3	35.9

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>Other new investments represent 19% of the total determined costs of investments over RP3, while existing investments represent 77.5%. As mentioned before, some projects will constitute a continuation of projects started in RP2. According to LPS SR's justification given in Annex E of the performance plan: "several significant investments have been postponed in RP2 not only due to administrative complexity of the national procurement laws and procedures, which are beyond ANSP's control, but also due to the lack of sufficiently exact inputs available prior to the forecast of second reference period performance plan. One of the most significant variables influencing fulfilment of the foreseen investment plan is development of the traffic from both complexity and volume points of view".</p> <p>LPS SR main investment domains are:</p> <ul style="list-style-type: none"> - Enhancement of the Free Route Airspace concept; - Establishment of technological infrastructure for essential System Wide Information Management applications; - Improvement services and procedures related to cybersecurity in ATM; - Enhancement of ADS-B / MLAT coverage; - Improvement of VoIP deployment; - Further support of GNSS implementation.
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand 

The major investment does not directly aim at the capacity improvement. According to the NOP 2019-2024, there are other capacity enhancement measures that improve airspace procedures and staffing. The technical measures introduced by the NOP include the AGDL and the HW/SW Upgrade measures. The Investment #1 (Datalink Service Implementation) seems to refer to the AGDL measure with minor delay of one year to achieve the operational capacity (2022) compared to the NOP and LSSIP (2021). The other new and existing investments possibly cover the HW/SW Update. The level of detail and categorisation of investments provided by the Annex E of the performance plan, however, do not allow to make a proper assessment of the capacity's improvement costs and to assess whether the investment levels are scaled to demand. In RP3, the total cost of other new investments is nearly six times higher and cost of existing investments is about 24 times higher than the major investment. Investment #1 is linked to capacity improvement and it is justified by the ATM Master plan. Based on the experiences from other DLS projects implemented so far, the project is not expected to bring large capacity improvements without other SESAR solutions being implemented across larger airspace volumes and territories.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan 

The major investment does not address any specific capacity concern or issue forecast for RP3. The investment's operational capability is planned with slight delay (one year) compared to the NOP and LSSIP. According to the performance plan, all investment projects concentrate more on SES and ATM Master Plan requirements.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented 

Investment #1 is planned to reach operational capability by the end of 2022. The performance plan does not indicate any dependencies that could jeopardise its implementation date or other capacity improvement activities. The other new and existing investments are planned along the whole RP3. Some of the other new and existing projects (not specified by the performance plan) refer to delayed or postponed projects from RP2.

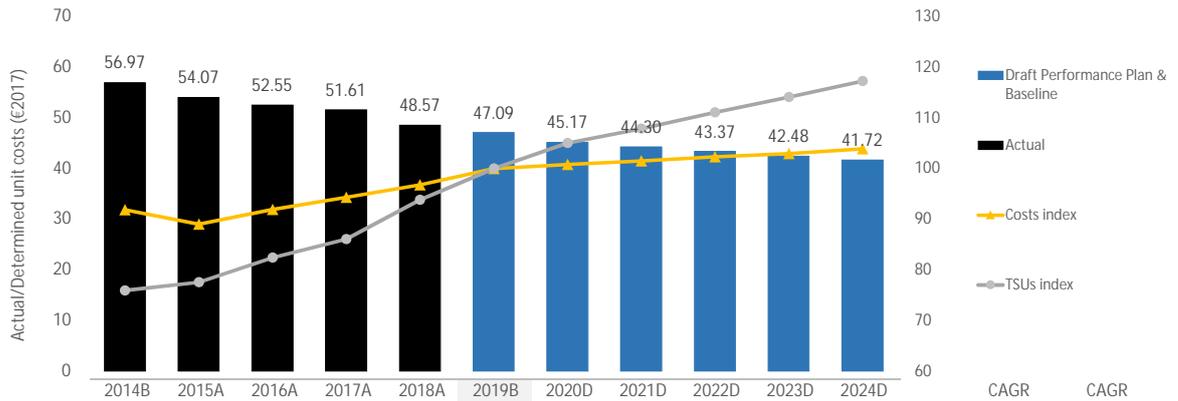
3.5.4 PRB Key Points

- Slovakia has planned one major investment for RP3 and has delivered 33% of the CAPEX during RP2 to date (2015-2018).
- The total amount of 6.59M€ will be reimbursed to airspace users in RP3 that corresponds to the difference in planned and actual depreciation in RP2 and the cumulative amount of cost of capital from RP2.
- In RP3, the total cost of other new investments is nearly six times higher and cost of existing investments is about 24 times higher than the major investment.
- No major issues identified for the contribution to capacity.
- Investment #1 is in line with the ATM Master Plan and SESAR but without direct focus on capacity targets' achievement.
- More detailed information is needed to assess the impact of all investments on capacity.
- The information provided in Annex E of the performance plan is difficult to use due to low level of detail.

SLOVAKIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	60	58	59	61	64	-	69	71	73	75	76	-	+2.5%
Total costs	M€ (2017)	60	58	60	61	63	65	66	66	67	67	68	+0.8%	+1.2%
TSU	'000	1,049	1,071	1,138	1,189	1,296	1,382	1,452	1,491	1,535	1,577	1,620	+3.2%	+4.4%
AUC/DUC	€ (2017)	56.97	54.07	52.55	51.61	48.57	47.09	45.17	44.30	43.37	42.48	41.72		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	56.97	54.07	52.55	51.61	48.57	47.09	45.17	44.30	43.37	42.48	41.72		
Annual change	%		-5.1%	-2.8%	-1.8%	-5.9%	-3.1%	-4.1%	-1.9%	-2.1%	-2.1%	-1.8%	-2.4%	-3.1%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	47.09 €2017	✓
--	-------------	---

Slovakia uses the STATFOR February 2019 base forecast for the en route traffic baseline.

As for the 2019 cost baseline, Slovakia uses the latest available cost estimates which are +2.1% above the 2018 actuals (in real terms) and in line (+0.8%) with the planned RP2 determined costs.

4.1.3 Summary of cost-efficiency assessment results

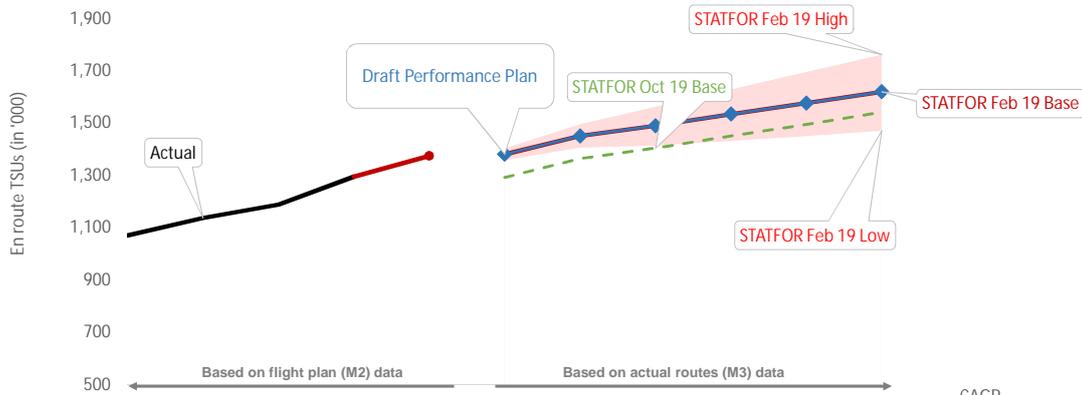
a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-2.4%	✓
Slovakia meets the RP3 assessment criteria, with an RP3 trend of -2.4%.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-3.1%	✓
Slovakia meets the long term (RP2 and RP3) assessment criteria, with a long term trend of -3.1%.		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (40.02 €2017)?	+17.7%	✗
Slovakia does not meet the 2019 DUC level criteria with a DUC baseline +17.7% higher than the average of its comparator group. This difference, however, is reduced to +4.7% by 2024.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Slovakia should be approved.

- Slovakia is meeting the Union-wide RP3 DUC trend and Union-wide long term DUC trend.
- Slovakia is not consistent with the average DUC baseline of the comparator group.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	1,071	1,138	1,189	1,296								
Annual change	%		+6.2%	+4.5%	+9.0%								
STATFOR Feb 19 Base	'000 TSUs					1,375	1,382	1,452	1,491	1,535	1,577	1,620	+3.2%
Annual change	%					+6.1%	+6.6%	+5.1%	+2.7%	+3.0%	+2.7%	+2.7%	
STATFOR Oct 19 Base	'000 TSUs					-	1,293	1,366	1,405	1,452	1,496	1,543	+3.6%
Annual change	%					-	-0.2%	+5.6%	+2.9%	+3.4%	+3.0%	+3.1%	
Performance Plan	'000 TSUs						1,382	1,452	1,491	1,535	1,577	1,620	+3.2%
Annual change	%						+6.6%	+5.1%	+2.7%	+3.0%	+2.7%	+2.7%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (PP baseline, M3)	1,382			2019B (PP baseline, M3)	1,382	
2019F (as in the Reporting tables, M2)	1,375			2019F (STATFOR Feb 19, M3)	L 1,358 B 1,382 H 1,404	=B
2019B/ 2019F	0.45%	+0.45%	+0.27%	2019F (STATFOR Oct 19, M3)	L 1,287 B 1,293 H 1,298	+6.88%

Slovakia uses the STATFOR February 2019 base forecast and has applied the CRCO M3/M2 February coefficient for the calculation of the 2019 traffic baseline.

It is to be noted that the evolution of the traffic to date (end of October) shows the same level of traffic in 2019 with respect to the same period of 2018 which is lower than foreseen in February.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

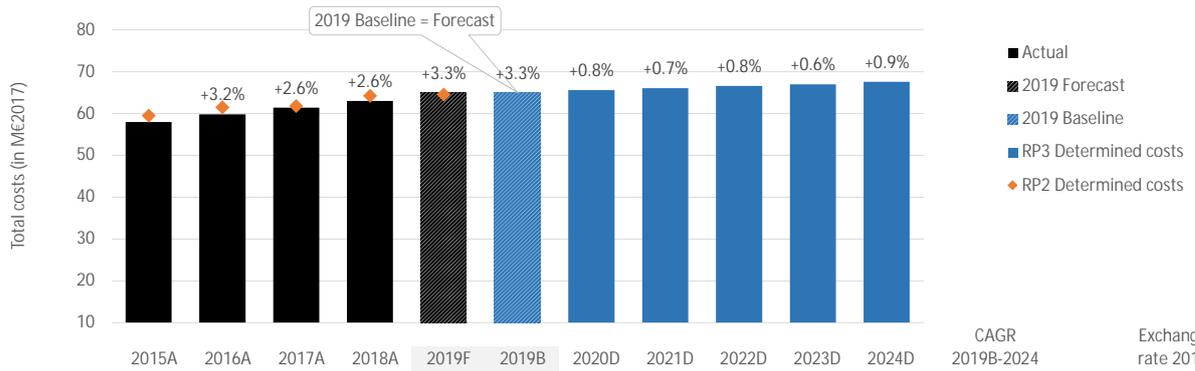
Review of the PP traffic forecast

Slovakia uses the STATFOR February 2019 base forecast for RP3, which forecasts an average increase of +3.2% p.a. for the 2019-2024 period.

4.2.4 PRB Key Points

- No major issues identified.

4.3.1 Overview of en route costs in RP2 and RP3



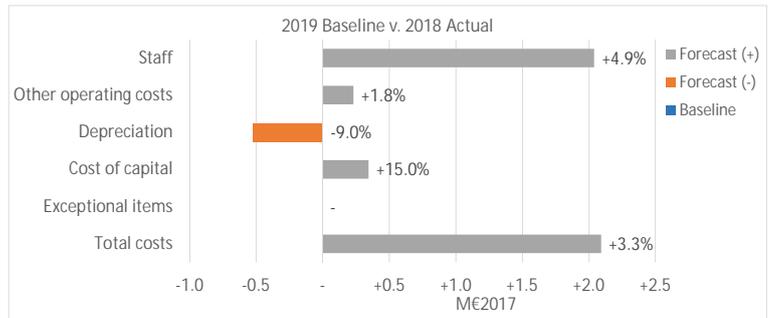
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	58	59	61	64	68	-	69	71	73	75	76	-	€:€
Annual change	%	-	+2.9%	+3.7%	+4.6%	+5.3%	-	-	+2.4%	+2.5%	+2.4%	+2.6%	+2.1%	1.00000
Inflation index	2017 = 100	99.1	98.6	100.0	102.5	105.0	105.0	107.2	109.5	111.8	114.2	116.6	-	-
Total costs	M€ (2017)	58	60	61	63	65	65	66	66	67	67	68	+0.8%	-
Annual change	%	-	+3.2%	+2.6%	+2.6%	+3.3%	+3.3%	+0.8%	+0.7%	+0.8%	+0.6%	+0.9%	+0.8%	-
Total costs	M€ (2017)	58	60	61	63	65	65	66	66	67	67	68	+0.8%	-

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+2.1	+3.3%
2019F v. 2019 RP2 DC	+0.5	+0.8%
2019F v. average 2015-2018	+4.5	+7.5%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast costs are +3.3% above the 2018 actuals (in real terms) and in line (+0.8%) with the planned RP2 determined costs.

The forecast is calculated using the latest available cost estimates for 2019. A breakdown per cost category is provided in Annex F of the performance plan.

The forecast is very slightly higher than the one presented during the consultation meeting with the airspace users on the 06.08.2019, which was calculated using the linear regression method and supported by the airspace users. However, the difference is negligible and leads to a DUC baseline only +0.01€2017 higher.

2019 baseline analysis

The 2019 baseline is in line with the 2019 forecast.

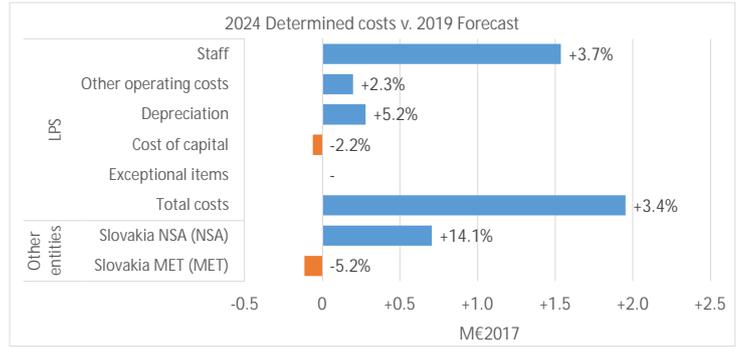
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ✓ Investments (see details in 3.5)
- ✓ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.00%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	Yes



Costs for LPS in 2024 are +3.4% (or +2.0M€2017) higher than in 2019, which represents an increase of +0.7% p.a.

The main driver for this increase is the staff costs which are +3.7% (+1.5M€2017) higher in 2024 than in 2019, mainly due to the increase in ATCO staff costs considering that LPS plans to increase the number of ATCOs in +23FTEs by 2024 compared to 2019.

NSA costs are also planned to increase +14.1% (or +0.7M€) between 2024 and 2019.

It should also be noted that Slovakia has decided to implement an asymmetric penalty-only incentive scheme.

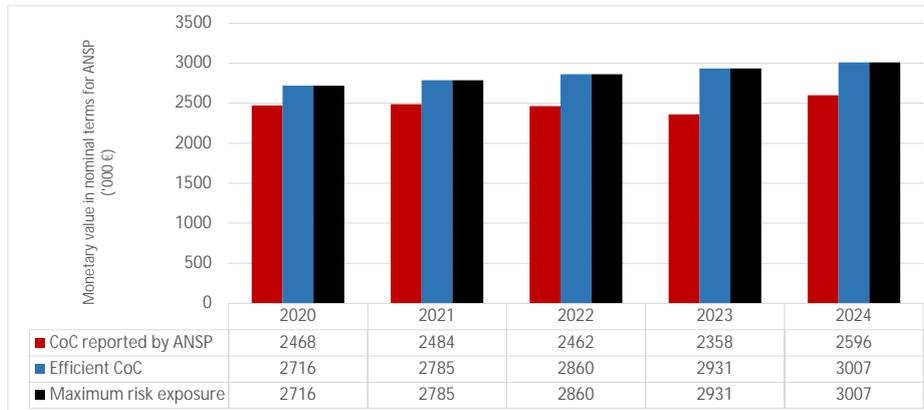
4.3.4 PRB Key Points

- The 2019 forecast costs are +2.1% above the 2018 actuals (in real terms) and in line (+0.8%) with the planned RP2 determined costs.
- Costs for LPS in 2024 are +3.4% (or +2.0M€2017) higher than in 2019, which represents an increase of +0.7% p.a. The main driver for this increase is the staff costs which are +3.7% (+1.5M€2017) higher in 2024 than in 2019, mainly due to the increase in ATCO staff costs considering that LPS plans to increase the number of ATCOs in +23FTEs by 2024 compared to 2019.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	61,727	63,285	64,989	66,609	68,331
Monetary value of Return on Equity	2,468	2,484	2,462	2,358	2,596
Ratio RoE/DC (%)	4.0%	3.9%	3.8%	3.5%	3.8%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.1%	n/a								
Interest on debts	3.3%	n/a	3.2%	n/a	3.2%	n/a	3.1%	n/a	3.1%	n/a
Capital structure (% debt)	60.0%	n/a								
WACC	4.8%	5.3%	4.7%	5.3%	4.7%	5.5%	4.7%	5.8%	4.7%	5.4%

Is the interest on debts in line with the market? **Yes**

LPS SR does not have any loans at the moment. However, the cost of debt has been calculated based on CAPM model assuming that 60% is financed via debt. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.

The efficient cost of capital is computed in line with the maximum risk exposure.

Adjustments to the proposed cost of capital are not necessary for the reported cost of capital over the period 2020-2024.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	47,727	48,846	48,382	46,349	51,297
Net current assets	3,674	3,540	3,866	4,006	4,148
Adjustments total assets	0	0	0	0	0
Total asset base	51,401	52,387	52,248	50,355	55,444

The fixed asset base increases in the first two and in the last year of RP3, in 2021-2023 the values decrease. This is in line with the investments described in section 3.5 of this document, especially with the existing investments (77% of the total investments).

The net current assets do not present major issues.

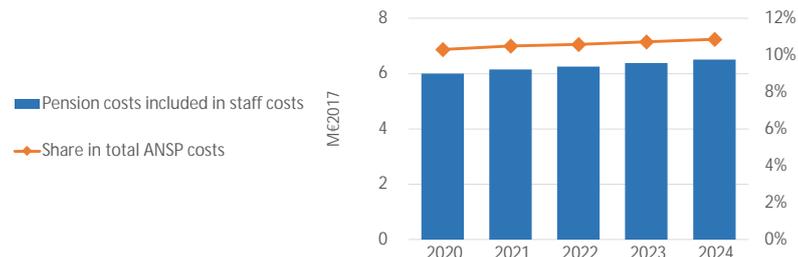
The RAB does not include adjustments to the total asset base.

The total asset base fluctuates over RP3, this is mostly due to the fluctuation in the fixed asset base.

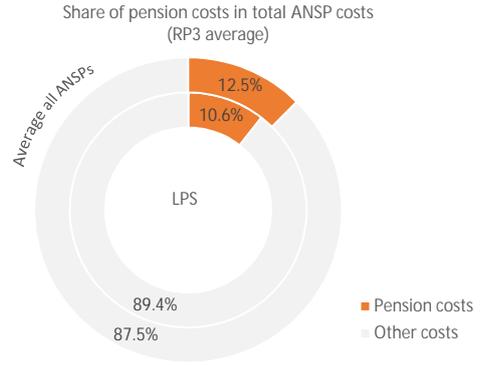
4.3.A.5 PRB Key Points ✓

- The cost of capital is in line with the maximum risk exposure and no major issues have been identified.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	6.0	6.2	6.3	6.4	6.5
Year on year variation	% change		+2.5%	+1.7%	+1.9%	+2.0%
Share in total ANSP costs	%	10.3%	10.5%	10.6%	10.7%	10.9%
Year on year variation	p.p.		0.2p.p.	0.1p.p.	0.1p.p.	0.1p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

n/a

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer's contribution is planned to remain at 17% (14% social security, 3% disability) for all years of RP3.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer's contribution is planned to remain at 6% for all years of RP3.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

The defined benefit scheme is not funded. The amount of contribution is set both by the legislation and collective agreement. Planned costs are based on the staff number plan, their planned salary assessment and specific social and economic parameters (e.g. average life expectancy, inflation).

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Slovakia argues in the performance plan that the method of calculation and the amount of contributions to the defined contribution and defined benefits schemes are given both by legislation and collective agreement. From this perspective, the associated costs are controllable by the ANSP only partly. Planned amounts are based on the staff number plan and their planned salary assessment. With regard to these parameters actual figures may differ from the plan, while the ANSP's influence remains limited.

4.3.B.4 PRB Key Points ✓

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

Slovakia did not mention changes in the cost allocation methodology with respect to RP2.

Costs are allocated between terminal and en route services directly in LPS SR's accounting system according to rules set by the company's internal directive. Annually, these rules are considered against those set by the principles and the cost allocation as a whole is subject to separate audit performed by an independent auditor.

As stated in the performance plan, "cost allocation is performed in several steps. In a first step the person forming particular cost decides to which extent (expressed in percentage) it supports en route or terminal air navigation services. Costs not related to ANS are not further considered for the cost-base calculation purposes. For facilities and services which serve both en route and terminal activities and which cannot be allocated exactly the basic allocation key is a share of terminal/en route IFR movements on total IFR movements controlled. This allocation key is kept under annual review. In next steps further allocation of APP/TWR costs is performed to satisfy the 20km rule anticipated by the Conditions of Application. Different allocation ratios are applied here including terminal units/tons controlled (allocation to different aerodromes), ATCO hours controlled (allocation between APP and TWR) and distance controlled (allocation of APP costs to en route or terminal charging zone). These allocation keys are under annual review, as well."

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

n/a

If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points ✔

- Slovakia did not mention a change in the cost allocation methodology with respect to RP2.
- No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✓ DUC consistency with the Union-wide RP3 DUC trend
- ✓ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-2.4%	Union-wide trend	-1.9%	Difference	-0.5p.p.
PP trend	-3.1%	Union-wide trend	-2.7%	Difference	-0.4p.p.
PP 2019 baseline	47.09	Average comp. group	40.02	Difference	+17.7%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

Slovakia meets both the RP3 and long term (RP2 and RP3) trend criteria with trends of -2.4% and -3.1% respectively, better than the Union-wide target trends.

Slovakia does not meet the 2019 DUC level criteria with a DUC baseline +17.7% higher than the average of its comparator group. This difference, however, is reduced to +4.7% by 2024.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- Slovakia is meeting the Union-wide RP3 DUC trend and Union-wide long term DUC trend.
- Slovakia is not consistent with the average DUC baseline of the comparator group.

4.5 Terminal (not applicable)

Slovakia

Slovakia has not established any terminal charging zone for RP3.

PRB Assessment

SLOVENIA

Draft Performance Plan

Context and scope

Slovenia

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 21.11.2019
 Documents no: 1756, 1757, 1371, 1372, 1368, 1366, 1369, 1367, 1758, 1759

Relative weight compared to the SES area (2018):	
% Flight-hours v. SES	0.3%
% Costs V. SES	0.3%

Scope

FAB:	FAB CE
ANSPs:	Slovenia Control, Ltd Slovenian Environment Agency (ARSO)
Other entities (as per Article 1(2) last para. of Regulation 2019/317):	Civil Aviation Agency Slovenia EUROCONTROL

Air Navigation Services including: ASM, ATFM, ATC, FIS, Air Traffic Advisory Service, Alerting Service, AIS, SAR, CNS, MET Service

National Supervisory Authority
NM, CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Slovenia	n/a	No	No	No	
Terminal	n/a	n/a	n/a	n/a	n/a	
Changes in the CZs from RP2		Yes				
No terminal charging zone has been included in the RP3 performance plan.						

Comparator group:	Group C	Other States in the comparator group:	Bulgaria Croatia Czech Republic Hungary Poland Portugal Romania Slovakia
-------------------	---------	---------------------------------------	---

Currency:	€	Exchange rate:	1.00000
-----------	---	----------------	---------

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Slovenia Control	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Slovenia should be approved.

-The EoSM safety targets are in line with the Union-wide performance targets.

- Slovenia did not provide relevant measures to achieve the RP3 safety targets levels. Measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

The PRB notes that no investments are needed to achieve the RP3 safety target levels. The PRB understands that the State/ANSP through applied practices, ensured that safety is not impaired by the changes required to their ATM Functional System.

The State-level change management practices are established in compliance with Commission Implementing Regulation (EU) 2017/373 and should, if applied, be sufficient to control any safety impact and to minimise the network impact of planned changes.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.68%	1.68%	1.67%	1.67%	1.67%

PRB Assessment

The PRB concludes that the environment targets proposed by Slovenia should be approved.

- Slovenia Control's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.23	0.24	0.19	0.12	0.12
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	n/a	n/a	n/a	n/a	n/a

PRB Assessment

The PRB concludes that the capacity targets proposed by Slovenia should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Slovenia will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.

- The PRB notes that if delay forecast values are realised, the incentive scheme will automatically generate a yearly 1% bonus.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	55.08	53.99	53.27	52.15	51.10
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a

CAGR 2014-2024	CAGR 2019-2024
-2.7%	-1.9%
n/a	-

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Slovenia should be approved.

- Slovenia is meeting the Union-wide RP3 DUC trend and Union-wide long term DUC trend.

- Slovenia is not consistent with the average DUC baseline of the comparator group.

PRB Recommendations

SAFETY

- Slovenia should define measures to improve maturity levels in the area of Safety Risk Management, including explicit measures at the NSA level derived from Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Slovenia should consider invoking point (b) of Article 32 of Commission Implementing Regulation (EU) 2019/317, which enables charging modulation to incentivise airspace routings that are shorter in distance.

- Slovenia should minimise the impact of network inefficiencies on its local inefficiency by offering DCTs where possible and working with regional partners.

CAPACITY

- Slovenia should consider a penalty-only incentive scheme, or at least ensure, that significant bonuses can only be earned if extra efforts are made by the ANSP and performance is better than delay forecast values.

SLOVENIA

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are achieved at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The ANSP plan to achieve RP3 safety targets in four out of five management objectives at the start of RP3. Specific measures to achieve level D by 2023 in the area of safety risk management should be provided. Additionally, measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

1.1.3 Interdependencies and Trade-offs

No changes are directly required to achieve RP3 performance targets. Changes are to be implemented in ATM functional system, which may affect safety, but safety has the highest priority and is claimed not to be compromised. The draft performance plan confirms that staff are available for relevant safety activities despite potential resource shortfalls. Mitigating any potential safety impact is done through established safety assessment processes. Metrics used for monitoring safety performance are described.

The PRB considers the explanation sufficient.

1.1.4 Change Management

The performance plan states that robust change management procedures are applied to mitigate any negative impact of the system changes on safety. Change management practices to be applied are defined and based on requirements included in Commission Implementing Regulation (EU) 2017/373, with oversight of the compliance from the civil aviation authority. At the level of details provided in the performance plan, these practices should, if applied, be sufficient to control impact on safety in particular.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Slovenia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- Slovenia did not provide relevant measures to achieve the RP3 safety targets levels. Measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be provided. The PRB will closely monitor the implementation of measures described from Commission Implementing Regulation (EU) 2017/373 during RP3 in its "RP3 watchlist".

The PRB notes that no investments are needed to achieve the RP3 safety target levels. The PRB understands that the State/ANSP through applied practices, ensured that safety is not impaired by the changes required to their ATM Functional System.

The State level change management practices are established in compliance with Commission Implementing Regulation (EU) 2017/373 and should, if applied, be sufficient to control any safety impact and to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the COMMISSION IMPLEMENTING DECISION (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
Slovenia Control	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

The draft performance plan argues that the current measures applied in RP2 (Safety Culture, Just Culture, Safety Management System and efficient occurrence reporting system) led to achieving or exceeding safety targets during RP2, thus the same measures will be applied for RP3. No specific measures are provided for the safety risk management objective despite the ANSP needing to improve by one level during RP3. No measures are noted for the NSA to ensure their compliance with Commission Implementing Regulation (EU) 2017/373.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The draft performance plan notes as a general remark that no changes are to be implemented with the purpose of reaching targets for RP3. The performance plan identifies changes which will be implemented to the ATM Functional System which may have a safety implication. It is noted that "Safety is considered as given, no trade-offs are possible on account of safety, which has the highest priority and shall not be by any circumstance compromised" , i.e. no trade-off with safety levels are accepted. The draft performance plan states that resource shortfalls do not impair availability of staff to safety activities.

1.3.2 Change Management Practices

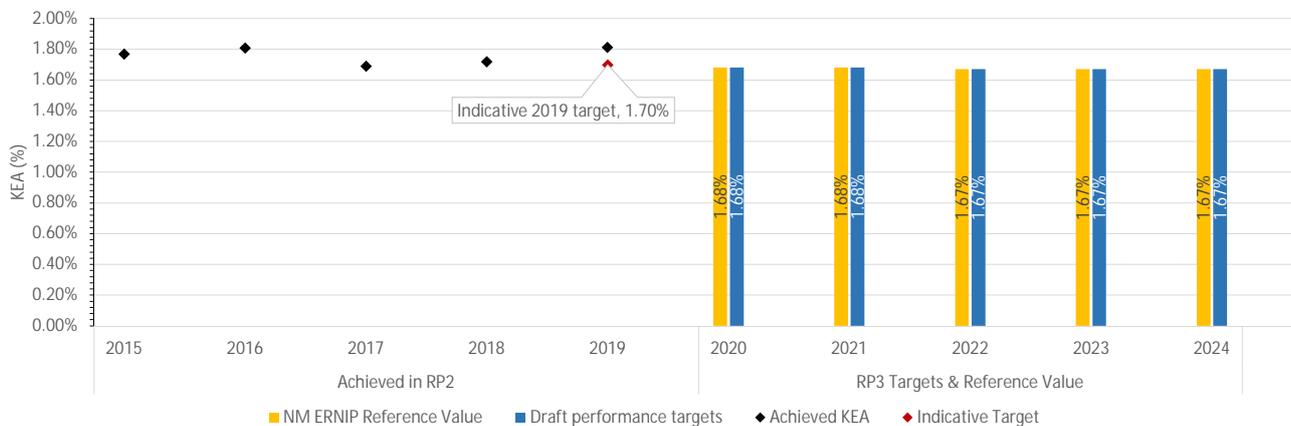
The draft performance plan does not include specific descriptions on the change management process and transition planning, other than noting that the ANSP has a "robust change management procedures applied to mitigate any negative impact of the system changes". The description implies through "Overall oversight of changes in the field of ATM/ANS is being done by the civil aviation authority following Commission Implementing Regulation (EU) 2017/373 and Commission Regulation (EU) 2015/340 and with clearly defined environment for implementing both technical and operational changes, including changes in the training of licensed personnel and ATSEP", that the practices in place are or will be compliant with Commission Implementing Regulation (EU) 2017/373. The PRB considers such practices sufficient, if applied.

SLOVENIA

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.68%	1.68%	1.67%	1.67%	1.67%
Draft performance targets	1.68%	1.68%	1.67%	1.67%	1.67%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

The PRB concludes that the environment targets proposed by Slovenia should be approved.
 - Slovenia Control's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓
Slovenia Control implemented free route airspace in 2016 above FL245.	
Major ERNIP Recommended Measures:	1
Measure included within performance plan?	
Implementation of SECSI (South East Common Sky Initiative) FRA	✓
FUA Implementation according to latest LLSIP	Implementation
1	✓
2	✓
3	✓

Reference in PP	Reference in LSSIP
3.2.1(b)	Page 34

Reference in PP	Reference in ERNIP
Implemented	Page 13

The chart in section 2.1.1 shows that Slovenia achieved a KEA of 1.81% in 2019 and needed to meet an indicative target of 1.70% in 2019 to realistically achieve the planned target of 1.68% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

Slovenia Control is a part of the South East Common Sky Initiative Free Route Airspace (SECSI FRA) which merged the two free route airspaces SAXFRA (Slovenian-Austrian Cross-border Free Route Airspace from GND to FL660) and SEAFRA (South-East Axis Free Route Airspace -a project shared between the three ANSPs from Bosnia and Herzegovina, Croatia, Serbia and Montenegro from FL 205 to 660) in February 2018.

Slovenia is a Member State that is affected by network inefficiencies that worsens its overall KEA performance, even though its local efficiency is strong.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Slovenia plan for an environmental incentive scheme?	✗
Slovenia does not plan to apply an optional incentive scheme for the environment KPA.	

SLOVENIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Proposed capacity targets are below the forecasted delay and in line with the respective reference delay values, contributing to the achievement of the Union-wide capacity target.

The existing capacity plans indicate that there is sufficient capacity to cope with traffic demand if the traffic uses the current route scenario, while if it shifts to the shortest routes there is an indication that capacity gap may be expected.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay n/a

3.1.3 Incentives

The en route incentive schemes listed in the performance plan exclude more than 25% of traffic within Slovenia that is not controlled by SloveniaControl.

For the incentive scheme applicable to SloveniaControl: the maximum bonus and maximum penalty should be 1% of revenue. The delay forecast in the NOP indicates that the ANSP will easily achieve full bonus for each year of RP3 (annual delay per flight - all reasons - is 0.04 per year during RP3.) As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.1.4 Investments

No major investment projects have been proposed.

Other new and existing investments may contribute to achievement of the capacity targets.

3.1.5 PRB conclusions ✓

The PRB concludes that the capacity targets proposed by Slovenia should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, Slovenia will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- The PRB notes that if delay forecast values are realised, the incentive scheme will automatically generate a yearly 1% bonus.

3.2.1 Overview of en route ATFM delay per flight ✓



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	-2.3%	+2.9%	+11.7%	+8.7%						
Actual ATFM delay per flight (movements)	0.00	0.01	0.00	0.01						
ANSP reference values						0.23	0.24	0.19	0.12	0.12
ANSP national targets						0.23	0.24	0.19	0.12	0.12
Forecast with eNM/ANSPs measures*					0.04	0.04				
Forecast w/o eNM/ANSPs measures*					0.04	0.04			0.04	

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.00	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

Performance plan contains main capacity enhancement measures, such as:

- Enhanced ATFCM techniques, including STAM;
- Enhanced sectorisation according to the FAB CE Airspace Plan;
- Flexible sector configurations, adapting regularly based on demand;
- Opening schemes will be reviewed, roster will be adapted, different shifts will be used, projects and office work reduced for ATCOs during summer;
- In 2022, there is a new study of sector capacities and configurations planned.

Capacity enhancement measures are aligned with the latest version of the NOP 2019-2024.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Ljubljana ACC (LJLA)	Additional ATCOs in OPS to start working in the OPS room	0	0	3	3	3	3	0
	ATCOs in OPS to stop working in the OPS room	0	0	0	2	0	3	0
	ATCOs in OPS to be operational at year-end	65.5	65.5	68.5	69.5	72.5	72.5	72.5
Total - Slovenia Control (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	3	3	3	3	0
	ATCOs in OPS to stop working in the OPS room	0	0	0	2	0	3	0
	ATCOs in OPS to be operational at year-end	65.5	65.5	68.5	69.5	72.5	72.5	72.5

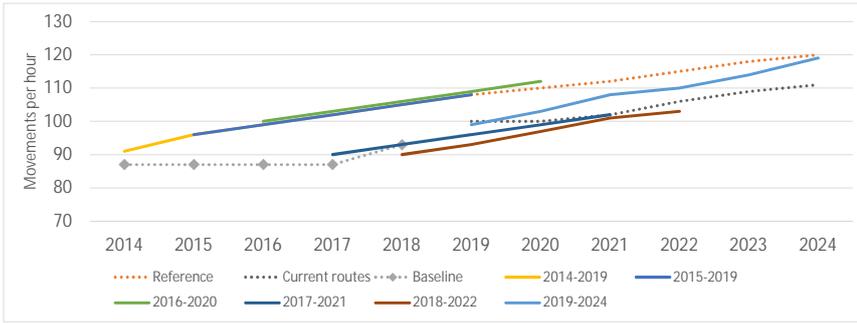
2024 (end) - 2020 (beg.)

+7

+7

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC) ✓

Ljubljana ACC (LJLA)



- Historical data shows that capacity plans were higher than the achieved baseline during the RP3. With achieved baseline values, Slovenia achieved low level delay values throughout the RP3.

- Current capacity plan indicates that there is an increase of planned capacity between 2% and 5% annually. The current capacity plan is forecasting higher capacity profile values than the current route scenario (between 3% and 7.2%) while when compared to the reference scenario there is a potential capacity gap indication between -0.8% and -4.3% throughout the RP3.

- If the traffic shifts to shortest routes, (as indicated in the performance plan) Slovenia might expect the capacity gap. According to the NOP 2019-2024 sufficient capacity will be available to cope with the traffic demand in Ljubljana ACC for the planning period.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						108	110	112	115	118	120
Current routes						100	100	102	106	109	111
Baseline	87	87	87	87	93						
2014-2019	91	96	99	102	105	108					
2015-2019		96	99	102	105	108					
2016-2020			100	103	106	109	112				
2017-2021				90	93	96	99	102			
2018-2022					90	93	97	101	103		
2019-2024						99	103	108	110	114	119

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- Proposed capacity targets are in line with the respective reference delay values, contributing to the achievement of the Union-wide capacity target.
- The existing capacity plans indicate that there is sufficient capacity to cope with traffic demand if the traffic uses the current route scenario, while if it shifts to the shortest routes there is an indication that a capacity gap may be expected.

3.3. Arrival ATFM delay per flight

Slovenia

Slovenia has not established any terminal charging zone for RP3.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	1.000%	1.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.23	0.24	0.19	0.12	0.12
Alert threshold (Δ Ref. value in fraction of min)	±0.052	±0.052	±0.050	±0.050	±0.050
Performance Plan targets	0.23	0.24	0.19	0.12	0.12
Pivot values for RP3	0.17	0.18	0.14	0.09	0.09

Threshold review

Threshold is symmetrical around pivot value. Pivot value is based on NOP reference values, and will be updated annually from November NOP.

Modulation review

Modulation of pivot values is applied based on CRSTMP-only delays. The weighting should be based on the proportion of CRSTMP delays (as attributed by the ANSP) over the previous three years.

Review of financial advantages/disadvantages

The maximum bonus and maximum penalty is 1% of determined costs. The delay forecast in the NOP indicates that the ANSP will easily achieve full bonus for each year of RP3 (annual delay per flight - all reasons - 0.04 per year during RP3.) As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme n/a

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points 📌

The en route incentive scheme listed in the performance plan exclude more than 25% of traffic within Slovenia that is not controlled by SloveniaControl.

For the incentive scheme applicable to SloveniaControl:

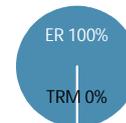
- Maximum bonus and maximum penalty is 1% of determined cost.
- The delay forecast in the NOP indicates that the ANSP will easily achieve full bonus for each year of RP3 (annual delay per flight - all reasons - is 0.04 per year during RP3.)
- As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	4.9	4.9	5.2	5.0	5.1	25.1
En route	M€ (nominal)	4.9	4.9	5.2	5.0	5.1	25.1
Terminal	M€ (nominal)	0.0	0.0	0.0	0.0	0.0	0.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)		
						ER	TMZ	
						Total:	0.0	0.0

Airspace user feedback regarding major investments

The airspace users noted that the CAPEX profile for RP3 is well understood and in line with the expectations.

The airspace users also commented on the good effort proposed by Slovenia at FAB CE-level that positively impacts the synergies in the region.

Review of investments

n/a

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided

Additional information

n/a

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	20.0	20.0	0.3	1.1	2.0	2.5	3.0	8.9
Existing investments			4.6	3.8	3.2	2.5	2.1	16.1

Description and justification of other new and existing investments in fixed assets planned over RP3

Other new investments represent 36% of the total determined costs of investments over RP3, while existing investments represent the remaining 64%. Slovenia provided a breakdown of the investments in the Annex E of the performance plan, where details and the amount invested per year for each project can be found. The three most representative investments are: Buildings (24%), ADaaS (19%) and ATM systems (12%). Buildings and ADaaS are new investments, whereas ATM systems started in RP2. In line with this, 2015-2018 actual CAPEX delivery reaches some 71% of planned for the same period and the underspend amounts to 2.41M€. It is uncertain if this amount will be given back to the airspace users or if airspace users are double charged for some RP2 investments rolled forward to RP3, including ATM systems.

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

Slovenia has not introduced any major investment for RP3. Most of the capacity enhancement measures proposed by the NOP 2019-2024 and the performance plan concentrates on airspace management and its organisation, including the FRA implementation and ATM routes structure redesign, improvement of ATC and ATFM procedures, human resources management and staff planning. In the technical domain, only minor, unidentifiable, system upgrades have been proposed for both RP2 and RP3 in the NOP.

The performance plan provides generic data on the 'other new investment' (8.9M€ in RP3) and the 'existing investments' (16.1M€ in RP3). Within those investments, there are some projects that could provide for the ATM capacity increase, although, none of the projects provided in the Annex E of the performance plan is directly focused on achievement of the capacity targets. Due to the low level of details provided in description of those projects, it is difficult to assess the level of contribution to the capacity enhancement.

The other new and contributing projects (Annex E of the performance plan) could be identified as:

- Navigation (DME/DME, GNSS), which may support airspace and routes structure redesign, new procedures, FRA implementation;
- Surveillance (WAM), which may support enhanced capacity enabling procedures;
- ATM systems, which may refer to the 'minor system upgrades as necessary' measure (NOP);
- ADaaS, ATM Data as a Service is a concept compatible with Virtualisation of Services (EAAS), it could bring capacity benefits especially when more ATM centers are involved.

The Annex E of the performance plan mentions the 'Upgrade of meteorological stations, weather radar network, satellite network' which may contribute to capacity targets as well by addressing the weather impact being one of the main delay causing factors in RP2.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

No major investments have been proposed. The low level detail description of the 'other new and existing investments' makes difficult to assess the State's consideration of operational aspects for RP3.

Some of the other new and existing investments were initiated already during RP2 and planned to be operational already in RP2. Those projects will continue depreciating in RP3. The performance plan, however, does not clarify which investments are new ones and which ones are the existing. The ADaaS (see section a) above) is planned to be deployed in RP3.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

According to the LSSIP 2018, the upgrade of the ATM system was planned to be finished in 2019. The status is not known.

Further ATM system upgrades to support delivery of ADaaS in RP3 seem to be done 'as necessary' along the RP3. It is not clear how the 'minor upgrades' referred to in the NOP contribute to the ADaaS and what investments they refer to provided by the performance plan. It seems that implementation of other capacity enhancement measures (NOP) in RP3 will be completely supported by the available ATM system, whatever version and/or architecture it will be.

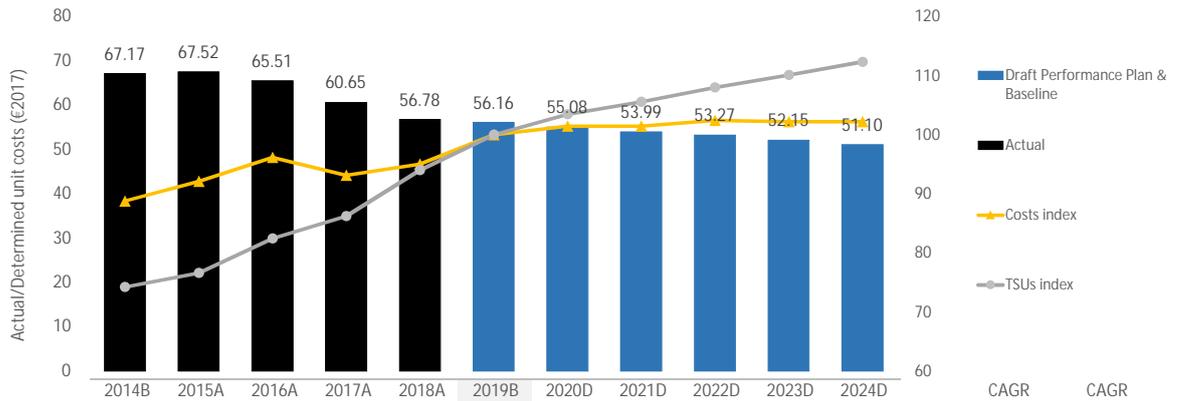
3.5.4 PRB Key Points

- No major new investments planned.
- Other new and existing investments may contribute to achievement of the capacity targets.
- More details on projects related to other new and existing investments needs to be provided in order to assess their contribution to the capacity targets achievement.

SLOVENIA

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	30	31	32	32	33	-	36	37	37	38	39	-	+2.5%
Total costs	M€ (2017)	30	31	33	32	32	34	35	35	35	35	35	+0.4%	+1.4%
TSU	'000	452	466	502	525	572	608	630	642	657	670	684	+2.4%	+4.2%
AUC/DUC	€ (2017)	67.17	67.52	65.51	60.65	56.78	56.16	55.08	53.99	53.27	52.15	51.10		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	67.17	67.52	65.51	60.65	56.78	56.16	55.08	53.99	53.27	52.15	51.10		
Annual change	%		+0.5%	-3.0%	-7.4%	-6.4%	-1.1%	-1.9%	-2.0%	-1.3%	-2.1%	-2.0%	-1.9%	-2.7%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	56.16 €2017	✓
Slovenia uses the STATFOR February 2019 base forecast for the en route traffic baseline. As for the 2019 cost baseline, Slovenia uses the latest available cost estimates which are +5.2% above the 2018 actuals (in real terms). This results in a DUC 2019 baseline slightly below (-1.1%) the 2018 actuals.		

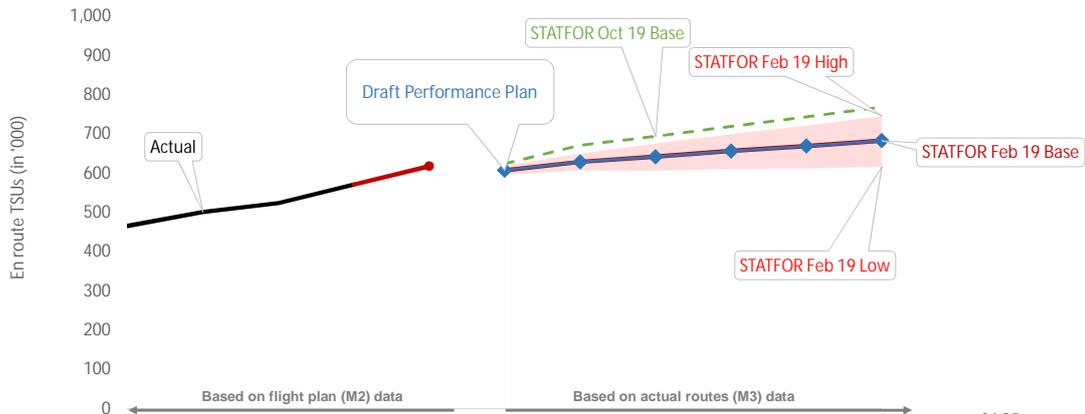
4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-1.9%	✓
The DUC trend of Slovenia matches the Union-wide target.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-2.7%	✓
The DUC trend of Slovenia matches the long-term (RP2+RP3) Union-wide trend.		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (38.88 €2017)?	+44.4%	✗
Slovenia does not meet the 2019 DUC level criteria with a DUC baseline +44.4% higher than the average of its comparator group. This difference is reduced to +32.2% by 2024.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Slovenia should be approved.	✓
- Slovenia is meeting the Union-wide RP3 DUC trend and Union-wide long term DUC trend.	
- Slovenia is not consistent with the average DUC baseline of the comparator group.	

4.2.1 Overview of service units forecasts for RP3



	2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	466	502	525	572							
Annual change	%		+7.6%	+4.6%	+9.0%							
STATFOR Feb 19 Base	'000 TSUs				619	608	630	642	657	670	684	+2.4%
Annual change	%				+8.2%	+6.4%	+3.5%	+2.0%	+2.3%	+1.9%	+2.1%	
STATFOR Oct 19 Base	'000 TSUs				-	625	672	695	720	744	769	+4.2%
Annual change	%				-	+9.3%	+7.5%	+3.4%	+3.6%	+3.3%	+3.4%	
Performance Plan	'000 TSUs					608	630	642	657	670	684	+2.4%
Annual change	%					+6.4%	+3.5%	+2.0%	+2.3%	+1.9%	+2.1%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (PP baseline, M3)	608			2019B (PP baseline, M3)	608	
2019F (as in the Reporting tables, M2)	619			2019F (STATFOR Feb 19, M3)	L 597 B 608 H 620	=B
2019B/ 2019F	-1.64%	-1.64%	-1.50%	2019F (STATFOR Oct 19, M3)	L 622 B 625 H 628	-2.72%

Slovenia uses the STATFOR February 2019 base forecast and has applied the CRCO M3/M2 February coefficient for the calculation of the 2019 traffic baseline.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

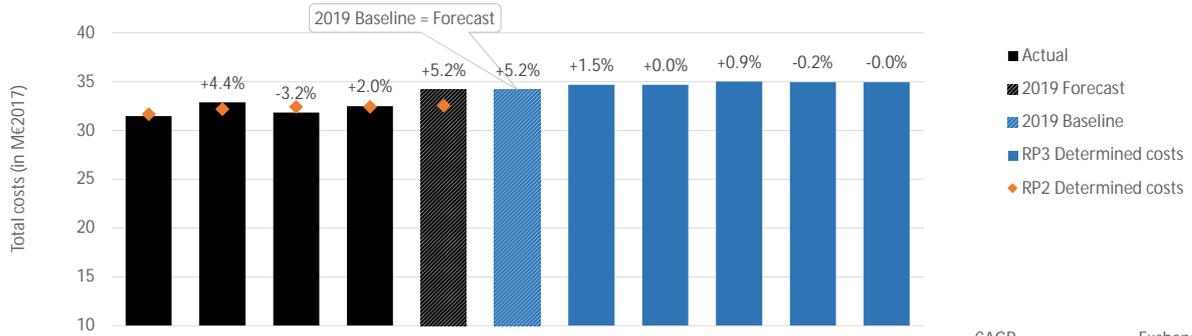
Review of the PP traffic forecast

Slovenia uses the STATFOR February 2019 base forecast for every year of RP3.

4.2.4 PRB Key Points

- No major issues identified.

4.3.1 Overview of en route costs in RP2 and RP3



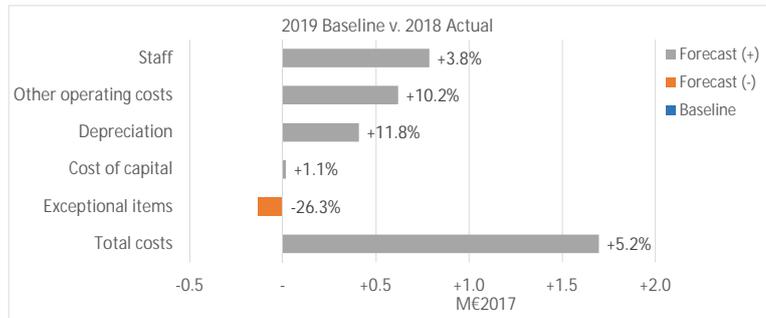
	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017	
Total costs	M€ (nom)	31	32	32	33	35	-	36	37	37	38	39	-	€:€
Annual change	%		+4.2%	-2.0%	+3.5%	+6.3%	-	+1.6%	+2.4%	+1.4%	+1.5%	+1.9%	1.00000	
Inflation index	2017 = 100	98.6	98.4	100.0	101.9	103.3	105.0	107.1	109.2	111.4	113.7			
Total costs	M€ (2017)	31	33	32	32	34	34	35	35	35	35	+0.4%		
Annual change	%		+4.4%	-3.2%	+2.0%	+5.2%	+5.2%	+1.5%	+0.0%	+0.9%	-0.2%	+0.4%		
Total costs	M€ (2017)	31	33	32	32	34	34	35	35	35	35	+0.4%		

Is inflation in PP in line with IMF (April 2019 forecast)? **Yes**

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+1.7	+5.2%
2019F v. 2019 RP2 DC	+1.6	+5.0%
2019F v. average 2015-2018	+2.0	+6.2%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast is 5.2% over the 2018 actual total costs. The main increase is in staff costs (+3.8%, or +0.8M€2017), other operating costs (+10.2%, or +0.6M€2017) and depreciation (+11.8%, or +0.4M€2017).

2019 baseline analysis

The 2019 cost baseline equals the 2019 cost forecast and was determined using the latest estimates for the 2019 costs.

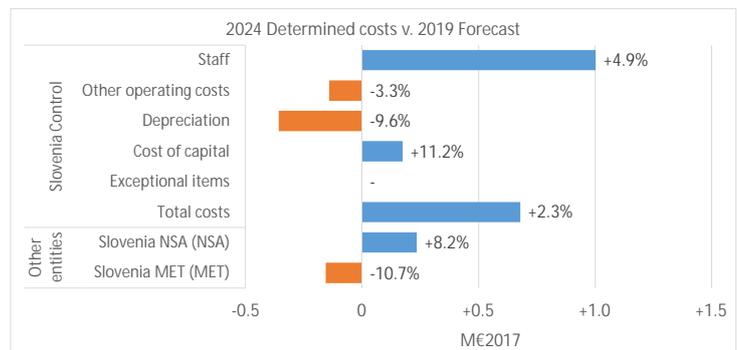
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- Investments (see details in 3.5)
- Cost of capital (see details in 4.3.1)
- Pension costs (see details in 4.3.2)
- Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	1.00%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



- Costs for SloveniaControl in 2024 are +2.3% (or +0.7M€2017) higher than in 2019, which represents an increase of +0.5% p.a.

- The main driver for this increase is the staff costs, which are +4.9% (+1.0M€2017) higher in 2024 than in 2019, mainly due to the increase in ATCO staff costs (SloveniaControl plans to increase the number of ATCOs in +7 FTEs by 2024 compared to 2019).

- SloveniaControl costs in 2024 compared to 2019 show a noticeable decrease in depreciation (-9.6%, or -0.4M€2017), which reflects different phases in the investment cycle.

- There is also an increase of +8.2% (or +0.2M€2017) in the NSA costs during the same period due to a reorganisation planned for 2021, provided that a new Civil Aviation Act is enacted by the Parliament.

4.3.4 PRB Key Points

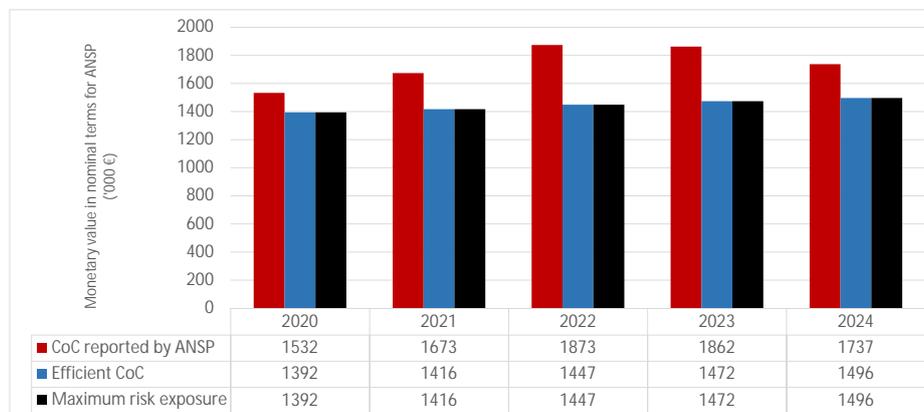


- The 2019 forecast is 5.2% over the 2018 actual total costs.
 - Costs for SloveniaControl in 2024 are +2.3% (or +0.7M€2017) higher than in 2019, which represents an increase of +0.5% p.a.
- The main driver for this increase is the staff costs, which are +4.9% (+1.0M€2017) higher in 2024 than in 2019, mainly due to the increase in ATCO staff costs (SloveniaControl plans to increase the number of ATCOs in +7 FTEs by 2024 compared to 2019).

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	31,636	32,179	32,894	33,452	33,996
Monetary value of Return on Equity	1,492	1,663	1,873	1,862	1,737
Ratio RoE/DC (%)	4.7%	5.2%	5.7%	5.6%	5.1%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	140	257	425	390	241

Total 2020-2024	1,453
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	10.4%	n/a								
Interest on debts	3.4%	n/a								
Capital structure (% debt)	60.0%	n/a								
WACC	6.2%	5.6%	6.2%	5.3%	6.2%	4.8%	6.2%	4.9%	6.2%	5.3%

Is the interest on debts in line with the market?	Yes
---	-----

- SloveniaControl will repay all its interest-bearing debt in 2021. No new loan is currently planned for RP3 (this decision might be revisited once there is a need for more resources to fund the closure of the capacity gap). However, the cost of debt has been calculated based on CAPM model assuming that 60% is financed via debt. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.

- The efficient cost of capital is computed in line with the maximum risk exposure.

- Over the period of 2020-2024, the reported cost of capital is 1.45M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 4.7%-5.7%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	25,677	27,594	30,456	30,440	28,637
Net current assets	-1,006	-656	-300	-460	-667
Adjustments total assets	0	0	0	0	0
Total asset base	24,671	26,939	30,155	29,980	27,970

- The fixed asset base slightly increases over the period, in line with the investments described in section 3.5 of this document.

- The net current assets represent no major issues.

- The RAB does not include any adjustments to the total asset base.

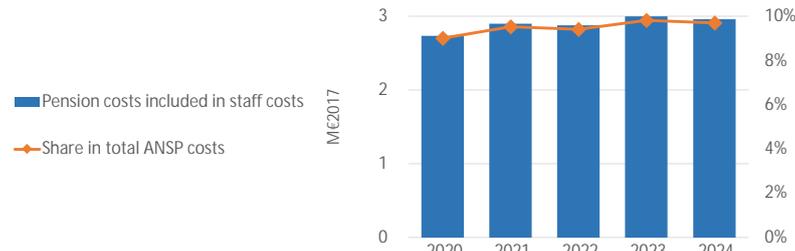
- The total asset base slightly increases over RP3 mostly due to the increase in the fixed asset base.

4.3.A.5 PRB Key Points

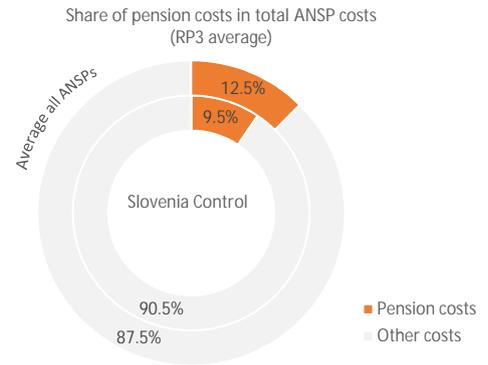


The reported cost of capital is 1.45M€ above the efficient cost of capital over the period 2020-2024. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 4.7%-5.7%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	2.7	2.9	2.9	3.0	3.0
Year on year variation	% change		+5.9%	-0.7%	+4.3%	-1.3%
Share in total ANSP costs	%	9.0%	9.5%	9.4%	9.8%	9.7%
Year on year variation	p.p.		0.5p.p.	-0.1p.p.	0.4p.p.	-0.1p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **n/a**

No defined benefit pension scheme in place for SloveniaControl.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

The employer's contribution is planned to remain at 8.85% for all years of RP3.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

There are two defined contribution schemes in SloveniaControl, one for ATCOs and one for all staff (including ATCOs), the latter being voluntary. The employer's contribution for the ATCOs' scheme is 9.25% whereas for the voluntary scheme the contribution is 235€ or 5.844% of gross salary per employee, whichever is lower. For both schemes the employer's contribution rates are planned to remain stable for all years of RP3.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

No defined benefit pension scheme in place for SloveniaControl.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

No risk mitigation measures are reported in the performance plan.

4.3.B.4 PRB Key Points

- No major issues identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Slovenia did not change the cost allocation methodology with respect to RP2.
- Costs are allocated based on organising in 'cost centres' within their internal business books. Cost centres are defined on the basis of units, departments and/or projects/activities, which allows allocation of costs to a service and facility where the costs actually occur.
- For cases where certain costs or activities occur in respect to services of both (en route and terminal) charging zones, they are allocated between the two zones based on one of the three principles: based on the share of the number of IFR en route/IFR airport flights, based on the share of time used for specific activity and based on the share of number of persons being allocated to the activity.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

No

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

n/a

2.2. Are these changes in cost allocation duly described and justified?

n/a

If, not what are the identified issues?

n/a

2.3. Is there an impact on the determined costs and/or baseline?

n/a

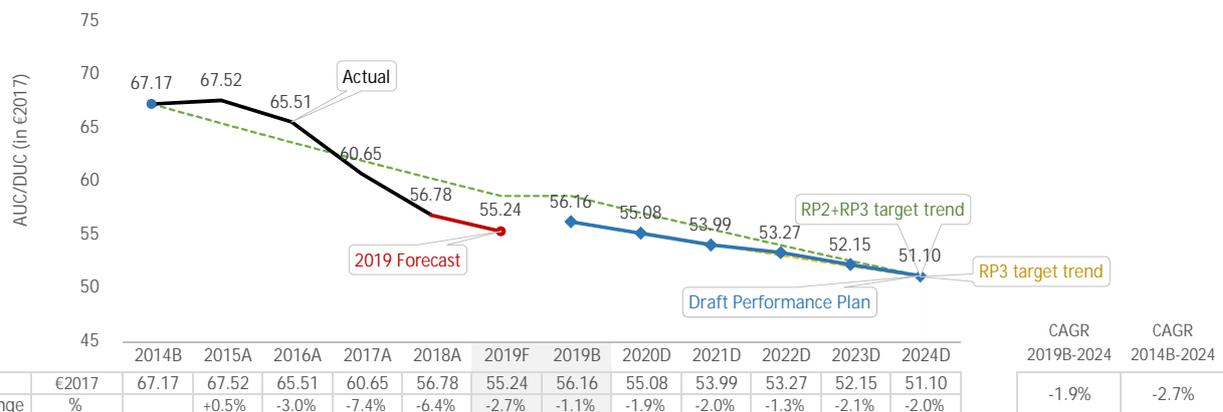
If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

n/a

4.3.C.3 PRB Key Points ✓

- Slovenia did not change the cost allocation methodology with respect to RP2.
- No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✓ DUC consistency with the Union-wide RP3 DUC trend
- ✓ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-1.9%	Union-wide trend	-1.9%	Difference	+0.0p.p.
PP trend	-2.7%	Union-wide trend	-2.7%	Difference	+0.0p.p.
PP 2019 baseline	56.16	Average comp. group	38.88	Difference	+44.4%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

- The DUC trend of the performance plan is consistent with the Union-wide target trends (RP3 and long-term RP2+RP3).
- Slovenia does not meet the 2019 DUC level criteria with a DUC baseline +44.4% higher than the average of its comparator group. This difference is reduced to +32.2% by 2024.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs

n/a

4.4.5 PRB Key Points

✓

- Slovenia is meeting the Union-wide RP3 DUC trend and Union-wide long-term DUC trend.
- Slovenia is not consistent with the average DUC baseline of the comparator group.

4.5 Terminal (not applicable)

Slovenia

Slovenia has not established any terminal charging zone for RP3.

PRB Assessment

SPAIN

Draft Performance Plan

Context and scope

Spain

Performance Plan: Updated draft performance plan (Art. 13(2)) Dated: 20.11.2019
 Documents no: 1679, 1680, 1681, 1668, 1667, 1669, 1674, 1670, 1675, 1677, 1678, 1676, 1379, 1682

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 9.4%
 % Costs V. SES 8.8%

Scope

FAB: SW FAB

ANSPs: ENAIRE
 FERRONATS
 AEMET
 ANSP-EA

ANS/TANS
 TANS (aerodrome ATS - market conditions)
 MET
 ANS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 NSA-EA
 ANSMET
 AESA

Network
 NSA
 NSA
 NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Spain Continental	n/a	No	No	No	
	Spain Canarias	n/a	No	No	No	
Terminal	Spain - TCZ	7	Yes	No	No	
		0	No	No	No	
Changes in the CZs from RP2		Yes				
Two new airports (Alicante and Ibiza, under market conditions) are added in RP3.						

Comparator group: Group A Other States in the comparator group: France
 Germany
 Italy
 United Kingdom

Currency: € Exchange rate: 1.00000

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
ENAIRES	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C
FERRONATS	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Spain should be approved.

- The EoSM safety targets are in line with the Union-wide performance targets.
- The measures proposed are found insufficient for some ANSPs to achieve the RP3 safety targets levels. No measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 are provided.
- The change management practices and transition plans for major implementations of changes into ATM Functional system are not described.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	3.23%	3.07%	2.90%	2.90%	2.90%

PRB Assessment

The PRB concludes that the environment targets proposed by Spain should be approved.

- ENAIRES' horizontal flight efficiency targets are in line with its ANSP reference values published in the June 2019 ERNIP.

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.47	0.35	0.28	0.20	0.20
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.91	0.82	0.73	0.64	0.64

PRB Assessment

The PRB concludes that the capacity targets proposed by Spain should not be approved.

- National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in 2020.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	53.13	51.60	50.94	50.25	49.23	-3.4%	-0.9%
Target for determined unit cost (DUC) (€2017) - Terminal	106.69	101.18	101.84	101.40	99.46	n/a	-1.5%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Spain Continental should be approved.

- Spain Continental achieves the Union-wide long-term DUC trend and the DUC level consistency targets.
- Spain presents a DUC deviation for achieving the capacity targets. Costs deviation is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document).

The PRB concludes that the cost-efficiency targets proposed by Spain Canarias should be approved.

- Spain Canarias achieves the Union-wide long-term DUC trend and the DUC level consistency targets.
- Short term trend would also be achieved in absence of EUROCONTROL reallocation from Spain Continental.
- Spain presents a DUC deviation for achieving the capacity targets. Costs deviation is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document).

PRB Recommendations

SAFETY

- Spain should define measures to improve maturity levels in the area of Safety Risk Management, including explicit measures at the NSA level derived from Commission Implementing Regulation (EU) 2017/373.
- Spain should define the change management processes and transition plans to minimize the network impact of planned changes compliant with Commission Implementing Decision (EU) 2017/373).

ENVIRONMENT

- Spain should work together with Portugal to offer a SW FAB FRA in order to benefit from the potential cross-border initiatives.
- Spain should improve the application of the FUA concept as it has committed to improving its civil-military co-operation.

CAPACITY

- Spain should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets in each calendar year of RP3.

SPAIN

Safety KPA

1.1.1 Target for EoSM for ANSPs

For both ENAIRE and FERRONATS, the EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be met at the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The safety action roadmap was developed by ENAIRE to improve the safety risk management area and safety management system. Considering the current safety maturity level, the actions are considered to be relevant for the ANSP. The specific measures to improve the safety risk management area should be provided for FERRONATS. Measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

1.1.3 Interdependencies and Trade-offs

ENAIRE: The changes in the ATM Functional System are assessed by standard safety management system process in accordance to European Regulation and under oversight of the NSA.

FERRONATS: There is no information available about the approach taken by FERRONATS to handle interdependencies with safety during the implementation processes.

1.1.4 Change Management

No specific procedures nor implementation plans were provided by ENAIRE or by FERRONATS.

The detailed approach to change management should be provided by both ANSPs.

1.1.5 PRB conclusions 

The PRB concludes that the safety targets proposed by Spain should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures proposed are found insufficient for some ANSPs to achieve the RP3 safety targets levels. No measures ensuring the NSA compliance with Commission Implementing Regulation (EU) 2017/373 are provided. The PRB will closely monitor the implementation of measures described from Commission Implementing Regulation (EU) 2017/373 during RP3 in its "RP3 watchlist".
- The change management practices and transition plans for major implementations of changes into ATM functional system are not described.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
ENAIRE	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM target levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3. The ANSP has recently undergone the NSA review and level C was retained as a minimum EoSM level for the start of RP3. That leaves only the safety risk management objective as a requirement for evolution throughout the whole reference period.

The performance plan describes the safety action roadmap that was developed to implement the improvements the following areas: safety risk management process, safety reporting and investigations. Additionally, the modernisation of the technical system is expected to bring benefits in the area of risk management, though no further explanations were provided. The draft performance plan indicates additional actions that have been identified in other management objectives.

Considering current safety levels and the high-level roadmap of actions to be implemented over RP3, the measures are considered relevant. However, additional measures at the NSA level derived from Commission Implementing Regulation (EU) 2017/373 should be proposed.

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
FERRONATS	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

The ANSP has recently undergone the NSA review and level C was retained as a minimum EoSM level for the start of RP3. The draft performance plan presents some measures however, none of the measures are specific to the safety risk management area and where the ANSP will need to improve. The measures in the area of safety risk management should be provided.

1.3.1 Interdependencies and Trade-offs

ENAIRES: Any changes in the ATM Functional system are assessed from a safety point of view in the context of the safety management system processes. Additionally, ENAIRES has developed a range of indicators to assess safety levels during implementation. The safety is declared as the highest priority and shall not be compromised. The safety implementation procedures are developed in accordance to European Regulation and under oversight of the NSA.

FERRONATS: The draft performance plan does not provide information about the approach taken by FERRONATS to handle interdependencies with safety during implementation processes.

1.3.2 Change Management Practices

No specific procedures nor implementation plans were provided by ENAIRES or by FERRONATS.

However, ENAIRES indicates that it follows the implantation procedures according to European Regulation with the oversight of the NSA.

SPAIN

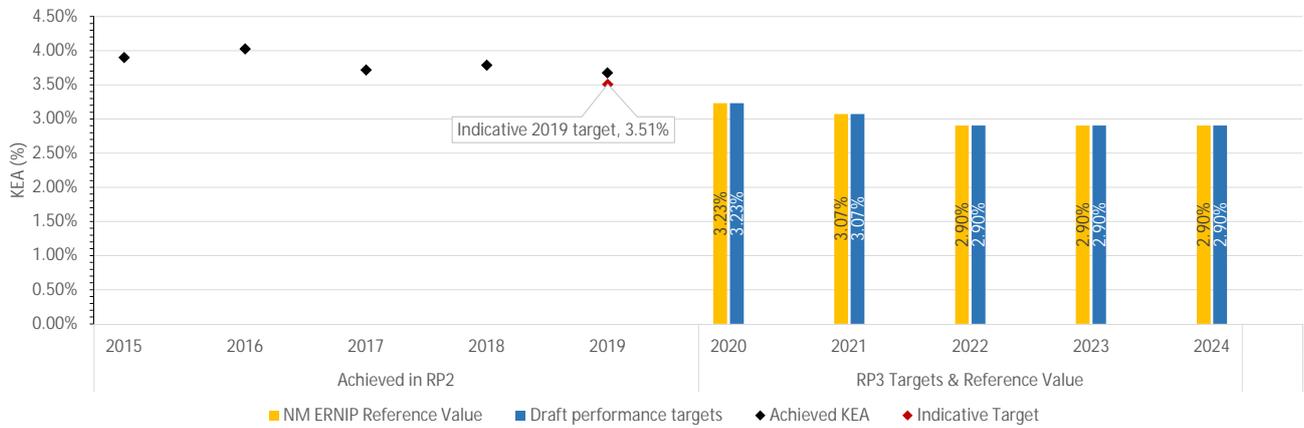
Environment KPA

2.1 Summary of environment key data and assessment results

Spain

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	3.23%	3.07%	2.90%	2.90%	2.90%
Draft performance targets	3.23%	3.07%	2.90%	2.90%	2.90%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Spain should be approved.

- ENAIRE's horizontal flight efficiency targets are in line with its ANSP reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓
The Madrid FIR sectors of Santiago and Asturias (FRASAI project) already offer a free route airspace for its users. The overall project, that covers all phases is planned to be implemented by the end 2022 according to the LSSIP.	

Reference in PP	Reference in LSSIP
Chapter 4	Page 75

Major ERNIP Recommended Measures:	3
Measure included within performance plan?	
Free Route Airspace Spain - FRESCCELIA Project Phase 1	✓
Free Route Airspace Spain - FRESCCELIA Project Phase 2	✓
Cross-border FRA initiatives	✗

Reference in PP	Reference in ERNIP
Chapter 4	Page 161
Chapter 4	Page 167
None	Page 19

FUA Implementation according to latest LSSIP	Implementation
1	✓
2	✓
3	✓

The chart in section 2.1.1 shows that Spain achieved a KEA of 3.67% in 2019 and needed to meet an indicative target of 3.51% in 2019 to achieve the planned target of 3.23% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

The NM recommends that SW FAB initiates cross-border FRA projects, particularly between Portugal and Spain and the interfaces with FABEC. To this end, no information was provided in the Spanish performance plan. It is noted, however, that the 2018 LSSIP mentions that: "The implementation of the FRA concept in the SW FAB has a long-term perspective, coherent with the operational benefits it offers to aircraft operators, that includes the following phases: Free route extension to FABEC, Free route extension to Santa Maria Oceanic airspace and SW FAB FRA Phase III (implementation of Free Route operations based in DCT segments in Madrid, Barcelona and Canarias UIR -limited to overflying traffic and from FL345)." This is expected by the end of 2022.

Mention of these projects in the performance plan would have made this a binding commitment and provided further assurance. Nonetheless FRESCCELIA phase 1 should see the implementation of night FRA above FL195 between 00:00 and 05:00 by spring 2021. Phase 2 involves expanding this to 24-hour FRA, which the plan commits too.

Spain conducted analysis to determine the reasons behind a worsened KEA between 2017 and 2018. It was found that NM measures, holdings in Madrid TMA and weather played a factor. However, in terms of overall performance, Spain identified 4 major causes of inefficiency that it can influence:

- Prohibited, restricted and danger areas;
- RAD;
- Madrid TMA holdings;
- Other countries inefficiencies.

To counter these inefficiencies, Spain proposed an improved civil-military co-operation, although more details would have been welcome, as well as the need to re-organise a TMA and increase runway capacity at Madrid.

Spain noted that re-routings within its airspace to take advantage of available capacity may have led to an impact on environmental performance. To counteract this as best as possible, Spain should ensure that capacity is available in the appropriate sectors and in line with the NOP recommendations. In terms of neighbouring inefficiencies, the PRB completed analysis to investigate Spain's local inefficiency in contrast with network inefficiency and found that Spain's performance is not affected by the latter. Network inefficiency has remained stable overall and the local performance is sensitive to small disturbances.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Spain plan for an environmental incentive scheme?	✗
Spain does not plan to apply an optional incentive scheme for the environment KPA.	

SPAIN

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Spain proposes target values, which are above the national reference value for the first year of RP3 and are equal the corresponding national reference values in the period of 2021-2024.

The NOP delay forecast values are in line with the proposed target values for the first two years of RP3 and are significantly higher than the national targets for the last three years (the difference ranges between 0.16 and 0.26 minutes per flight). Spain justifies the deviation in the first year of the reference period from the national reference values by referring to the fact that the capacity enhancement measures put in place in 2018 will only yield results from 2021 onwards, while traffic will continue to grow, thus in 2020, a capacity gap cannot be closed.

Existing capacity plans indicate that capacity gaps will remain for Barcelona ACC, Palma ACC and Sevilla ACC throughout the reference period. Spain presented detailed capacity enhancement measures, in line with the NOP. These are seen as effective in addressing the capacity gap, however it is doubtful if these are sufficient to fully close the gap.

1. PP capacity target is consistent with the reference value	✗	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.11	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM delay

The proposed targets for RP3 imply a continuous improvement on the current situation and even on the past performance targets, despite an expected traffic increase around 4.8% (CAGR) during RP3. These targets seem adequate and in line with the planned capacity measures.

3.1.3 Incentives

En route incentives: pivot value is not based on reference values published in NOP (until after 2021) and further modulated based on percentage of CRSTMP-only delays (attributed by ANSP) in previous four years (76.5% of reference value for 2020). Delay forecast in NOP shows that the ANSP is expected to achieve between 0.36 and 0.48 for the years 2020-2024 (all causes) and is likely to incur penalties. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive. The Spanish performance plan considers maximum bonus of 0.5% while maximum penalties of 1%. Together with the reasonable targets and the narrow dead band, this results in a strong incentive scheme aiming at improving current performance.

Terminal incentives: Spain is one of the few states that proposes maximum penalties of 1% versus maximum bonus of 0.5%. This fact, together with a narrow dead band and reasonable targets results in a strong incentive scheme aiming at improving the current situation.

3.1.4 Investments

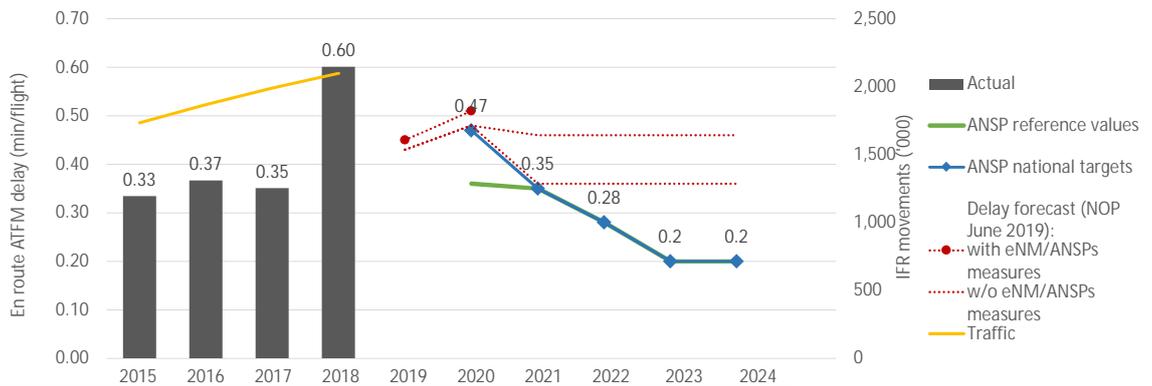
No significant issues have been identified in the capacity contribution of the investment projects. Five out of 19 projects could be linked to the capacity targets achievement measures (Investments #1,2,3,4 and 9). More information on entry to operation dates should be provided to define when capacity benefits could be expected. More information on how and where the projects are to be implemented should be provided.

3.1.5 PRB conclusions

The PRB concludes that the capacity targets proposed by Spain should not be approved.
 - National targets proposed for average en route ATFM delay per flight are not consistent with the corresponding national reference values in 2020.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✘



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual ATFM delay per flight	0.33	0.37	0.35	0.60						
ANSP reference values						0.36	0.35	0.28	0.20	0.20
ANSP national targets						0.47	0.35	0.28	0.20	0.20
Forecast with eNM/ANSPs measures*					0.45	0.51				
Forecast w/o eNM/ANSPs measures*					0.43	0.48		0,36-0,46		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✘	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	0.11	0.00	0.00	0.00	0.00
2. NOP delay forecast is lower or equal to the PP capacity target	✘	✘	✘	✘	✘

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP ✓

Description of capacity enhancement measures

The main measures outlined in the performance plan are as follows:

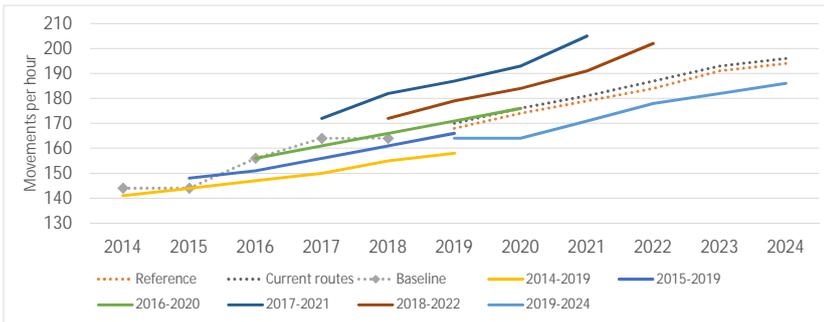
- An ATCO recruitment process, initiated already by the end of RP2 to compensate staff reduction and provide capacity for traffic growth;
- Increasing sector capacities, optimisation of arrivals, improvements of operations mode, flow management measures and interfaces;
- Modernisation of the ATM system (SACTA-iTEC) to introduce DataLink Departure Clearance, Wake vortex recategorization (RECAT), Time Based Separation, AMAN, MTCDD, Mode-S;
- Improved weather forecasting and management mechanisms to minimize impact;
- Airspace improvements and modernisation measures;
- New collective agreement to be negotiated with ATCOs to allow for more efficient rostering.

Measures are detailed per ACCs in the performance plan, and are in line with the measures contained in the NOP.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Barcelona ACC (LECB)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	324	341	370	391	414	418	423	+82
Madrid ACC (LECM)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	413	423	448	470	482	485	484	+61
Palma ACC (LECP)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	129	139	148	156	161	166	167	+28
Sevilla ACC (LECS)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	125	129	147	156	162	165	163	+34
Canarias ACC (GCCC)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	154	156	163	174	183	188	193	+37
Total - ENAIRE (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to stop working in the OPS room	0	0	0	0	0	0	0	
	ATCOs in OPS to be operational at year-end	1145	1188	1276	1347	1402	1422	1430	+242

Barcelona ACC (LECB)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						168	174	179	184	191	194
Current routes						170	176	181	187	193	196
Baseline	144	144	156	164	164						
2014-2019	141	144	147	150	155	158					
2015-2019		148	151	156	161	166					
2016-2020			156	161	166	171	176				
2017-2021				172	182	187	193	205			
2018-2022					172	179	184	191	202		
2019-2024						164	164	171	178	182	186

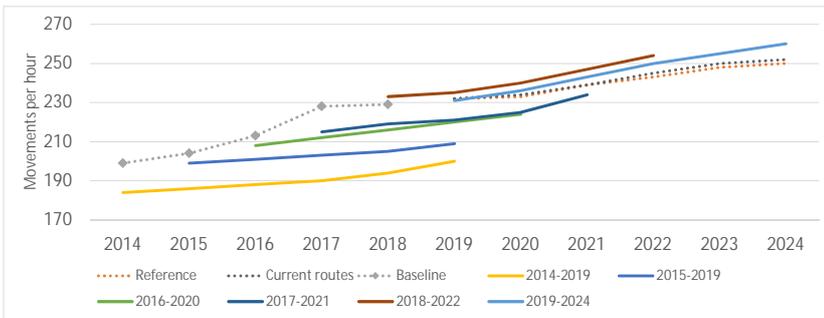
- Historical data shows that capacity plans were below baseline values. Barcelona ACC contributed significantly to the deterioration of capacity performance in 2018 in Spain.

- Latest planned capacity profiles are set below reference values (the difference ranges between 2.5% and 4%), indicating that for Barcelona ACC a capacity gap will remain during the full period of RP3.

- NOP Delay forecast values for Barcelona ACC are significantly higher than breakdown reference values (the difference ranges between 167% and 287%). This indicates that significant measures are needed to close the capacity gap.

- The performance plan states that capacity improvements measures will first deliver results in 2021. This is consistent with planned capacity profiles.'

Madrid ACC (LECM)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						232	233	239	243	248	250
Current routes						232	234	239	245	250	252
Baseline	199	204	213	228	229						
2014-2019	184	186	188	190	194	200					
2015-2019		199	201	203	205	209					
2016-2020			208	212	216	220	224				
2017-2021				215	219	221	225	234			
2018-2022					233	235	240	247	254		
2019-2024						231	236	243	250	255	260

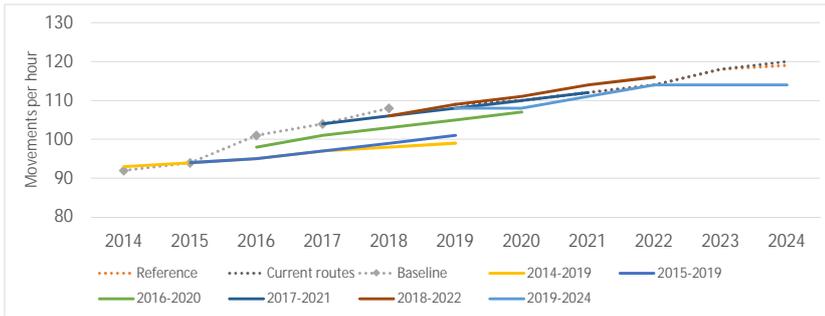
- Historical data shows that capacity plans were below baseline values. Madrid ACC contributed significantly to the deterioration of capacity performance in 2018 in Spain.

- Latest planned capacity profiles are set above reference profile values, and also above the current routes profile. Madrid ACC is not expected to have a capacity gap in RP3 according to the planned profiles.

- NOP Delay forecast values for Madrid ACC are in line with breakdown reference values.

- The performance plan states that capacity improvements measures will first deliver results in 2021. For Madrid ACC, capacity improvements are already visible in capacity profiles from 2020.'

Palma ACC (LECP)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						109	110	112	114	118	119
Current routes						109	110	112	114	118	120
Baseline	92	94	101	104	108						
2014-2019	93	94	95	97	98	99					
2015-2019		94	95	97	99	101					
2016-2020			98	101	103	105	107				
2017-2021				104	106	108	110	112			
2018-2022					106	109	111	114	116		
2019-2024						108	108	111	114	114	114

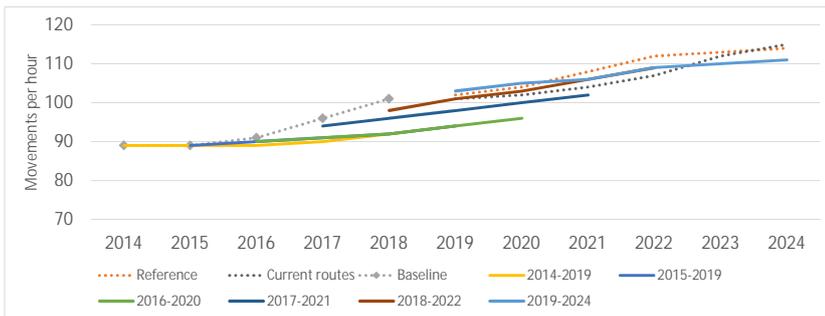
- Historical data shows that capacity plans were below baseline values. Palma ACC was not a main contributor in the deterioration of national capacity performance.

- Latest planned capacity profiles are set below reference profile values, with a significant difference of 3.4% and 4.2% respectively in the last two years of RP3. Palma ACC is expected to have a capacity gap in the last two years of RP3 according to the planned profiles.

- NOP Delay forecast values for Palma ACC are in line with breakdown reference values, except for the last two years of RP3, where breakdown reference values are 0.01 minute per flight lower than the lower boundary of the NOP delay forecast range (0.15 minutes per flight being the breakdown value and 0.16 being the lower boundary of the forecast range).

- The performance plan states that capacity improvements measures will first deliver results in 2021. This is consistent with the planned capacity profiles. It is highlighted, that for the period between 2022-2024, no improvement of capacity is foreseen in the capacity plans.'

Sevilla ACC (LECS)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						102	104	108	112	113	114
Current routes						101	102	104	107	112	115
Baseline	89	89	91	96	101						
2014-2019	89	89	89	90	92	94					
2015-2019		89	90	91	92	94					
2016-2020			90	91	92	94	96				
2017-2021				94	96	98	100	102			
2018-2022					98	101	103	106	109		
2019-2024						103	105	106	109	110	111

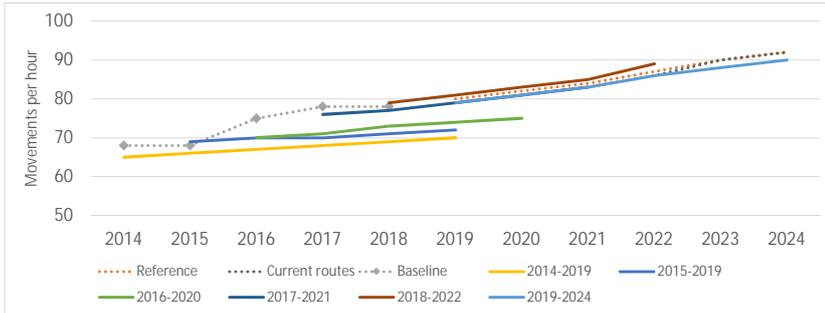
- Historical data shows a steady increase in capacity profiles. Sevilla ACC has not been a main contributor to the deteriorating national capacity performance.

- Latest planned capacity profiles are set above reference profile values for the first two years, and slightly below reference values for the last three years of RP3 (in absolute values, the difference ranging from under +1% to -3.6%).

- NOP delay forecast values for Sevilla ACC are below the breakdown values in the first three years of RP3, while in the last two years of RP3 the breakdown values fall within the NOP delay forecast range. Sevilla ACC is not expected to have a capacity gap during the reference period.

- The performance plan states that capacity improvements measures will first deliver results in 2021. This is consistent with the planned capacity profiles.'

Canarias ACC (GCCC)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						80	82	84	87	90	92
Current routes						79	81	83	86	90	92
Baseline	68	68	75	78	78						
2014-2019	65	66	67	68	69	70					
2015-2019		69	70	70	71	72					
2016-2020			70	71	73	74	75				
2017-2021				76	77	79	81	83			
2018-2022					79	81	83	85	89		
2019-2024						79	81	83	86	88	90

- Historical data shows that capacity plans were mostly below baseline values.

- Latest planned capacity profiles are set below reference profile values for the entire reference period, the difference ranging between 1.2% and 2.2%.

- NOP Delay forecast values for Canarias ACC are lower than breakdown reference values in the first two years of RP3 (the difference being 0.04 minutes per flight or 13.8% of the breakdown value). NOP forecast equals the breakdown value for 2022, but in 2023 and 2024, the forecasted delay is higher than the breakdown reference value by 0.06 minutes per flight, or 26% of the breakdown value. Canarias ACC is expected to have a slight capacity gap until the end of RP3.

- The performance plan states that capacity improvements measures will first deliver results in 2021. This is consistent with the planned capacity profiles.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

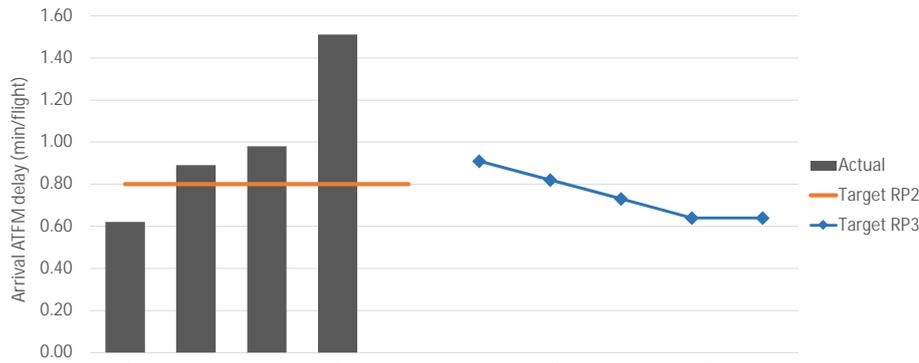
3.2.5 Review of the measures to increase capacity and address capacity gaps ✓

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure i
The performance plan contains a comprehensive set of capacity enhancement measures which are aimed at addressing the gap closure. These measures are fully in line with the measures contained in the NOP. There are no additional measures outlined in the performance plan, however, the increase of ATCO numbers is not included in the NOP.
- b) Measures proposed by the NM are implemented in the Performance Plan ✓
Measures are fully in line with NM proposals.
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM n/a
Measures are fully in line with NM proposals.
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values i
There is no indication regarding measures developed by the NSA in order to close the capacity gap in the performance plan.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements) ✓
The performance plan does not contain the full details on ATCO numbers, however it does contain the number of ATCOs in operation for every year of the reference period. This indicates an overall increase of more than 20% over the reference period.
- f) Flexible use of operational staff is planned and ensured ✓
The performance plan contains reference to a new collective agreement with ATCO personnel to allow for a more efficient rostering system.
- g) Limitations of ATM system/infrastructure is mitigated ✓
The performance plan contains measures regarding the continuous improvement of ATM systems in order to introduce advanced functionality and to overcome current limitations.

3.2.6 PRB Key Points ✗

- Spain proposes target values, which are above the national reference value for the first year of RP3, and are equal the corresponding national reference values in the period of 2021-2024.
- NOP delay forecast values are in line with the proposed target values for the first two years of RP3, and are significantly higher than the national targets for the last three years (the difference ranges between 0.16 and 0.26 minutes per flight).
- Spain justifies the deviation in the first year of the reference period from the national reference value by referring to the fact, that the capacity enhancement measures put in place in 2018 will only yield results from 2021 onwards, while traffic will continue to grow, thus in 2020, a capacity gap cannot be closed.
- Existing capacity plans indicate that capacity gaps will remain for Barcelona ACC, Palma ACC and Sevilla ACC throughout the reference period.
- Spain presented detailed capacity enhancement measures, in line with the NOP. These are seen as effective in addressing the capacity gap, however it is doubtful if these are sufficient to fully close the gap.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.62	0.89	0.98	1.51	-	0.91	0.82	0.73	0.64	0.64
Gran Canaria (GCLP)	0.17	0.58	0.55	0.31	-	0.34	0.34	0.28	0.24	0.24
Alicante (LEAL)*	0.00	0.00	0.00	0.00	-	0.06	0.06	0.06	0.06	0.06
Barcelona (LEBL)	0.68	1.62	1.72	2.94	-	1.68	1.55	1.42	1.23	1.23
Madrid/ Barajas (LEMD)	0.34	0.51	0.62	0.80	-	0.70	0.60	0.50	0.43	0.43
Málaga (LEMG)	0.04	0.01	0.15	0.26	-	0.12	0.11	0.10	0.09	0.08
Palma de Mallorca (LEPA)	1.69	1.20	1.26	2.12	-	1.40	1.22	1.10	1.00	1.00
Ibiza (LEIB)*	0.64	0.24	0.86	0.48	-	0.54	0.51	0.48	0.46	0.42

* This airport was not in the scope of RP2 so its past performance is not reflected in the graphic above for 2015-2018.

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

In RP2, Spain met the arrival delay target only in 2015, and largely surpassed it in 2018.

The performance plan for RP3 includes two new airports, Alicante and Ibiza, and uses the STATFOR February 2019 base forecast.

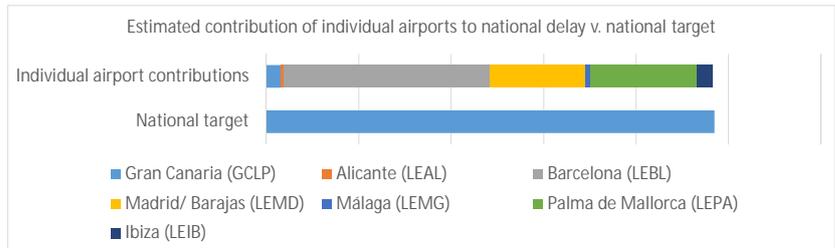
The proposed targets for RP3 are based on historical experience and projects planned within the ENAIRE capacity plan, very detailed in the performance plan. This capacity plan includes measures to improve the arrival capacity at Madrid, Barcelona, Palma and Málaga, mainly implementation of RECAT, TBS, and AMAN 2.0.

The resulting targets start at 1.00 minute delay per arrival in 2020 (higher than the RP2 constant target but lower than observed performance in 2017-2018) and then follows a continuous decrease until reaching 0.64 minutes delay per arrival in 2023 and 2024.

Taking into account past performance, these targets seem adequate and in line with the planned capacity measures.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Gran Canaria (GCLP)	0.29
Alicante (LEAL)	0.06
Barcelona (LEBL)	1.42
Madrid/ Barajas (LEMD)	0.53
Málaga (LEMG)	0.10
Palma de Mallorca (LEPA)	1.14
Ibiza (LEIB)	0.48
National Target	0.75



The breakdown at airport level of the national target estimates the biggest contribution to delays by Barcelona, followed by Palma and Madrid. This breakdown is in line with the national target, that is, assuming all airports would perform according to their target, the national performance would be the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Gran Canaria (GCLP)	GROUP III	0.25	0.41	+0.16	0.29	+0.04
Alicante (LEAL)	GROUP II	0.22	0.00	-0.22	0.06	-0.16
Barcelona (LEBL)	GROUP I	0.87	1.78	+0.91	1.42	+0.55
Madrid/ Barajas (LEMD)	GROUP I	0.87	0.57	-0.30	0.53	-0.34
Málaga (LEMG)	GROUP II	0.22	0.12	-0.10	0.10	-0.12
Palma de Mallorca (LEPA)	GROUP II	0.22	1.58	+1.36	1.14	+0.92
Ibiza (LEIB)	GROUP IV	0.01	0.56	+0.55	0.48	+0.48

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥ 80,000 and < 225,000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

Four of the seven Spanish airports included in RP3 (including the main airport Madrid) have performed better or very close to their similar airports in the past years, and the proposed targets are a further improvement on that. On the other hand, Barcelona, Palma and Ibiza show considerably worse past performance than similar airports, and although the new targets are an improvement, the delays per flight would still be above similar airports.



- The proposed targets for RP3 imply a continuous improvement on the current situation and even on the past performance targets, despite an expected traffic increase around 4.8% (CAGR) during RP3. These targets seem adequate and in line with the planned capacity measures.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.01 min	0.500%	1.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.36	0.35	0.28	0.20	0.20
Alert threshold (Δ Ref. value in fraction of min)	±0.058	±0.053	±0.051	±0.050	±0.050
Performance Plan targets	0.47	0.35	0.28	0.20	0.20
Pivot values for RP3	0.36	0.27	0.21	0.15	0.15

Threshold review

Threshold is symmetrical around pivot value, pivot value is not based on reference value published in NOP but is based on national target for 2020, which is significantly higher. After 2020, the pivot value is based on the reference value published in the NOP.

Modulation review

Several modulations in force: initial modulation of the pivot value informed by update of the reference values published in November release of NOP from previous year. Additional modulation of pivot value according to share of CRSTMP delay causes (as attributed by ANSP) over previous four years (76% for 2020).

Review of financial advantages/disadvantages

A bonus of up to 0.5% is foreseen against a possible penalty of up to 1%. For 2020, the bonus will start at 0.348 minutes per flight with full bonus at 0.3 minutes per flight. For 2020, penalty will start at 0.368 minutes per flight with full penalty at 0.416 minutes per flight. The NOP delay forecast for 2020 (all causes) is 0.48 minutes per flight. If the CRSTMP portion remains at 76%, this would approximate 0.36 minutes in which case neither bonus nor penalty would apply.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.02 min	0.500%	1.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.119	±0.109	±0.097	±0.086	±0.086
Performance Plan targets	0.91	0.82	0.73	0.64	0.64
Pivot values for RP3	0.24	0.22	0.19	0.17	0.17

Threshold review

The terminal incentive scheme includes a dead band of ±0.02 min (±8.4%) of the CRSTMP pivot value (dead band: 0.219-- 0.259 min/arr). This dead band might be a little too narrow to allow for small variations in performance with no associated bonuses/penalties.

Modulation review

Spain has chosen to modulate the pivot values according to CRSTMP causes. The pivot value has been built based on an ADF (attributable delay factor) of 26.85%. This ADF cannot be verified, as in 2018 there was a revision of the assignment of the arrival ATFM delay causes, affecting the causes C-ATC Capacity and G-Aerodrome Capacity that changed the distribution of the attributable delays.

On the other hand, the ATC service at Alicante and Ibiza airports is provided by FerroNATS which are a private provider subject to market conditions, whereas the approach service is provided by ENAIRE. A set of principles has been established to distribute the delay between ENAIRE and FerroNATS at these two airports, and the incentive scheme will take into account only the delay attributable to ENAIRE.

Review of financial advantages/disadvantages

The Spanish performance plan considers maximum bonus of 0.5% while maximum penalties of 1%. Together with the reasonable targets and the narrow dead band, this results in a strong incentive scheme aiming at improving current performance.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✓

En route incentives:

- Pivot value is not based on reference values published in NOP (until after 2021) and further modulated based on percentage of CRSTMP-only delays (attributed by ANSP) in previous four years (CRSTMP ratio is 76.5% of all delays, which translates into a pivot value of 0.36 minutes per flight 2020).
- Delay forecast in NOP shows that the ANSP is expected to achieve between 0.36 and 0.48 for the years 2020-2024 (all causes) and is likely to incur penalties.
- As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- The Spanish performance plan considers maximum bonus of 0.5% while maximum penalties of 1%. Together with the reasonable targets and the narrow dead band, this results in a strong incentive scheme aiming at improving current performance.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	118.2	121.1	122.7	128.1	130.3	620.4	
	En route	M€ (nominal)	109.3	112.0	113.7	118.9	121.2	575.0
	Terminal	M€ (nominal)	8.9	9.1	9.1	9.2	9.1	45.4

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	SACTA evolution	SACTA is ENAIRE's automated air traffic management system (SACTA= Sistema Automatizado de Control de Tránsito Aéreo). This asset represents the necessary evolution in SACTA system to comply with RP3 requirements in terms of safety, environment, capacity and cost efficiency in the indicated time frame.	119.0	Yes	Yes	13.2	0.5
2	ATM supporting infrastructure	Servers hardware and equipment necessary for the deployment or maintenance of SACTA	44.2	Yes	Yes	12.7	0.5
3	New control working position	Next generation CWP console to support new modes of operation in line with ITEC CONOPS. Larger presentation Surface to enable the integration of new ATC tools. Evolution of the system (non-strips operation, conflict detection, integration of Mode-S/ADS-B surveillance data, etc), the evolution of to stripless operation in Enroute/TMA dependencies is an enabler for Free-route operations. Required to comply with PCP Include new auxiliary tools (flow management tools, additional meteorological information, drones information, etc)	66.6	Yes	Yes	5.7	0.2
4	ICARO	ICARO system (system that provides greater automation into the aeronautical information service) (ICARO=Integrated COM/AIS/AIP & Reporting Office Automated System) Further details provided in section 2.1 of the performance plan.	7.2	Yes	Yes	2.9	0.1
5	Air/Ground Communications	Investment required to improve air-ground radiocommunications quality and coverage, evolution towards VoIP and to provide systems in case of contingencies.	23.1	No	No	4.4	0.4
6	Ground/Ground Communications	Investments in ground-ground communication systems such as radiolinks, fiber optics rings, etc.	8.7	No	No	1.8	0.4
7	REDAN (Air Navigation Data Network)	Investment on air navigation data and voice network	37.1	Yes	No	1.1	0.1
8	Voice Communications System	VCS Systems provide A-G and G-G communications to air traffic controllers. This asset represents the evolution of the VCS.	101.1	Yes	No	20.7	0.8
9	Satellite Navigation	Investments on satellite navigation systems	8.3	Yes	Yes	3.0	0.3
10	Nav aids	Investment on VOR/DME/ILS systems	25.2	No	No	4.4	0.5
11	Primary Radar	Investment on Primary Radars	34.0	No	No	3.4	0.2
12	Secondary Radars	Secondary radars	17.0	Yes	No	4.6	0.3
13	Hardware	Investment in different technological equipment necessary to support business management IT services.	12.6	No	No	3.3	0.4
14	SYSRED (National network data integration)	This system will allow monitoring of the status and evolution of the quality of the Air Navigation system provided by ENAIRE through automated and systematic analysis of data and other real time information, as well as time series comparison with previous stored data.	14.3	No	No	3.1	0.3
15	Infrastructure replacements or renovation	Energy, electricity, climatization, etc assets in different buildings	14.3	No	No	2.4	0.2
16	New Infrastructure	Different assets in different buildings	27.1	No	No	2.8	0.3
17	Infrastructure Normalisation	Different buildings hosting CNS systems require adaptation of the infrastructure and, in some cases updates or adaptation of some supporting infrastructure to comply with some non-ATM related requirements (e.g electrical)	10.0	No	No	2.3	0.1
18	Environmental sustainability	Systems and equipment related with more sustainable energy provision	11.3	No	No	4.2	0.1
Total:						96.0	5.4

Airspace user feedback regarding major investments

Airspace users stated that “while we have been provided some information on the planned RP3 investment/CAPEX programme, it lacks sufficient detail to be supported at this time. There was no cost benefit analysis provided for any of the major investments nor was there a detailed breakdown of the 392.96M€ cost of past investments, depreciation, life cycles used, deployment dates and benefits. We require this detail to ensure we are not being double charged for CAPEX planned and financed during RP2, but not deployed until RP3. When we examine the plan, we note that the majority of the planned new investment costs are scheduled from 2022-2024, again we request that the associated CBA’s be made available for consultation to ensure that they can be verified by airspace users and utilized in any monitoring processes deployed by AESA and the PRB”.

Review of investments

New major investments represent 16% of the total determined costs of investments over RP3. The Investment #4, "ICARO system" and Investment #7, "REDAN - Air Navigation Data Network" were already reported under RP2, both with a slight underspent. It is unclear if these projects continue from RP2 or they have been double charged in RP3. In line with this, the 2015-2018 actual CAPEX delivery is 97% of the planned for the same period and the underspend amounts 8.75M€. It is uncertain if this amount will be given back to the airspace users in case that ENAIRE does not fulfil the RP2 CAPEX programme.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
5	Air/Ground Communications	Network, Local	Safety, Cost efficiency	Investment required to improve air-ground radiocommunications quality and coverage, evolution towards VoIP and to provide systems in case of contingencies.
6	Ground/Ground Communications	Network, Local	Safety, Cost efficiency	Investments in ground-ground communication systems such as radiolinks, fiber optics rings, etc.
10	Nav aids	Local	Safety, Capacity, Cost efficiency	Investment on VOR/DME/ILS systems.
11	Primary Radar	Local	Safety, Capacity, Cost efficiency	Investment on Primary Radars.
13	Hardware	Network, Local	Safety	Investment in different technological equipment necessary to support business management IT services.
14	SYSRED (National network data integration)	Local	Safety	This system will allow monitoring of the status and evolution of the quality of the Air Navigation system provided by ENAIRE through automated and systematic analysis of data and other real time information, as well as time series comparison with previous stored data.
15	Infrastructure replacements or renovation	Local	n/a	Energy, electricity, climatisation, etc assets in different buildings.
16	New Infrastructure	Local	Cost efficiency	Different assets in different buildings.
17	Infrastructure Normalisation	Local	n/a	Different buildings hosting CNS systems require adaptation of the infrastructure and, in some cases updates or adaptation of some supporting infrastructure to comply with some non-ATM related requirements (e.g electrical).
19	Environmental sustainability	Local	Cost efficiency	Systems and equipment related with more sustainable energy provision.

Additional information

The major investments not required by SES legislation provide improvements mainly in the areas of cost efficiency, safety and capacity. They provide replacements to old systems, they improve or maintain current infrastructure and provide cost savings.

In general, descriptions of major investments not required by SES regulation in the performance plan are brief and do not provide comprehensive justifications.

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	0.0	0.0	1.7	2.5	2.9	3.5	3.5	14.2
Existing investments			111.1	106.8	101.0	97.1	88.7	504.7

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 2% (14.18M€) of the total determined costs of investments over RP3, while existing investments represent 81% (504.71M€). This allocation is reported in section 2.1.1. of the performance plan, however ENAIRE provides a different allocation for these two categories in Chapter 6.2.2 of the ESPP3 document: existing investments represent 364.48M€ and other new investments (renamed as “rest of planned investments”) represent 145.42. This change in the allocation in Chapter 6.2.2 does not impact the total cost for investments, which is 620.32M€ in both documents. However, it is unclear why the existing investments from section 2.1.1 of the performance plan (including those planned in RP2) decrease from 504.71M€ to 364.48M€ in Chapter 6 and are considered by ENAIRE as planned investments.
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand

Spain has introduced several projects, which are in line with the capacity enhancement measures approved within the NOP 2019-2024. In RP2, the increase of delays beyond capacity targets in Spain was related mostly to the adverse weather impact, the lack of ATM capacity and the postponement of the capacity enhancement activities. Investments #1, 2, 3, 4 and 9 have a clear link to measures proposed to achieve the capacity targets, which only in 2020 deviate from the NM's reference values. For the rest of the projects, it is difficult to assess the capacity improvements due to the low level of details provided by the performance plan. However, there might be dependencies (not defined here), which provide for enablers for the capacity enhancing investment projects. Spain needs two years (2020 - 2021, see Annex C of the performance plan) to assess the impact/contribution of the investments to the capacity plan.

Investment #1 is a new ATM system planned for deployment in 2020 and upgrade in 2022 (support to airspace measures, procedures, ATFCM and ATCO workload decrease). Investment #2 is ATM supporting infrastructure (partial enabler for Investment #1).

Investment #3 is a new Controller Working Position console (support new sectorization and ATFCM measures, procedures, ATCO workload decrease and investment #1). Investment #4 ICARO is an aeronautical information exchange system which partly supports enhancements in weather information exchange targeting the weather caused impacts (see Annex C of the performance plan). Investment #9 GNSS is a general enabler for airspace redesign measures contributing to ATM capacity improvements.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan

According to the NOP 2019-2024 and the Annex C of the performance plan, the capacity improvement measures, which are linked to the investment projects, as provided in section a) above, are planned for implementation early in RP3 (2020). That seems to be well rationalised and timewise considered. However, the planned dates of entry into operation, provided by the performance plan in section 2.1.1 - summary of investments, indicate much longer periods than the measures' implementation provided by the NOP. The description of the projects does not indicate if the projects are to be deployed at all ACCs or selectively. All that makes it difficult to confirm whether the State assessed properly 'the operational aspects of how and when capacity improvements are necessary'. Entry into service:

- Investment #1: 2020 - 2029;
- Investment #2: 2019 - 2025;
- Investment #3: 2020 - 2028;
- Investment #4: 2021 - 2025;
- Investment #5: 2020 - 2026.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented

In line with the above mentioned, there is little clarity on when the benefits from the projects (although well contributing to capacity measures) could be expected. If the deployment (entry into operation) of selected projects fall on the last year of a period as provided in performance plan section 2.1.1, then the airspace users may benefit in the fifth reference period. More explanation should be provided on the selected projects' deployment.

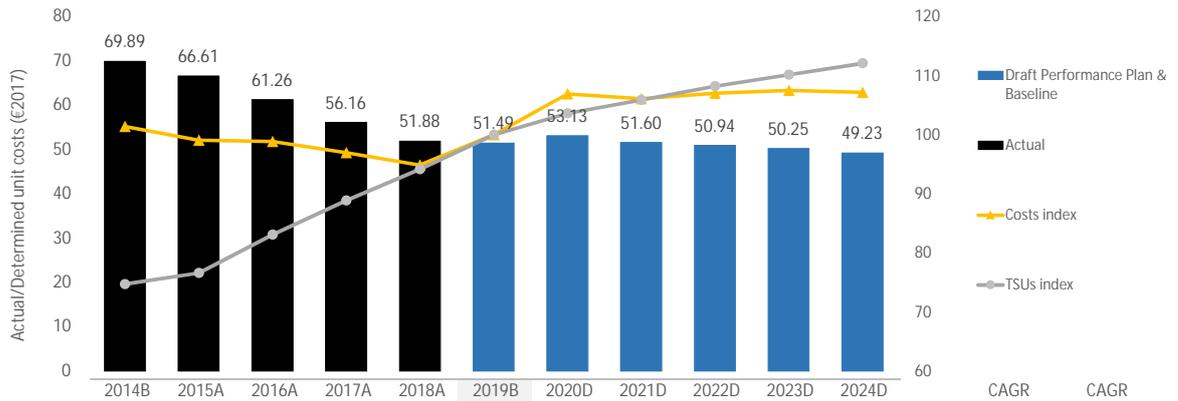
3.5.4 PRB Key Points

- A clarification on Investments #4 and #7 and on the allocation for the investments provided in Chapter 6.2.2 of the ESPP3 document should be provided in order ensure that airspace users are not double charged for CAPEX planned and financed during RP2, but not deployed until RP3.
- No significant issues have been identified in the capacity contribution of the investment projects.
- Five out of 19 projects could be linked to the capacity targets achievement measures (Investments #1, 2, 3, 4 and 9).
- More information on entry to operation dates should be provided to define when the capacity benefits could be expected.
- More information on how and where the projects are to be implemented should be provided.

SPAIN

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	609	592	589	586	581	-	669	672	689	701	709	-	+1.5%
Total costs	M€ (2017)	613	599	598	586	574	605	647	642	647	650	648	+1.4%	+0.6%
TSU	'000	8,777	8,997	9,761	10,441	11,059	11,745	12,172	12,436	12,709	12,937	13,166	+2.3%	+4.1%
AUC/DUC	€ (2017)	69.89	66.61	61.26	56.16	51.88	51.49	53.13	51.60	50.94	50.25	49.23		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	69.89	66.61	61.26	56.16	51.88	51.49	53.13	51.60	50.94	50.25	49.23		
Annual change	%		-4.7%	-8.0%	-8.3%	-7.6%	-0.8%	+3.2%	-2.9%	-1.3%	-1.3%	-2.0%	-0.9%	-3.4%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	51.49 €2017	✓
The 2019 TSU baseline is in line with STATFOR February 2019 base forecast and the 2019 cost baseline is in line with the 2019 forecast. The 2019 costs forecast is +5.4% higher than the 2018 actual costs but remains slightly lower (-0.7%) than the RP2 2019 determined costs, despite the fact that actual service units in 2018 were +21.2% above RP2 plans.		

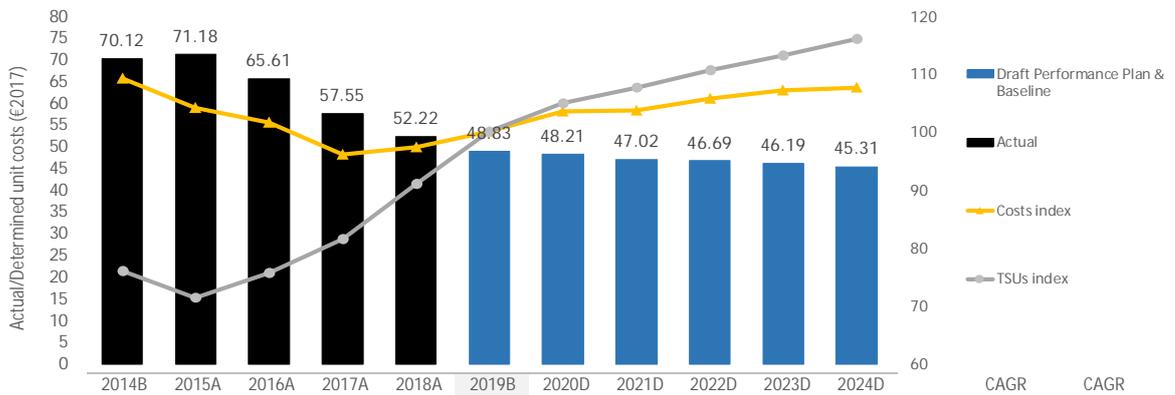
4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-0.9%	✗
Spain Continental does not meet the Union-wide RP3 trend with an RP3 trend of -0.9% p.a.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-3.4%	✓
Spain Continental achieves the long term Union-wide trend with trend of -3.4% p.a.		
c) DUC level (2019 baseline) lower than the average of comparator group (A) average (65.06 €2017)?	-21.4%	✓
The 2019 DUC baseline for Spain (weighted average of Spain Continental and Canarias) is -21.4% below its comparators' average and the DUC is planned to remain lower throughout RP3 (-17.5% in 2024).		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB conclusions

The PRB concludes that the cost-efficiency targets proposed by Spain Continental should be approved. - Spain Continental achieves the Union-wide long term DUC trend and the DUC level consistency targets. - Costs deviation is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document).		
--	--	--

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	104	99	96	92	95	-	103	104	108	111	113	-	+0.8%
Total costs	M€ (2017)	105	100	97	92	93	96	99	101	103	103	103	+1.5%	-0.1%
TSU	'000	1,494	1,402	1,485	1,602	1,788	1,963	2,060	2,115	2,171	2,223	2,277	+3.0%	+4.3%
AUC/DUC	€ (2017)	70.12	71.18	65.61	57.55	52.22	48.83	48.21	47.02	46.69	46.20	45.33		
Exchange rate	€:€				1.000									
AUC/DUC	€ (2017)	70.12	71.18	65.61	57.55	52.22	48.83	48.21	47.02	46.69	46.19	45.31		
Annual change	%		+1.5%	-7.8%	-12.3%	-9.3%	-6.5%	-1.3%	-2.5%	-0.7%	-1.1%	-1.9%	-1.5%	-4.3%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	48.83 €2017	✓
<p>The 2019 TSU baseline is in line with STATFOR February 2019 base forecast and the 2019 cost baseline is in line with the 2019 forecast. The 2019 costs forecast is +2.7% higher than the 2018 actual costs and only slightly higher (+0.6%) than the 2019 determined costs from RP2 performance plan, although the actual service units in 2018 were +16.3% above RP2 plans.</p>		

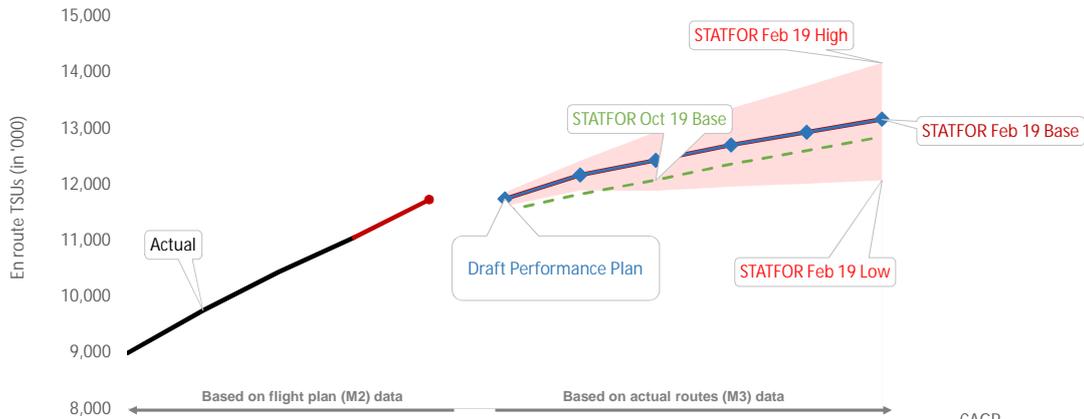
4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-1.5%	✗
<p>Spain Canarias does not meet the RP3 trend assessment criteria with an RP3 trend of -1.5%. However, correcting the 2019 baseline to take into account the inclusion of exceptional costs until 2020 and the use of different allocation keys to distribute Eurocontrol costs across the Continental and the Canarias cost bases would result in a RP3 DUC trend of -4.2%, which is better than the Union-wide target.</p>		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-4.3%	✓
<p>Spain Canarias meets the long term Union-wide trend with an long-term trend of -4.3% p.a.</p>		
c) DUC level (2019 baseline) lower than the average of comparator group (A) average (65.06 €2017)?	-21.4%	✓
<p>The 2019 DUC baseline for Spain (weighted average of Spain Continental and Canarias) is -21.4% below its comparators' average and the DUC is planned to remain lower throughout RP3 (-17.5% in 2024).</p>		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB conclusions

<p>The PRB concludes that the cost-efficiency targets proposed by Spain Canarias should be approved.</p> <ul style="list-style-type: none"> - Spain Canarias achieves the Union-wide long term DUC trend and the DUC level consistency targets. - Short term trend would also be achieved in absence of Eurocontrol reallocation from Spain Continental. - Costs deviation is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document). 	✓
--	---

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	8,997	9,761	10,441	11,059								
Annual change	%		+8.5%	+7.0%	+5.9%								
STATFOR Feb 19 Base	'000 TSUs					11,733	11,745	12,172	12,436	12,709	12,937	13,166	+2.3%
Annual change	%					+6.1%	+6.2%	+3.6%	+2.2%	+2.2%	+1.8%	+1.8%	
STATFOR Oct 19 Base	'000 TSUs					-	11,533	11,831	12,081	12,368	12,607	12,856	+2.2%
Annual change	%					-	+4.3%	+2.6%	+2.1%	+2.4%	+1.9%	+2.0%	
Performance Plan	'000 TSUs						11,745	12,172	12,436	12,709	12,937	13,166	+2.3%
Annual change	%						+6.2%	+3.6%	+2.2%	+2.2%	+1.8%	+1.8%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient 3 months	12 months	Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
2019B (PP baseline, M3)	11,745			2019B (PP baseline, M3)	11,745	
2019F (as in the Reporting tables, M2)	11,733			2019F (STATFOR Feb 19, M3)	L 11,619 B 11,745 H 11,863	=B
2019B/ 2019F	0.10%	+0.10%	+0.12%	2019F (STATFOR Oct 19, M3)	L 11,505 B 11,533 H 11,560	+1.84%

The 2019 TSU baseline is in line with STATFOR February 2019 Base forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

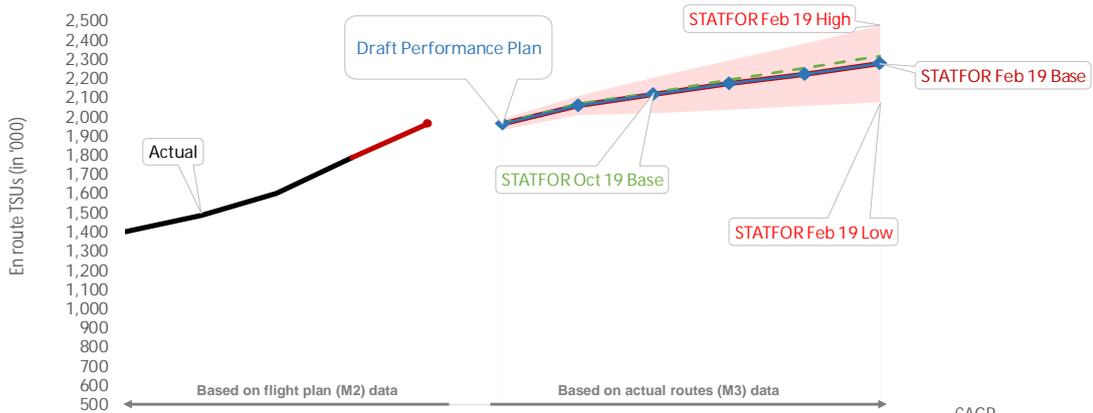
Review of the PP traffic forecast

The selected TSU forecasts are in line with STATFOR February 2019 base scenario for all years of RP3 (2020-2024) which forecast an average growth of +2.3% p.a. over 2019-2024.

4.2.4 PRB Key Points

- No major issues have been identified.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	1,402	1,485	1,602	1,788								
Annual change	%		+5.9%	+7.9%	+11.6%								
STATFOR Feb 19 Base	'000 TSUs					1,961	1,963	2,060	2,115	2,171	2,223	2,277	+3.0%
Annual change	%					+9.7%	+9.8%	+4.9%	+2.7%	+2.7%	+2.4%	+2.4%	
STATFOR Oct 19 Base	'000 TSUs					-	-	-	-	-	-	-	
Annual change	%					-	-	-	-	-	-	-	
Performance Plan	'000 TSUs						1,963	2,060	2,115	2,171	2,223	2,277	+3.0%
Annual change	%						+9.8%	+4.9%	+2.7%	+2.6%	+2.4%	+2.4%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient		Comparison vs. STATFOR forecasts	'000 TSUs	Δ(B) (%)
		3 months	12 months			
2019B (PP baseline, M3)	1,963			2019B (PP baseline, M3)	1,963	
2019F (as in the Reporting tables, M2)	1,961			2019F (STATFOR Feb 19, M3)	L 1,934 B 1,963 H 1,991	=B
2019B/ 2019F	0.12%	+0.11%	+0.13%	2019F (STATFOR Oct 19, M3)	L 1,962 B 1,969 H 1,975	-0.30%

The 2019 TSU baseline is in line with STATFOR February 2019 Base forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast
n/a

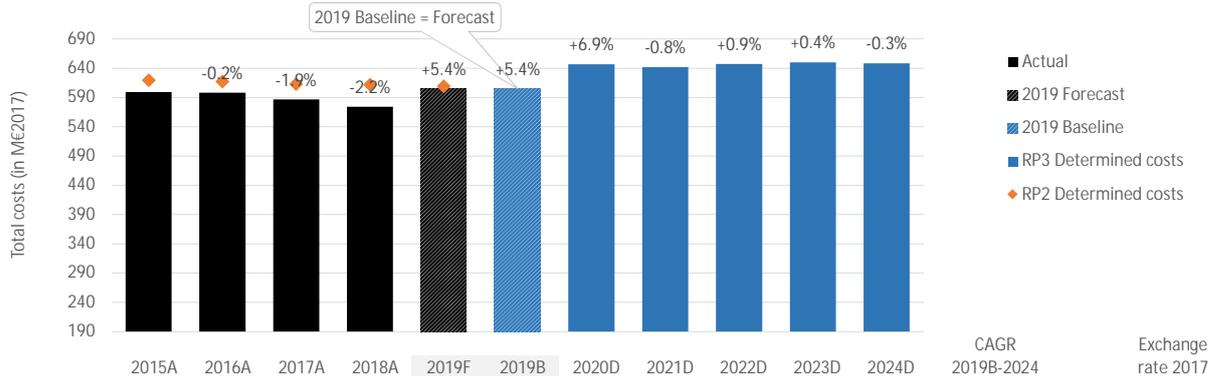
Review of the PP traffic forecast

The selected TSU forecasts are in line with STATFOR February 2019 base scenario for all years of RP3 (2020-204) which forecast an average growth of +3.0% p.a. over 2019-2024.

4.2.4 PRB Key Points

- No major issues have been identified.

4.3.1 Overview of en route costs in RP2 and RP3



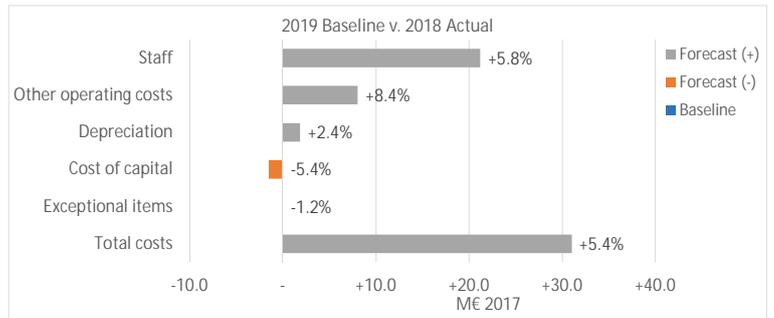
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	M€ (nom)	592	589	586	581	618	-	669	672	689	701	709	-	€:€
Annual change	%	-	-0.5%	-0.5%	-0.9%	+6.4%	-	-	+0.5%	+2.4%	+1.8%	+1.1%	-	1.00000
Inflation index	2017 = 100	98.3	98.0	100.0	101.7	102.9	102.9	104.6	106.3	108.4	110.4	112.5	+1.8%	-
Total costs	M€ (2017)	599	598	586	574	605	605	647	642	647	650	648	+1.4%	-
Annual change	%	-	-0.2%	-1.9%	-2.2%	+5.4%	+5.4%	+6.9%	-0.8%	+0.9%	+0.4%	-0.3%	-	-
Total costs	M€ (2017)	599	598	586	574	605	605	647	642	647	650	648	+1.4%	-

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+31.0	+5.4%
2019F v. 2019 RP2 DC	-4.4	-0.7%
2019F v. average 2015-2018	+15.4	+2.6%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 costs forecast is +5.4% higher than the 2018 actual costs mainly due to higher staff costs and higher other operating costs (+5.8% and +8.4%, respectively). However, this forecast remains slightly lower (-0.7%) than the RP2 2019 determined costs, although the actual service units in 2018 were +21.2% above RP2 plans.

2019 baseline analysis

Annex E of the performance plan indicates that the 2019 cost baseline aggregates the latest budget forecasts of the different entities. Indeed, as noted in the above table the 2019 cost baseline is in line with the forecast. This annex also lists the following drivers to justify ENAIRE 2019 costs forecast: increase in staff number; 2.75% increase in salaries; other pay complements; 7% increase on the maximum contributions base for social security; and higher capex than planned affecting both depreciation and other operating costs.

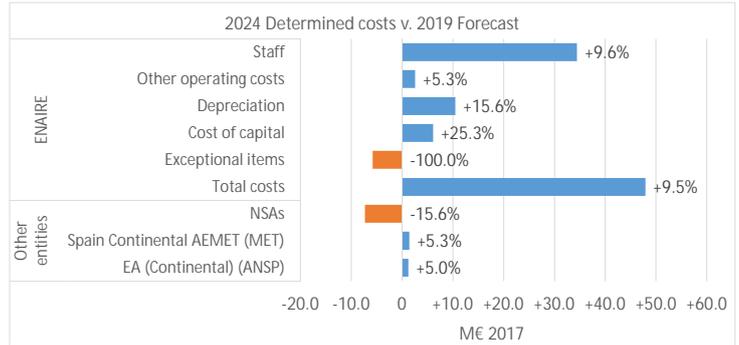
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ⓘ Investments (see details in 3.5)
- ⓘ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



The 2024 determined costs for ENAIRE are planned to be +9.5% higher than the 2019 forecast mainly due to increases in staff costs (+34.5M€2017 or +9.6%), depreciation costs (+10.5M€2017 or +15.6%) and cost of capital (+6.1M€2017 or +25.3%).

The increase in staff costs is mostly due to planned increases in the number of staff (essentially additional ATCOs; +205 for Spain Continental, or +19.9%). In this respect, Annex E of the performance plan states that "The increase in the number of ATCOs is identified as necessary to cope with the traffic and avoid a potential capacity shortage, derived not only from years of no replacement after leave but also from the unexpected traffic increase during RP2 and the forecast for RP3". Using information from the performance plan (ESSP3 document) and ENAIRE reporting tables, it is estimated that ENAIRE actual unit employment cost per staff is planned to slightly decrease in real terms between 2020 and 2024. Spain mentioned in Annex E of the performance plan that "The unit cost of the new staff recruited is lower in average, as the new ATCOs represent a lower salary cost".

Special note on the planned reductions in exceptional items and NSA costs:

Exceptional items: It is understood from the additional information that these costs correspond to the impact of the adoption to new financial reporting standards (IAS), which will have been allocated to the cost bases between 2008 and 2020. Since these exceptional costs are included in both the 2014 baseline (5.9M€2017) and 2019 baseline (5.8M€2017) but are not applicable anymore in 2024, it helps Spain Continental to show a better DUC trend.

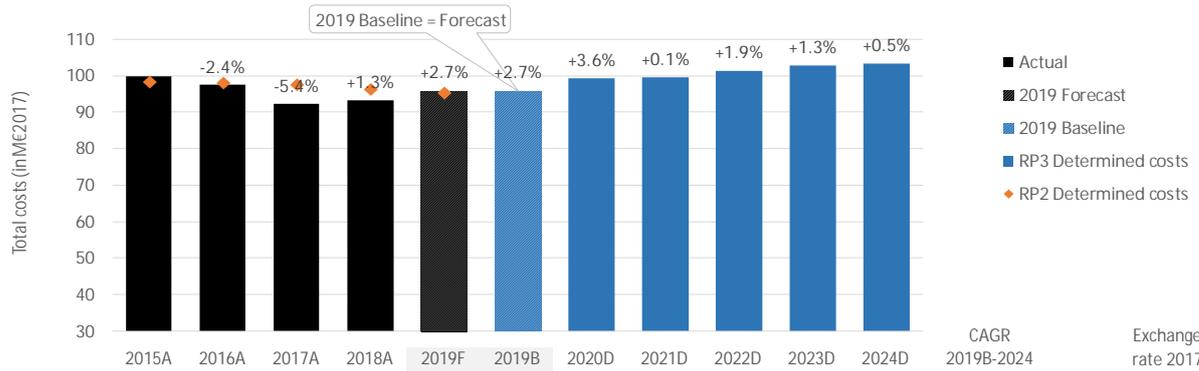
NSA costs: The observed reduction of some -7.3M€2017 mainly reflects a different allocation of EUROCONTROL costs across the Continental and Canarias cost bases with 4.5M€2017 shifting from the Continental to the Canarias cost base. This also helps Spain Continental to show a better DUC trend.

However, it is estimated that excluding the exceptional items and applying the 2024 allocation keys to the 2014 and 2019 baselines would not change the results of DUC trend assessment (RP2+RP3 trend would still be better than the Union-wide target).

4.3.4 PRB Key Points

- 2019 forecast seems realistic and is well documented.
- Staff cost increase mainly due to additional ATCOs needed to cope with additional traffic and the recent actual increase in traffic.

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D
Total costs	M€ (nom)	99	96	92	95	98	-	103	104	108	111	113
Annual change	%	-	-2.6%	-4.0%	+2.6%	+3.7%	-	-	+1.4%	+3.4%	+2.7%	+2.0%
Inflation index	2017 = 100	98.3	98.0	100.0	101.7	102.9	102.9	104.6	106.3	108.4	110.4	112.5
Total costs	M€ (2017)	100	97	92	93	96	96	99	99	101	103	103
Annual change	%	-	-2.4%	-5.4%	+1.3%	+2.7%	+2.7%	+3.6%	+0.1%	+1.9%	+1.3%	+0.5%
Total costs	M€ (2017)	100	97	92	93	96	96	99	99	101	103	103

CAGR 2019B-2024

Exchange rate 2017

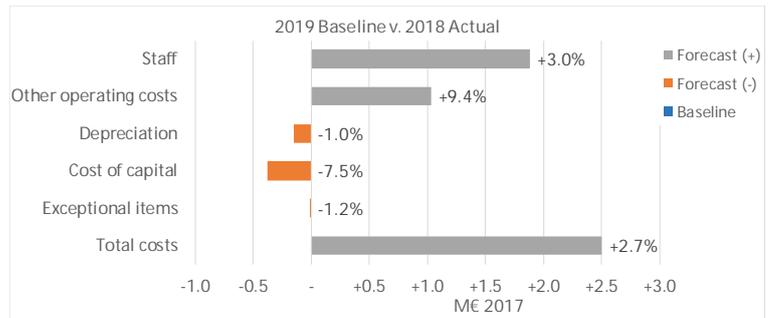
€:€	1.00000
-----	---------

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+2.5	+2.7%
2019F v. 2019 RP2 DC	+0.5	+0.6%
2019F v. average 2015-2018	+0.2	+0.2%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 costs forecast is +2.7% higher than the 2018 actual costs mainly due to higher staff costs and higher other operating costs (+3.0% and +9.4%, respectively). This forecast is only slightly higher (+0.6%) than the 2019 determined costs from RP2 performance plan, although the actual service units in 2018 were +16.3% above RP2 plans.

2019 baseline analysis

Annex E of the performance plan indicates that the 2019 cost baseline aggregates the latest budget forecasts of the different entities. Indeed, as noted in the above table, the 2019 costs baseline is in line with the forecast. This annex also lists the following drivers to justify ENAIRE 2019 costs forecast: increase in staff number, 2.75% increase in salaries, other pay complements, 7% increase on the maximum contributions base for social security, higher capex than planned, affecting both depreciation and other operating costs.

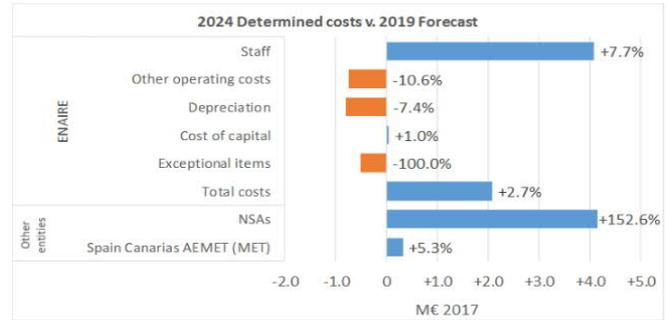
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- 🚩 Investments (see details in 3.5)
- ✅ Cost of capital (see details in 4.3.1)
- ✅ Pension costs (see details in 4.3.2)
- ✅ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



The 2024 determined costs for ENAIRE are planned to be +2.7% higher than the 2019 forecast mainly due to increases in staff costs (+4.1M€2017 or +7.7%) while other operating costs and depreciation costs are planned to decrease by -10.6% and -7.4%, respectively.

The increase in staff costs is mostly due to planned increases in the number of staff (essentially additional ATCOs; +37 for Spain Canarias, or +23.7%). Annex E of the performance plan states that "The increase in the number of ATCOs is identified as necessary to cope with the traffic and avoid a potential capacity shortage, derived not only from years of no replacement after leave but also from the unexpected traffic increase during RP2 and the forecast for RP3". Using information from the performance plan (ESSP3 document) and ENAIRE reporting tables, it is estimated that ENAIRE actual unit employment cost per staff is planned to slightly decrease in real terms between 2020 and 2024. Spain mentioned in Annex E of the performance plan that "The unit cost of the new staff recruited is lower in average, as the new ATCOs represent a lower salary cost".

Special note on the planned reductions in exceptional items and large increase in NSA costs:

Exceptional items: It is understood from the additional information that these costs correspond to the impact of the adoption to new financial reporting standards (IAS), which will have been allocated to the cost bases between 2008 and 2020. Since these exceptional costs are included in both the 2014 and 2019 baselines (0.5M€2017) but are not applicable anymore in 2024, it helps Spain Canarias to show a better DUC trend.

NSA costs: The observed increase of +4.1M€2017 mainly reflects a different allocation of EUROCONTROL costs across the Continental and Canarias cost bases with 4.5M€2017 shifting from the Continental to the Canarias cost base. This has an adverse impact on Spain Canarias DUC trend.

Overall, it is estimated that excluding the exceptional items and applying the 2024 allocation keys to the 2019 baseline would made Canarias RP3 DUC trend better than the Union-wide target (-4.2% vs. -1.9%).

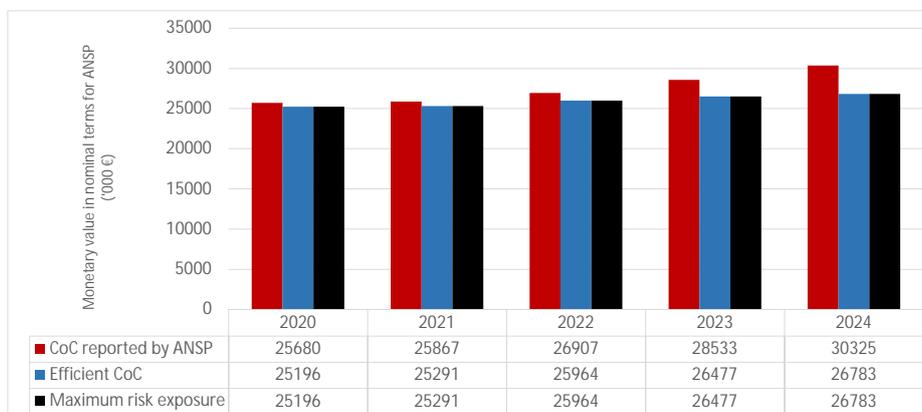
4.3.4 PRB Key Points

- 2019 forecast seems realistic and is well documented.
- Staff cost increase mainly due to additional ATCOs needed to cope with additional traffic and the recent actual increase in traffic.
- Canarias DUC trend adversely impacted by different allocation of Eurocontrol costs between continental and Canarias.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	572,630	574,796	590,083	601,754	608,708
Monetary value of Return on Equity	24,361	24,558	25,610	27,239	29,027
Ratio RoE/DC (%)	4.3%	4.3%	4.3%	4.5%	4.8%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	485	576	943	2056	3542

Total 2020-2024	7,601
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.0%	n/a	7.0%	n/a	6.9%	n/a	6.8%	n/a	6.7%	n/a
Interest on debts	1.3%	n/a	1.3%	n/a	1.4%	n/a	1.5%	n/a	1.6%	n/a
Capital structure (% debt)	22.7%	n/a	21.8%	n/a	20.0%	n/a	17.7%	n/a	15.6%	n/a
WACC	5.7%	5.6%	5.7%	5.6%	5.8%	5.6%	5.9%	5.4%	5.9%	5.2%

Is the interest on debts in line with the market?	Yes
---	-----

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices. ENAIRE does not hold a debt. According to the performance plan, the interest on debts is "mainly related to active reserve of control staff."
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024 the reported cost of capital is 7.6M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 4.2%-4.8%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	427,379	429,962	441,602	463,530	489,042
Net current assets	22,907	20,906	22,961	22,905	21,981
Adjustments total assets	0	0	0	0	0
Total asset base	450,286	450,868	464,563	486,435	511,023

- The fixed asset base will gradually increase over RP3, partially in line with the investments described in section 3.5 of this document.
- The RAB does not include adjustments to the total asset base.
- The net current assets do not present major issues.
- The total asset base will increase over RP3, this is mainly driven by an increase in the fixed asset base.

4.3.A.5 PRB Key Points

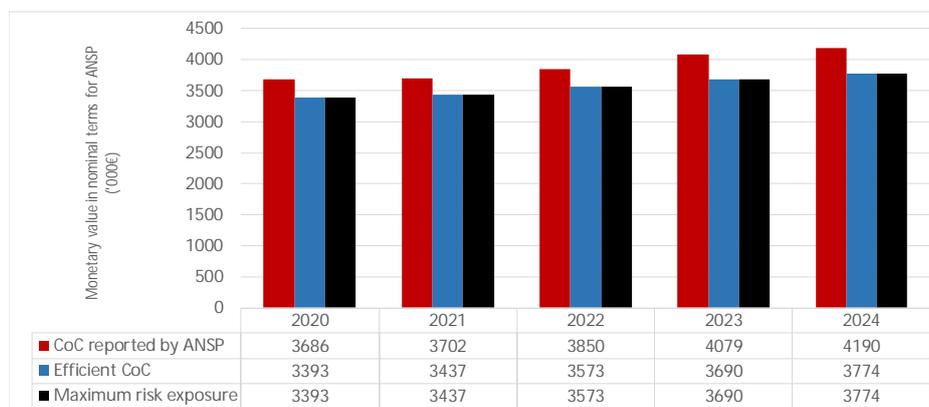
- The reported cost of capital is 7.6M€ above the efficient cost of capital over the period 2020-2024. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 4.3%-4.8%).



4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	77,122	78,119	81,202	83,864	85,771
Monetary value of Return on Equity	3,497	3,515	3,664	3,894	4,011
Ratio RoE/DC (%)	4.5%	4.5%	4.5%	4.6%	4.7%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	293	265	277	389	416

Total 2020-2024	1,640
-----------------	-------

4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	7.0%	n/a	7.0%	n/a	6.9%	n/a	6.8%	n/a	6.7%	n/a
Interest on debts	1.3%	n/a	1.3%	n/a	1.4%	n/a	1.5%	n/a	1.6%	n/a
Capital structure (% debt)	22.7%	n/a	21.8%	n/a	20.0%	n/a	17.7%	n/a	15.6%	n/a
WACC	5.7%	5.3%	5.7%	5.3%	5.8%	5.4%	5.9%	5.3%	5.9%	5.3%

Is the interest on debts in line with the market? Yes

- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices. ENAIRE has not bank debt. According to the performance plan, the interest on debts is "mainly related to active reserve of control staff."

- The efficient cost of capital is computed in line with the maximum risk exposure.

- Over the period 2020-2024 the reported cost of capital is 1.64M€ above the efficient cost of capital. Despite this, the return on equity is commensurate to the total determined costs (between 4.5%-4.7%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	61,344	61,535	63,187	66,265	67,574
Net current assets	3,288	2,992	3,285	3,274	3,037
Adjustments total assets	0	0	0	0	0
Total asset base	64,632	64,527	66,473	69,540	70,611

- The fixed asset base will gradually increase over RP3. This is in line with the investments described in section 3.5 of this document.

- The RAB does not include adjustments to the total asset base.

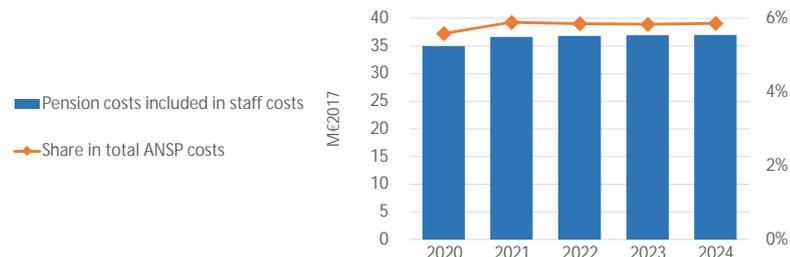
- The net current assets do not present major issues.

- The total asset base will increase over RP3, this is mainly driven by an increase in the fixed asset base.

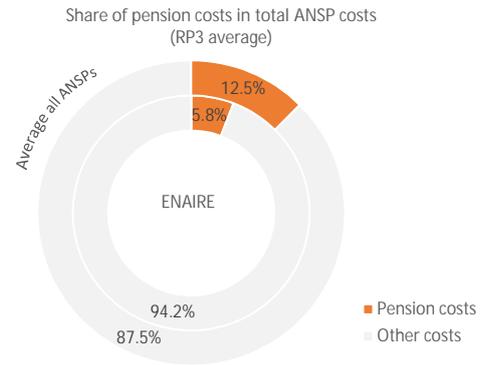
4.3.A.5 PRB Key Points

- The reported cost of capital is 1.64M€ above the efficient cost of capital over the period 2020-2024. Despite this, the monetary value of the return on equity is commensurate to the total determined costs (between 4.5%-4.7%).

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	35.0	36.6	36.8	36.9	37.0
Year on year variation	% change		+4.7%	+0.6%	+0.3%	+0.2%
Share in total ANSP costs	%	5.6%	5.9%	5.9%	5.8%	5.9%
Year on year variation	p.p.		0.3p.p.	0.0p.p.	0.0p.p.	0.0p.p.



What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **n/a**

n/a

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

The contribution rate to the State pension scheme is planned to remain stable between 2020 and 2024 (23.6%). A similar rate was applied in RP2.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **n/a**

ENAIRE contributes to a defined contribution scheme for non-ATCOs only. Contributions into this scheme are around 1% of the total pension costs. ENAIRE did not indicate any planned changes.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **n/a**

ENAIRE does not operate any occupational defined benefit scheme.

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

ENAIRE does not report any specific action. The weight of the occupational scheme is marginal compared to the State scheme.

4.3.B.4 PRB Key Points



- No major issues have been identified.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

Spain did not mention changes to the cost allocation methodology with respect to RP2.
 The principles for allocation of costs are defined as follows:
 - Area control (en route) service: costs entirely allocated to the en route charging cost base.
 - Tower aerodrome service: costs entirely allocated to the terminal charging cost base, although the income related to service agreements with the airport operator reduce the cost base.
 - Approach control service: the costs of the final approach phase provided based on statistical criteria related to the distance around the airport are assigned to the terminal charges cost base and the rest (90%) to the en route charges cost-base.
 - The Spanish Air Force cost model for cost accounting only charges costs for en route services.

1.2. Are the criteria for cost allocation clearly defined and justified? Yes If not, what are the issues identified?
n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? No If yes, description and justification of the changes from RP2 to RP3 specified in the PP
n/a

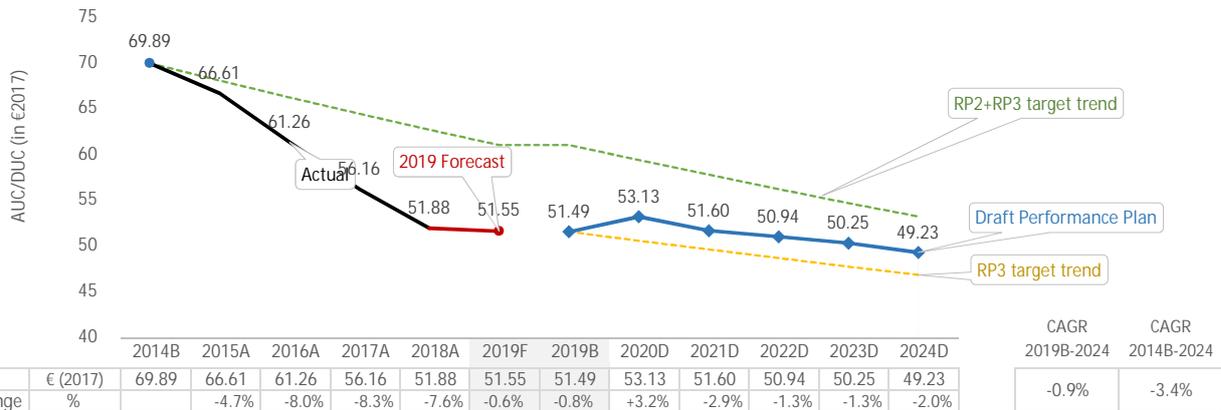
2.2. Are these changes in cost allocation duly described and justified? n/a If, not what are the identified issues?
n/a

2.3. Is there an impact on the determined costs and/or baseline? n/a If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
n/a

4.3.C.3 PRB Key Points ✓

- Spain did not mention a change in the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✓ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	-0.9%	Union-wide trend	-1.9%	Difference	+1.0p.p.
PP trend	-3.4%	Union-wide trend	-2.7%	Difference	-0.7p.p.
PP 2019 baseline*	51.11	Average comp. group	65.06	Difference	-21.4%

*For this check a weighted average of the DUC for Spain Continental and Spain Canarias is used.

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 DUC trend for Spain Continental is worse than the Union-wide target (-0.9% vs. -1.9%) but its long term DUC trend is better than the Union-wide targets: -3.4% vs. -2.7%. Correcting the baselines to take into account the inclusion of exceptional costs until 2020 and the use of different allocation keys to distribute EUROCONTROL costs across the Continental and the Canarias cost bases would not change the conclusions of this check.

The 2019 DUC baseline for Spain (weighted average of Spain Continental and Canarias) is -21.4% below its comparators' average and the DUC is planned to remain lower throughout RP3 (-17.5% in 2024).

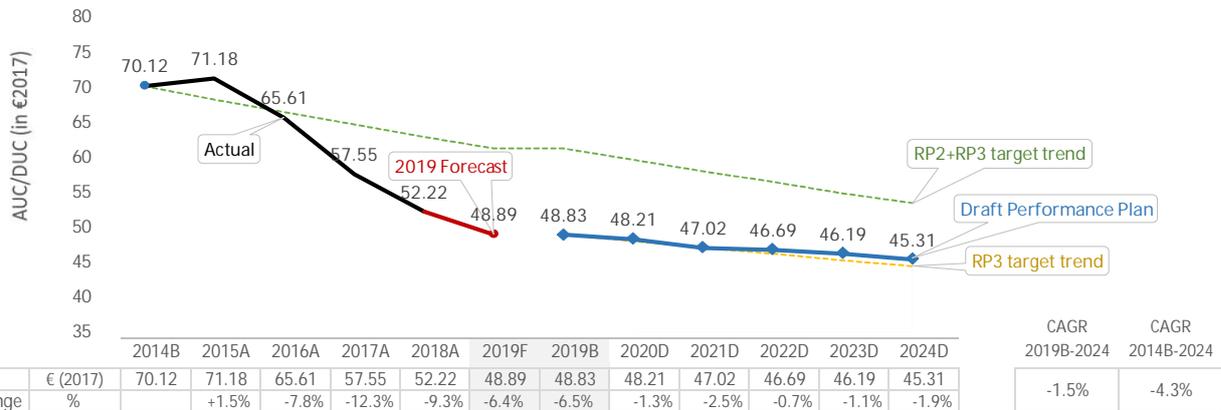
4.4.3 Analysis of the DUC deviation for achieving the capacity targets (Continental + Canarias) n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- Spain Continental achieves the Union-wide long term DUC trend and the DUC level consistency targets.
- Costs deviation is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document).

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✓ DUC consistency with the Union-wide long-term DUC trend
- ✓ DUC level consistency

PP trend	-1.5%	Union-wide trend	-1.9%	Difference	+0.4p.p.
PP trend	-4.3%	Union-wide trend	-2.7%	Difference	-1.6p.p.
PP 2019 baseline*	51.11	Average comp. group	65.06	Difference	-21.4%

*For this check a weighted average of the DUC for Spain Continental and Spain Canarias is used.

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 DUC trend for Spain Canarias is slightly worse than the Union-wide target (-1.5% vs. -1.9%) but the long term DUC trend is better than the Union-wide target: -4.3% vs. -2.7%. Correcting the 2019 baseline to take into account the inclusion of exceptional costs until 2020 and the use of different allocation keys to distribute Eurocontrol costs across the Continental and the Canarias cost bases would result in a RP3 DUC trend of -4.2%, which is better than the Union-wide target.

The 2019 DUC baseline for Spain (weighted average of Spain Continental and Canarias) is -21.4% below its comparators' average and the DUC is planned to remain lower throughout RP3 (-17.5% in 2024).

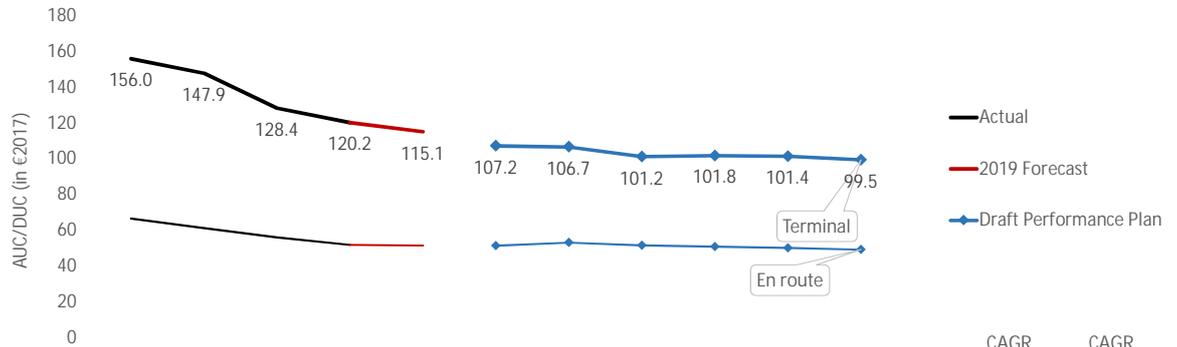
4.4.3 Analysis of the DUC deviation for achieving the capacity targets n/a

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points

- Spain Canarias achieves the Union-wide long term DUC trend and the DUC level consistency targets.
- Short term trend would also be achieved in absence of Eurocontrol reallocation from Spain Continental.
- Costs deviation is well documented. However, the capacity targets are not consistent (more details in section 3.2 of this document).

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F
AUC/DUC - Terminal	€ (2017) 156.0	147.9	128.4	120.2	115.1	107.2	106.7	101.2	101.8	101.4	99.5	-1.5%	-7.3%
Annual Change	%	-5.2%	-13.2%	-6.4%	-4.2%	-10.8%	-0.5%	-5.2%	+0.7%	-0.4%	-1.9%		
AUC/DUC - En route	€ (2017) 66.6	61.3	56.2	51.9	51.5	51.5	53.1	51.6	50.9	50.3	49.2	-0.9%	
Annual Change	%	-8.0%	-8.3%	-7.6%	-0.6%	-0.8%	+3.2%	-2.9%	-1.3%	-1.3%	-2.0%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Alicante (LEAL)	GROUP II	157.17	-	-	148.9	-	-
Barcelona (LEBL)	GROUP I	139.52	120.4	-13.7%	130.5	88.5	-32.1%
Ibiza (LEIB)	GROUP IV	673.82	-	-	647.6	-	-
Madrid/ Barajas (LEMD)	GROUP I	139.52	135.6	-2.8%	130.5	106.9	-18.1%
Málaga (LEMG)	GROUP II	157.17	176.8	+12.5%	148.9	145.7	-2.1%
Palma de Mallorca (LEPA)	GROUP II	157.17	135.6	-13.8%	148.9	110.1	-26.1%
Gran Canaria (GCLP)	GROUP III	171.33	171.3	+0.0%	167.4	140.3	-16.2%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

The comparison of cost-effectiveness performance (past and planned) of the airports included by Spain in its terminal charging zone in relation to their comparator groups can be seen above. The average DUC over RP3 is, for all airports, lower than the comparator average.

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	965.2			
2019F (STATFOR Feb 19)	L 847.9	B 965.2	H 873.2	=B
2019F (STATFOR Oct 19)	L 942.9	B 946.6	H 950.1	+1.96%

Costs

2019 forecast & baseline review	ME 2017	%
2019 Forecast v. 2018 Actual	-0.9	-0.9%
2019 Forecast v. Avg. 2015-2018 Actual	-5.5	-5.3%
2019 Baseline v. 2019 Forecast	5.2	+5.3%

The 2019 TNSU baseline is in line with STATFOR February 2019 base forecast.

The 2019 cost baseline is 5.3% (5.2ME2017) above the 2019 forecast mainly due to the addition of two new airports in RP3 (Alicante and Ibiza). On the other hand, the 2019 forecast is -0.9% lower than the 2018 actual costs.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

Review of the PP traffic forecast

The selected TNSU forecasts are in line with STATFOR February 2019 base scenario for all years of RP3 (2020-2024)

Determined costs (terminal)

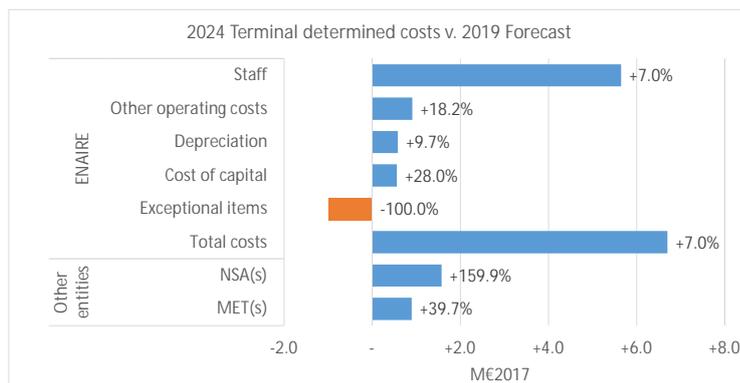
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - ENAIRE (terminal)

- 📌 Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



- For ENAIRE, the 2024 terminal determined costs are planned to be 7.0% (or +6.7M€2017) higher than the 2019 forecast due to increases in all cost categories, except exceptional costs. This increase is mainly due to a change in scope between RP2 and RP3 with the inclusion of Alicante and Ibiza airports from 2020 onwards. In 2024 the costs of these two airports account for 5.9M€2017 (i.e. most of the observed increase between 2019 and 2024).
- Terminal WACC and its parameters are equal to the ones for en route.
- As explained in the en route sections, the decrease in exceptional costs reflects a previous adoption new financial reporting standards (IAS), which will have been allocated to the cost bases between 2008 and 2020.

4.5.4 PRB Key Points ✖

- The terminal RP3 DUC trend is -1.5%, which is better than the en route RP3 DUC trend of -0.9%.
- The terminal RP3 DUC trend is -1.5%, which is worse than the terminal RP2 DUC trend of -7.3%.
- Barcelona and Madrid, the main airports, had a DUC 13.7% lower and 2.8% lower, respectively, than the average of their coparator group over RP2. The differences are expected to be -32.1% and -18.1%, respectively, over RP3. The other airports included in the performance plan range from a DUC 13.8% lower to 12.5% higher over RP2. All the airports are expected to have DUC lower than the average of their comparator group over RP3.
- Spain used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to staff costs.

PRB Assessment

SWEDEN

Draft Performance Plan

Context and scope

Sweden

Performance Plan: Draft performance plan (Article 12) Dated: 20.11.2019
 Documents no: 1643, 1644, 1645, 1646, 1647, 1392, 1397, 1398, 13999, 1401, 1648, 1649

Relative weight compared to the SES area (2018):

% Flight-hours v. SES 2.1%
 % Costs V. SES 2.0%

Scope

FAB: DK-SE FAB

ANSPs: LFV
 SDATS
 ACR
 SMHI
 ARV - Arvidsjaur
 Swedavia

ATS
 ATS
 ATS
 MET
 ATS
 CNS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Swedish Maritime Administration

Search and Rescue

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	Sweden	n/a	No	No	No	
Terminal	Sweden - TCZ	1	No	No	No	
Changes in the CZs from RP2	No					

Comparator group: Group B Other States in the comparator group: Denmark, Finland, Ireland, Norway

Currency: SEK Exchange rate: 9.63311

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
LFV	Safety policy and objectives	C	C	C	C	C
	Safety risk management	D	D	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by Sweden should be approved.

-The EoSM safety targets are in line with the Union-wide performance targets.

-Considering the ANSP's current EoSM maturity levels, safety will be maintained by standard safety processes. Therefore, the measures are not required.

The PRB notes that safety is an integral part of the management system and is monitored by standard implementation procedures and regular safety oversight.

The PRB notes that the change management procedures and transition plans are implemented in accordance with current regulation.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	1.26%	1.26%	1.25%	1.25%	1.25%

PRB Assessment

The PRB concludes that the environment targets proposed by Sweden should be approved.

-LFV's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
Breakdown values for en route ATFM delay per flight (min)	0.12	0.11	0.11	0.09	0.08
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.35	0.35	0.35	0.35	0.35

PRB Assessment

The PRB concludes that the capacity targets as proposed by Sweden should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully and NM measures are realised, Sweden will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.

- There may be a minor inconsistency within the performance plan, between capacity enhancement measures, national targets and planned capacity profile.

However, based on RP2 performance and the measures outlined in order to enhance capacity, the targets are achievable.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024	CAGR 2014-2024	CAGR 2019-2024
Target for determined unit cost (DUC) (€2017) - En route	58.35	57.74	55.00	54.24	54.09	-0.0%	-1.2%
Target for determined unit cost (DUC) (€2017) - Terminal	144.35	143.33	136.71	136.88	139.51	n/a	+0.6%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by Sweden should not be approved.

- Sweden is not meeting any of the cost-efficiency criteria.

- The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

PRB Recommendations

ENVIRONMENT

- Sweden should consider invoking point (b) of Article 32 of Commission Implementing Regulation (EU) 2019/317, which enables charging modulation to incentivise airspace routings that are shorter in distance.
- Sweden should ensure its capacity plans are able to manage the expected traffic during RP3 since it stated that a lack of capacity may negatively impact its environmental performance.

CAPACITY

- Sweden should ensure that capacity profile plans, capacity enhancement measures and proposed capacity targets are aligned.

COST-EFFICIENCY

- Sweden should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of a balance between cost, capacity and traffic.
- Sweden should address the significant costs related to defined benefit pension plans.
- Sweden should justify the terminal RP3 cost-efficiency targets in regards to the determined unit cost trends and with respect to similar airports, or should revise terminal RP3 cost-efficiency targets downwards.

SWEDEN

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year.

The EoSM targets levels, set in accordance with the European Union wide safety targets, are planned to be attained in 2020.

1.1.2 Measures planned to reach the target (if applicable)

No measures are required to improve the EoSM levels. The ANSP starts RP3 on the 2024 target values. The maturity level has to be maintained through normal processes.

1.1.3 Interdependencies and Trade-offs

Safety is an integral part of the management system and is monitored by standard implementation procedures compliant with the Commission Implementing Regulation (EU) 2017/373. The impact on safety is also monitored as a part of the regular safety oversight.

1.1.4 Change Management

The change management processes are described with the reference to the national regulations. Procedures compliant with the Commission Implementing Regulation (EU) 2017/373 should constitute sufficient means to ensure minimal negative impact of the change on the network performance.

1.1.5 PRB conclusions

The PRB concludes that the safety targets proposed by Sweden should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- Considering the ANSP's current EoSM maturity levels, safety will be maintained by standard safety processes. Therefore, the measures are not required.

The PRB notes that safety is an integral part of the management system and is monitored by standard implementation procedures and regular safety oversight. The PRB notes that the change management procedures and transition plans are implemented in accordance with current regulation.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
LFV	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	D	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels, set in accordance with the European Union wide safety targets, are planned to be attained in 2020.

The draft performance plan argues that the LFV safety management system is very mature and no specific measures are required as the LFV is already at the RP3 safety targets. The draft performance plan declares however that LVF intends to maintain high safety performance over the RP3 Period. The regular reviews of safety performance are planned by the Swedish Transport Agency to ensure the safety level is maintained.

1.3.1 Interdependencies and Trade-offs

An impact on safety of the changes to the ATM Functional system is monitored by standard safety management system mechanism. Depending on the scope of the changes, the appropriate monitoring of the risk is chosen, as well as the mitigations strategy.

Safety is an integral part of the management system, thus no specific indicators for monitoring impact on safety for implementation has been developed.

1.3.2 Change Management Practices

The change management process considering the airspace changes is compliant with the national regulation set by The Swedish Transport Agency.

The changes to the ATM Functional system are assessed in accordance with the standard safety assessment procedures conducted by the ANSP and additionally reviewed by authorities.

SWEDEN

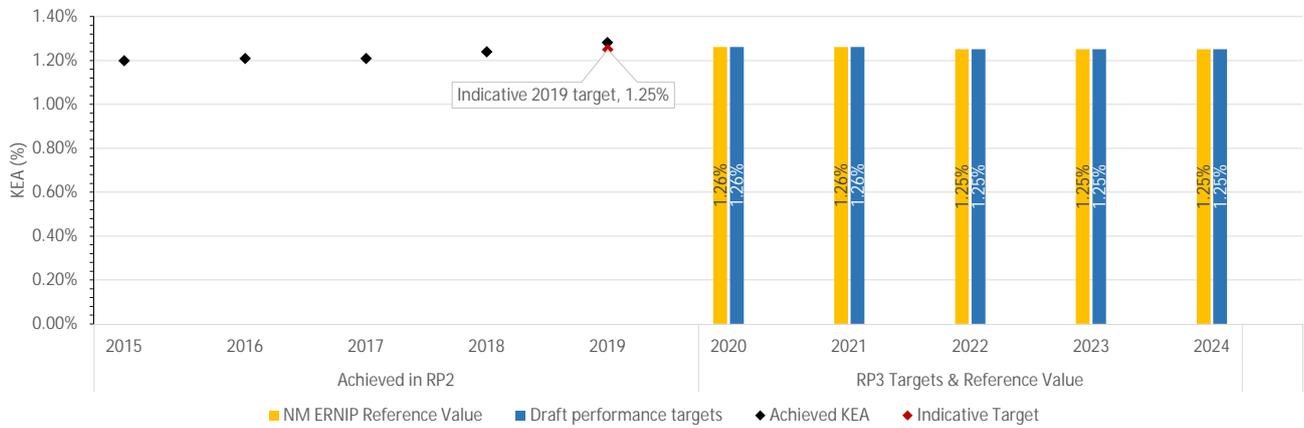
Environment KPA

2.1 Summary of environment key data and assessment results

Sweden

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	1.26%	1.26%	1.25%	1.25%	1.25%
Draft performance targets	1.26%	1.26%	1.25%	1.25%	1.25%
Comparison of draft performance targets with reference values	▲0.00%	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	✓	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by Sweden should be approved.
 - LfV's horizontal flight efficiency targets are in line with its reference values published in the June 2019 ERNIP.

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? Free Route Airspace was implemented in 2013 and is operated above FL285.	✓	Reference in PP 3.2.1(c)	Reference in LSSIP Page 42
Major ERNIP Recommended Measures: Measure included within performance plan?	1	Reference in PP None	Reference in ERNIP Page 102
Cross-border FRA MUAC, Karlsruhe UAC & DK/SW FAB	✗		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Sweden achieved a KEA of 1.28% in 2019 which means it will go into RP3 slightly above the 2020 RP3 target of 1.26%.

Sweden considers that the measures already in place are enough to maintain performance and achieve the targets. It does not mention the ERNIP recommended measure as necessary to achieve the targets, although this could be a source of improvement since DK-SE still lacks cross-border FRA along the interfaces at the south of its FIR border (i.e. Hannover UIR, Warszawa UIR, Vilnius UIR & Kaliningrad UIR).

It noted that the following aspects are determinants of the RP3 environmental performance:

- Military exercises;
- State visits;
- Disturbances in infrastructure, such as Technical problems;
- Weather-related factors.

However, no information was provided as to how Sweden could manage these differently in RP3 (i.e. improving the application of the FUA concept, improved maintenance or minimisation of the impacts State aircraft have on KEA).

Sweden stated in its performance plan that a lack of capacity, due to traffic shifts when Borealis partners introduce FRA, may affect its ability to deliver its past environmental performance (RP1 and RP2) as aircraft may need to fly longer distances to avoid overdeliveries into certain ATC sectors. According to the capacity elements of the performance plan, Sweden's capacity plan can manage the expected demand.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does Sweden plan for an environmental incentive scheme? Sweden does not intend to apply an optional incentive scheme for the environment KPA.	✗
--	---

SWEDEN

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Targets defined in the performance plan are below the national reference values during the RP3 and below the NOP delay forecast. Analysis of Sweden's planned capacity profiles indicate that Malmo ACC may face a capacity gap while Stockholm ACC is positively contributing to the achievement of national target. There may be a minor inconsistency within the performance plan between capacity enhancement measures, national targets and planned capacity profile. However, based on RP2 performance and the measures outlined in order to enhance capacity, the targets are deemed ambitious but achievable.

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	-0.04	-0.05	-0.02	0.00	-0.01
2. NOP delay forecast is lower or equal to the PP capacity target	✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.1.2 Arrival ATFM Delay

The RP3 target for Stockholm, the only airport in the Swedish performance plan, remains constant and equal to the target in RP2. This target is in general above the RP2 performance but still remarkably below the performance of similar airports.

3.1.3 Incentives

En route incentives: approximately 6% of the en route traffic in Sweden FIR is excluded from the incentive scheme, since it is not controlled by LFV. Regarding the incentive scheme applicable to LFV, the threshold is symmetrical around the pivot value for each year. The pivot values are more stringent than the reference values published in the NOP for the first three years of RP3 and are equal to the published reference values for the final two years. The potential penalty (1.5%) is significantly greater than the potential bonus (0.5%). According to the delay forecasts in the NOP, the ANSP is likely to face penalties during RP3.

Terminal incentives: Sweden proposes maximum penalties of 1%, versus maximum bonus of 0.1%. Together with the target, all causes aim at maintaining the good performance at Stockholm.

3.1.4 Investments

More information is needed to review investments contribution to capacity as regards the timeline and the scope of individual projects (namely Investments #1, #3 and all other new and existing investments).

3.1.5 PRB conclusions



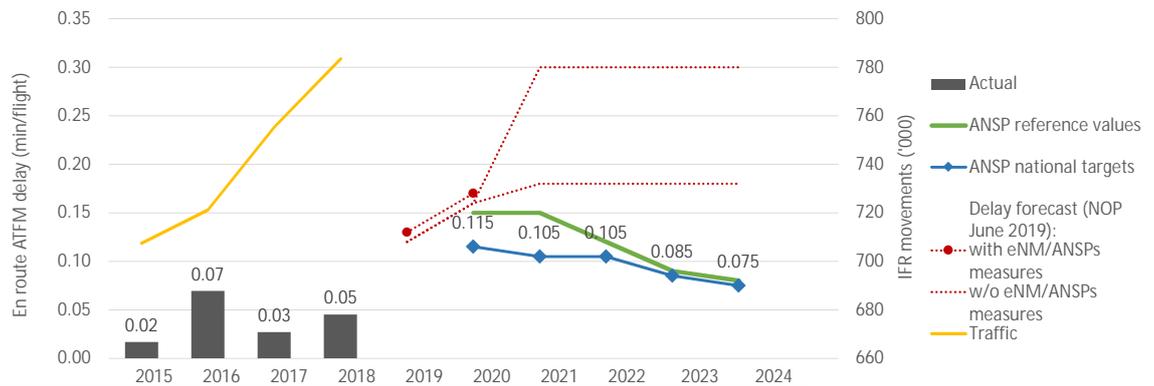
The PRB concludes that the capacity targets as proposed by Sweden should be approved.

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully and NM measures are realised, Sweden will have sufficient capacity to meet the forecasted demand and to reach the target, thus positively contributing to the achievement of the Union-wide capacity target.
- There may be a minor inconsistency within the performance plan, between capacity enhancement measures, national targets and planned capacity profile. However, based on RP2 performance and the measures outlined in order to enhance capacity, the targets are achievable.

3.2 En route ATFM delay per flight

Sweden

3.2.1 Overview of en route ATFM delay per flight



Y-on-Y change in traffic (IFR movements)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Y-on-Y change in traffic (IFR movements)	+0.9%	+1.9%	+4.8%	+3.7%						
Actual ATFM delay per flight (movements)	0.02	0.07	0.03	0.05						
ANSP reference values					0.15	0.15	0.12	0.09	0.08	
ANSP national targets					0.12	0.11	0.11	0.09	0.08	
Forecast with eNM/ANSPs measures*					0.13	0.17				
Forecast w/o eNM/ANSPs measures*					0.12	0.16		0.18-0.3		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✓	✓	✓
Deviation target v. reference value (minutes per flight)	-0.04	-0.05	-0.02	0.00	-0.01
2. NOP delay forecast is lower or equal to the PP capacity target	✗	✗	✗	✗	✗

Trend of capacity targets shows a gradual convergence towards the reference values? Yes

Capacity target in the year 2024 is less than or equal to the 2024 reference value? Yes

3.2.2 Review of PP list of capacity enhancement measures vs NOP



Description of capacity enhancement measures

The performance plan contains the following measures contributing to the achievement of capacity target:

- recruitment of additional ATCOs;
- new features of the ATM System (COOPANS);
- better Mode S coverage and increased usage of CPDLC;
- flexible sectorisation.

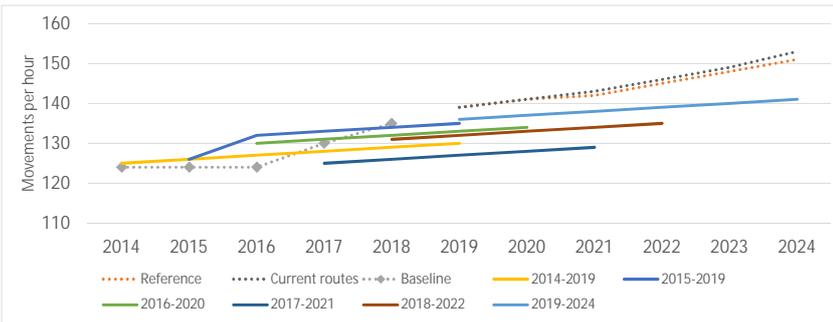
Taking into account RP2 capacity performance and described measures in the latest NOP 2019-2014 (June 2019 edition), measures described in the performance plans seem to be adequate.

ATCO Planning (FTEs)

		2018A	2019P	2020P	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Malmo ACC (ESMM)	Additional ATCOs in OPS to start working in the OPS room	7	7	5	7	10	10	10	+13
	ATCOs in OPS to stop working in the OPS room	6	15	6	6	1	6	10	
	ATCOs in OPS to be operational at year-end	164.8	156.8	155.8	156.8	165.8	169.8	169.8	
Stockholm ACC (ESOS)	Additional ATCOs in OPS to start working in the OPS room	5	5	2	7	10	10	10	+12
	ATCOs in OPS to stop working in the OPS room	10	12	5	2	5	6	9	
	ATCOs in OPS to be operational at year-end	176.08	169.08	166.08	171.08	176.08	180.08	181.08	
Total - LfV (en route)	Additional ATCOs in OPS to start working in the OPS room	12	12	7	14	20	20	20	+25
	ATCOs in OPS to stop working in the OPS room	16	27	11	8	6	12	19	
	ATCOs in OPS to be operational at year-end	340.88	325.88	321.88	327.88	341.88	349.88	350.88	

3.2.3 Existing, and previous, ANSP capacity plans (planned capacity profiles vs actual capacity profile offered - per ACC)

Malmö ACC (ESMM)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						139	141	142	145	148	151
Current routes						139	141	143	146	149	153
Baseline	124	124	124	130	135						
2014-2019	125	126	127	128	129	130					
2015-2019		126	132	133	134	135					
2016-2020			130	131	132	133	134				
2017-2021				125	126	127	128	129			
2018-2022					131	132	133	134	135		
2019-2024						136	137	138	139	140	141

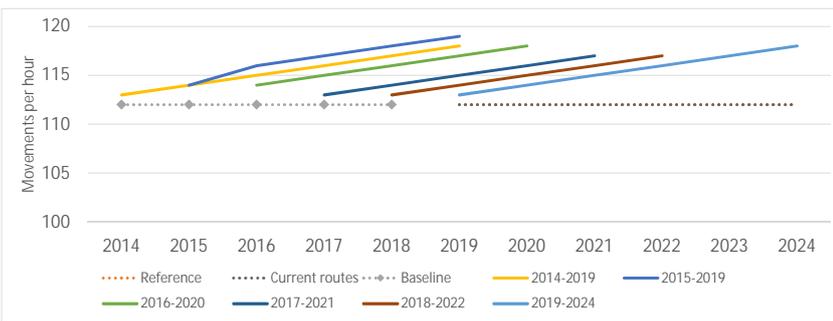
- Historical data shows that the baseline values were flat in the first two years of the RP2 and that they increased only in 2017 and 2018. For the first two years of the RP2, capacity plans were higher than the actual baseline value, while between 2017-2019, capacity plans were equal or lower than the actual baseline value.

- Current capacity plan indicate an increase of 1% annually during the RP3. Planned capacity profiles are below the current route scenario during each year of RP3, between around -2.8 and -7.8%. In addition, planned capacity profiles are below the reference scenario during each year of RP3, between around -2.8 and -6.6%.

- With the current capacity plan and forecasted traffic demand, it is expected that Malmö ACC may have capacity gap during the RP3.

- It is difficult to establish a link between the planned capacity enhancement measures, planned capacity profiles evolution and proposed targets (that are below the forecasted delay and the proposed reference values).

Stockholm ACC (ESOS)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						112	112	112	112	112	112
Current routes						112	112	112	112	112	112
Baseline	112	112	112	112	112						
2014-2019	113	114	115	116	117	118					
2015-2019		114	116	117	118	119					
2016-2020			114	115	116	117	118				
2017-2021				113	114	115	116	117			
2018-2022					113	114	115	116	117		
2019-2024						113	114	115	116	117	118

- Historical data shows that baseline values remain flat during the RP2. The planned capacity profiles were slightly higher than the actual baseline.

- Current capacity plan shows increase of 1% annually throughout the RP3. Planned capacity profiles are above the current route scenario and reference scenario during each year of RP3, between around 1.8% and 5.4%.

- With the current capacity plan and forecasted traffic demand, it is expected that Stockholm ACC will have sufficient capacity during the RP3.

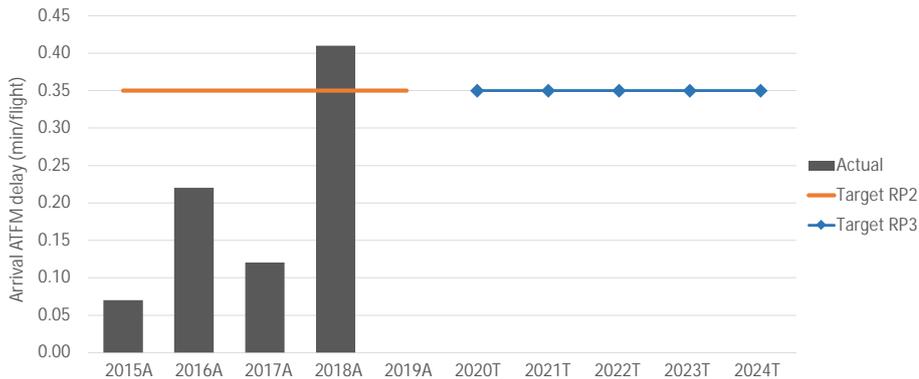
3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- National targets are below the forecasted delay and proposed reference values, thus positively contributing to the achievement of the Union-wide RP3 target.
- Capacity plans indicate that Malmö ACC may expect potential capacity gap, while Stockholm ACC will provide additional capacity that is expected to positively contribute towards the achievement of national target.
- There may be a minor inconsistency within the performance plan, between capacity enhancement measures, national targets and planned capacity profile. However, based on RP2 performance and the measures outlined in order to enhance capacity, the targets are achievable.

3.3.1 Overview of arrival ATFM delay per flight



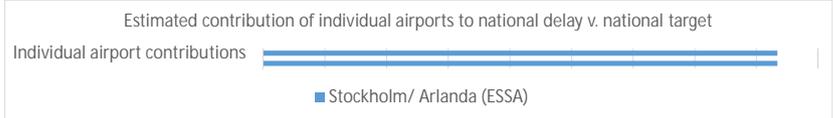
	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.07	0.22	0.12	0.41	-	0.35	0.35	0.35	0.35	0.35
Stockholm/ Arlanda (ESSA)	0.07	0.22	0.12	0.41	-	0.35	0.35	0.35	0.35	0.35

3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Stockholm Arlanda is the only airport included in the Swedish performance plan for RP3. Past performance was well below the target for RP2, except for 2018, mainly due to weather. The proposed target for RP3 is constant and equal to the target during RP2.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Stockholm/ Arlanda (ESSA)	0.35
National Target	0.35



As Stockholm is the only airport included in the performance plan, the national target coincides with the airport target and the potential delay contribution is only associated to this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Stockholm/ Arlanda (ESSA)	GROUP I	0.87	0.21	-0.66	0.35	-0.52

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

ANS performance at Stockholm during RP2 was remarkably better than the median of similar airports. The target for RP3, although higher than the past performance, remains much lower than the past average delays of the comparison group.

3.3.5 PRB Key Points

- The target for Stockholm, the only airport in the Swedish performance plan, remains constant and equal to the target in RP2. This target is in general above the past performance but still remarkably better than the performance of similar airports.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.035 min	0.500%	1.500%
	✓	✓

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values	0.15	0.15	0.12	0.09	0.08
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.12	0.11	0.11	0.09	0.08
Pivot values for RP3	0.12	0.11	0.11	0.09	0.08

Threshold review

The threshold is symmetrical around the pivot value for each year. The pivot values are more stringent than the reference values published in the NOP for the first three years of RP3 and are equal to the published reference values for the final two years.

Modulation review

No modulation is applied.

Review of financial advantages/disadvantages

A maximum bonus of 0.5% revenue is countered with a maximum penalty of 1.5%. The delay forecasts in the NOP indicate that the ANSP will likely incur penalties for each year in RP3.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.15 min	0.100%	1.000%
	✓	✓

Has the NSA chosen to modulate the pivot values?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.175	±0.175	±0.175	±0.175	±0.175
Performance Plan targets	0.35	0.35	0.35	0.35	0.35
Pivot values for RP3	0.35	0.35	0.35	0.35	0.35

Threshold review

The terminal incentive scheme includes a dead band of ±0.15 min (±43%) of the pivot value which is not modulated (dead band: 0.2-0.5 minutes delay per arrival).

Modulation review

Sweden has opted for pivot values based on the performance targets (not modulated).

Review of financial advantages/disadvantages

The Swedish performance plan considers maximum bonus of 0.1% while maximum penalty is of 1%. The targets aim to maintain the good performance observed in the past, although the dead band is quite wide to avoid the application of bonus/penalty in a reasonable margin.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ✓

En route incentives:

- Approximately 6% of the en route traffic in Sweden FIR is excluded from the incentive scheme, since it is not controlled by LFV. For the incentive scheme applicable to LFV, the threshold is symmetrical around the pivot value for each year.
- The pivot values are more stringent than the reference values published in the NOP for the first three years of RP3 and are equal to the published reference values for the final two years.
- The potential penalty (1.5%) is significantly greater than the potential bonus (0.5%). According to the delay forecasts in the NOP, the ANSP is likely to face penalties during RP3.

Terminal incentives:

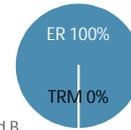
- Sweden is one of the few states that proposes maximum penalties of 1%, versus maximum bonus of 0.1%. Together with the target, all causes aim at maintaining the good performance at Stockholm.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	21.6	20.6	20.9	22.9	22.7	108.7
	En route	21.6	20.6	20.9	22.9	22.7	108.7
	Terminal	0.0	0.0	0.0	0.0	0.0	0.0

* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State. The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

RP3 investment ratio ER/TRM



3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	COOPANS	COOPANS TopSky ATM systems operated in Stockholm and Malmö ATCC with connected ATS units. COOPANS is in the process of planning for the next generation systems, which will replace our existing FDP and HMI to increase system capacity as well as meeting new European regulatory requirements such as PCP/Interoperability. This will require significant investment over the next decade from all the COOPANS partners and will deliver incremental improvements of efficiency and capacity.	50.9	Yes	Yes	7.2	0.0
2	SWIM	Implementation of a new architecture for information management within the network. Expected to require an extension of the LfV integration platform (incl. integration nodes, operative and administrative systems, external interfaces), adaptations of connecting systems (e.g. network adaptations, AIM/AIS (non-ADQ), hardware for Cyber Security and a demonstrator for the SWIM concept. Analysis and Definition of relevant services, including Implement Cooperative Network Information Exchange system, Aeronautical information Exchange Meteorological Information Exchange, that is to be handled in the Technical implementation of the SWIM concept.	7.0	Yes	Yes	1.1	0.0
3	Other development	Other investments are aimed at supporting the intentions of the ATM Master Plan (and reinforced by Airspace Architecture Study etc), that ANSP expedite implementation of virtualization and automation in order to improve productivity while providing the necessary capacity. Other investments may, to some degree, include operational requirements to change existing systems due to demands raised during the time period. The main investment areas anticipated within the Other new investments are: ATCC virtualization, Platform for automation, UTM adaptation. More details can be found in section 2.1 of the performance plan.	14.1	No	Yes	0.1	0.0
Total:						8.5	0.0

Airspace user feedback regarding major investments

The airspace users showed concerns during the stakeholder consultation regarding the benefits of Investment #1 COOPANS and Investment #2 SWIM, and their lack of business cases. LfV clarified that an overall CBA for the entire PCP regulation (Implementing Regulation 716/2014 on the establishment of the PCP supporting the implementation of the European ATM Master Plan) has been done along with the CBA made by SDM. The NSA was aware of the users' position and confirmed that there was no business case for each investment and will build up processes for monitoring investments during RP3. The airspace users appreciated the information shared on RP3 investments but are disappointed on the proposed target regarding cost efficiency and the "bottom up" approach.

Review of investments

Major new investments represent 9% of the total determined costs of investments over RP3. Investment #1 continues from RP2. In line with this, 2015-2018 actual CAPEX delivery reaches 164% and the amount overspent is 28.89M€. The sum of the determined cost of investments for RP3 is higher than the value of the assets allocated to ANS for Investment #2.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
3	Other Development	Network	Capacity, Cost-efficiency	Investments are aimed at supporting the ATM Master Plan. ANS productivity, improving capacity per unit cost.

Additional information

"Other investments are aimed at supporting the intentions of the ATM Master Plan (and reinforced by Airspace Architecture Study etc), that ANSP expedite implementation of virtualization and automation in order to improve productivity while providing the necessary capacity. Other investments may, to some degree, include operational requirements to change existing systems due to demands raised during the time period. The main investment areas anticipated within the Other category are:

- ATCC virtualization. This may include the development of a test platform (redundancy, real time etc. and connecting nodes) before developing the operational system. The first steps are expected to be taken in the technical domain, with the end goal of improving ANS productivity resource sharing and improved working methods.

- Platform for automation. This may include a development facility and initial development, improved systems for operational data collection and analysis, algorithm development and simulator integration, and continued development of automations throughout RP3. Automation is aimed at increasing ANS productivity.

- UTM adaptation. The ongoing development of UTM services may create a requirement for ATM systems to develop new interfaces, e.g. to prevent increased workloads in ATM that would otherwise arise if all interfaces with emerging UTM would require manual coordination. UTM adaptation is aimed at preserving ANS productivity as the number of coordination with UTM are expected to gradually increase during RP3."

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	51.5	51.5	1.4	1.6	1.9	3.2	3.4	11.5
Existing investments			16.4	14.7	14.7	14.7	14.4	74.8

Description and justification of other new and existing investments in fixed assets planned over RP3	Other new investments represent 12% of the total determined costs of investments over RP3, while existing investments represent 79%. LFV does not provide details on the investments, other than summarising them as: "Other new investments are mainly a number of investments in replacements and/or upgrades within Communications and Radio due to, among other things, EU-regulations, end of life of equipment, additional operational requirements for added functionality and capacity increases. Other new investments are replacements/upgrades systems within NAV, ATM and buildings, together with "other PCP" that covers The European Commission Regulation No. 716/2014 that expects to require investments outside COOPANS and the main air traffic control and en route system. The existing investments contains mainly of fulfilment in investment in Contingency/Single System and the replacements of MSSR.s."
--	---

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand !

Sweden performed well in the capacity KPA in the previous reference period. According to the NOP 2019-2024, the capacity enhancement measures introduced by Sweden may support the capacity targets achievement with the following differences. The ACC Stockholm will provide required capacity with reasonable capacity surplus while ACC Malmo is expected to generate delays at higher levels than the network capacity requirements due to staffing issues. The low level of description of all investments makes the evaluation of the capacity contribution level difficult. The projects name the concepts that support capacity enhancement. The link to the measures introduced in the NOP is not totally clear although it is believed that the investments may support operational improvement such as FRA implementation, re-sectorisation and ATFCM procedures enhancements.

Investment #1 (50.9 M€): it is not clear whether the project refers to the minor COOPANS updates as provided by the NOP, or to the 'planning phase of the next generation' ATM system or to the actual replacement of the ATM system 'with significant investment needed' over the next decade as provided by the description in the performance plan;

Investment #2: it is an investment into the SWIM architecture, which will constitute an interoperability communication enabler and support many of the capacity enhancement measures;

Investment #3: provides description too general to make a judgement on the capacity contribution level although some elements are believed to bring capacity increase such as the ATCC Virtualisation which is in line with the Airspace Architecture Study.

Similarly the description of the other new and existing investments just summarisation which does not allow for identification of elements that may provide for capacity targets achievements. From the generic text in the description it could be concluded that some parts of the other new investment may contribute to the capacity enhancement while the existing investments are not primarily focused on the capacity achievements.

More detailed information on all investments would be needed to assess the investment levels against the demand.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan !

The limited information within the performance plan does not allow to confirm that Sweden considered the operational aspects on how and when capacity improvements are needed. Sweden met the capacity targets in RP2. It has been suggested to follow baseline traffic growth profile scenario in the RP3 and Sweden may not be forced to take the technical measures in other way than following ATM Master Plan and life-cycle development of the existing systems. The investment projects may support other capacity enhancement measures introduced in operational domain. The performance plan does not provide clear information on when the projects are planned to enter the operations.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented !

More information is needed to make the assessment. This considers especially descriptions on the Investments #1, #3 and other new and existing investments.

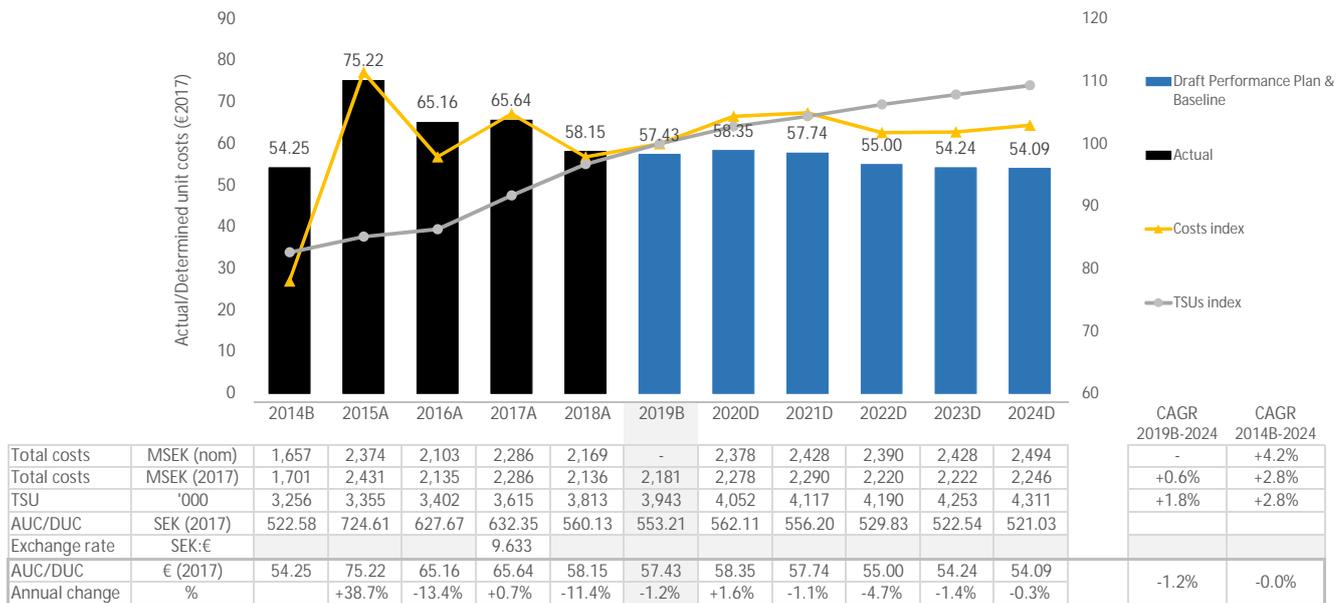


- No major issues identified concerning the investments, although there is very limited information. Existing investments represent 79% of the determined costs of investments over RP3 and, in line with this, actual CAPEX delivery for the years 2015 to 2018 indeed reaches 164%.
- More information is needed to review investments contribution to capacity as regards the timelines and the scope of individual projects (namely Investments #1, #3 and other new and existing investments).

SWEDEN

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified? 57.43 €2017 !

2019 en route baseline costs amount to 226.434M€2017, which is 2.7M€2017 (+1.2%) higher than the 2019 forecast costs and 2.1% above the 2018 actual level of costs.

The 2019 traffic baseline is in line with STATFOR February 2019 base forecast.

4.1.3 Summary of cost-efficiency assessment results

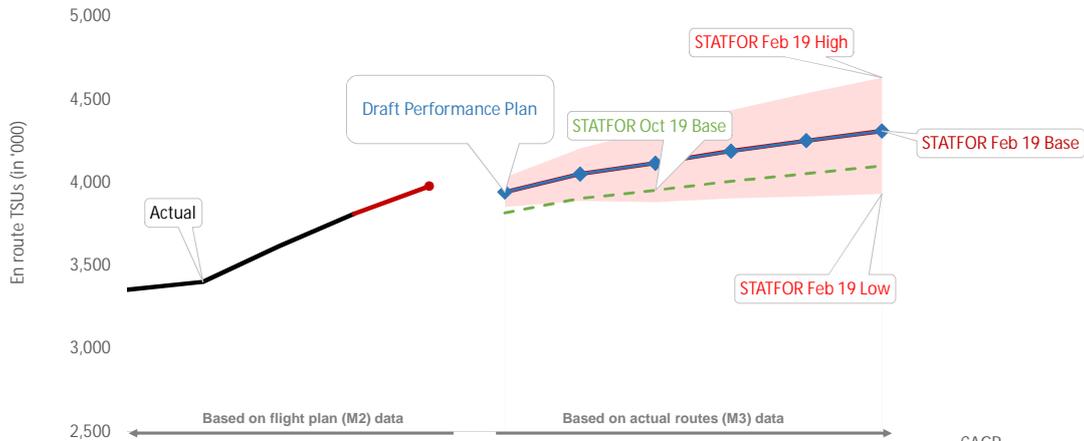
- a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)? -1.2% ✗
 The RP3 en route DUC trend is on average -1.2%, worse than the Union-Wide RP3 DUC target (-1.9%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)? 0.0% ✗
 The long term en route DUC trend is on average 0.0%, worse than the Union-Wide Long-term DUC trend (-2.7%).
- c) DUC level (2019 baseline) lower than the average of comparator group (B) average (46.01 €2017)? +24.8% ✗
 The 2019 baseline DUC (57.43€2017) is +24.8% higher than the average of the comparators' group (46.01€2017). Sweden en route DUC remains above the average of its comparators' group over the whole of RP3 (2020-2024).
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? ✗
 The difference between the RP3 determined costs reported in the draft performance plan and the determined costs that would be required to meet the RP3 cost efficiency target trend is +34.4M€2017 (+256.7M€2017 from the long-term trend).
 The cost deviations are not exclusively considered related to the capacity measures.
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? n/a

4.1.4 PRB Conclusions ✗

The PRB concludes that the cost-efficiency targets proposed by Sweden should not be approved.

- Sweden is not meeting any of the cost-efficiency criteria.
- The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	3,355	3,402	3,615	3,813								
	Annual change	%	+1.4%	+6.3%	+5.5%								
STATFOR Feb 19 Base	'000 TSUs					3,978	3,943	4,052	4,117	4,190	4,253	4,311	+1.8%
	Annual change	%				+4.3%	+3.4%	+2.8%	+1.6%	+1.8%	+1.5%	+1.4%	
STATFOR Oct 19 Base	'000 TSUs					-	3,817	3,905	3,955	4,009	4,054	4,101	+1.4%
	Annual change	%				-	+0.1%	+2.3%	+1.3%	+1.4%	+1.1%	+1.2%	
Performance Plan	'000 TSUs						3,943	4,052	4,117	4,190	4,253	4,311	+1.8%
	Annual change	%					+3.4%	+2.8%	+1.6%	+1.8%	+1.5%	+1.4%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	3,943		
2019F (as in the Reporting tables, M2)	3,978		
2019B/ 2019F	-0.88%	-0.89%	-0.83%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	3,943			
2019F (STATFOR Feb 19, M3)	L 3,853	B 3,943	H 4,031	=B
2019F (STATFOR Oct 19, M3)	L 3,804	B 3,817	H 3,830	+3.30%

The 2019 TSU baseline is in line with STATFOR February 2019 Base case forecast.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

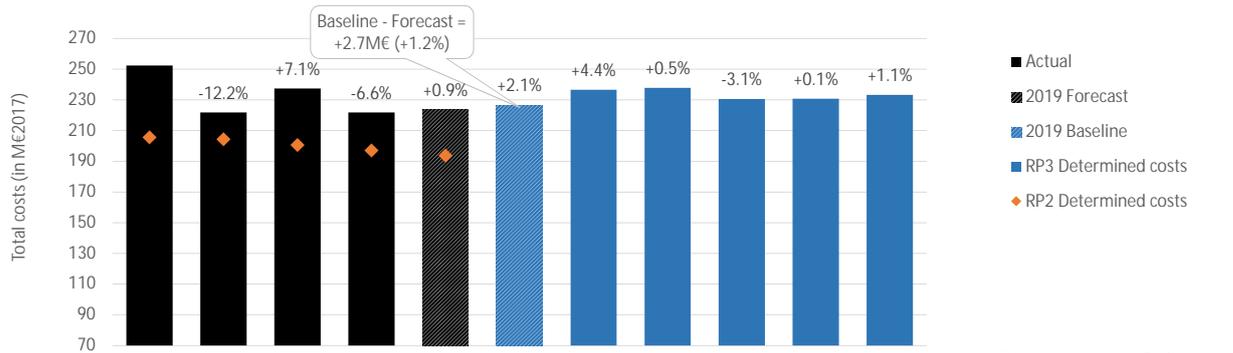
Review of the PP traffic forecast

The selected TSU forecasts are in line with STATFOR February 2019 base forecast for all years of RP3 (2020-2024) which forecasts an average growth of +1.8% p.a. over 2019-2024.

4.2.4 PRB Key Points

- No major issues identified.

4.3.1 Overview of en route costs in RP2 and RP3



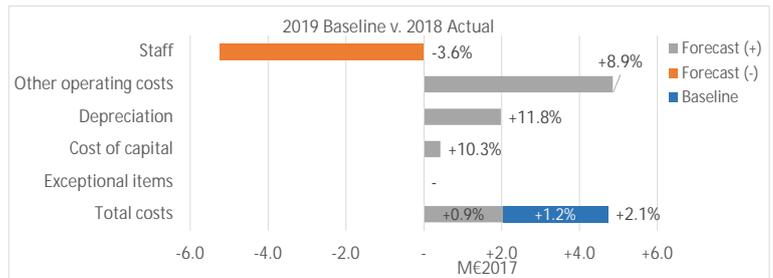
		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MSEK (nom)	2,374	2,103	2,286	2,169	2,220	-	2,378	2,428	2,390	2,428	2,494	-	SEK:€
Annual change	%	-	-11.4%	+8.7%	-5.1%	+2.3%	-	-	+2.1%	-1.6%	+1.6%	+2.7%	+1.9%	9.63311
Inflation index	2017 = 100	97.1	98.1	100.0	102.0	103.9	103.9	105.6	107.6	109.8	112.0	114.2	-	-
Total costs	MSEK (2017)	2,431	2,135	2,286	2,136	2,155	2,181	2,278	2,290	2,220	2,222	2,246	+0.6%	-
Annual change	%	-	-12.2%	+7.1%	-6.6%	+0.9%	+2.1%	+4.4%	+0.5%	-3.1%	+0.1%	+1.1%	-	-
Total costs	M€ (2017)	252.361	221.660	237.313	221.702	223.739	226.434	236.440	237.707	230.455	230.700	233.169	+0.6%	-

Is inflation in PP in line with IMF (April 2019 forecast)? Yes

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+2.0	+0.9%
2019F v. 2019 RP2 DC	+30.1	+15.5%
2019F v. average 2015-2018	-9.5	-4.1%

2019 baseline analysis	M€2017	%
2019B v. 2019F	2.7	+1.2%



2019 forecast analysis

2019 en route forecast costs amounts to 223.74M€2017, which is 2.0M€2017 (+0.9%) above the 2018 actual costs. When compared to the average of 2015-2018 actuals, the 2019 forecast costs are lower by 9.5M€2017 (or -4.1%).

2019 baseline analysis

2019 en route baseline costs amount to 226.43M€2017, which is 2.7M€2017 (+1.2%) higher than the 2019 forecast costs and 4.7M€2017 (+2.1%) above the 2018 actual level of costs. The main reasons for the differences between the 2019 baseline and the 2018 actual costs are:

- Lower staff costs (-5.2M€2017 or -3.6%), Sweden reports that "Comparing total costs of staff is not possible without taking into account pensions. Pensions are forecasted relatively low compared to both 2018 and 2020. Adjusting for this, there is a 3% increase of staff costs between 2018-2019. It is to some extent driven by FTEs, however yearly revision of salaries is included." In the reporting tables/additional information, Sweden reports that "Salaries are expected to increase at approximately 2.2% yearly plus ATCO tariff increase" and "In total staff costs excluding pensions are expected to increase by approximately 2% per year."
- Higher other OPEX (+4.9M€2017 or +8.9%), Sweden reports that "The increase in other operating costs is most notably linked to the training of new ATCOs. Other explanatory variables are costs of new communication network, where an end-of-life of the analogue network is replaced with a digital, costs related to technical equipment including amendment of Regulation 2017/373, on the "Air Traffic Management Common Requirements Implementing Regulation". Also cost of Eurocontrol constitutes a cost increase. For the purpose of RP3 planning the latest forecast for Eurocontrol is taken into consideration, e.g. the change of internal taxation calculation."
- Higher depreciation (+2.0M€2017 or +11.8%). Sweden reports that "Increase in depreciation between 2018 and 2019 depends especially on development of Remote ATS, Contingency investments and PSR Radar over the Baltic Seas."
- Higher cost of capital (+0.4M€2017 or +10.3%).

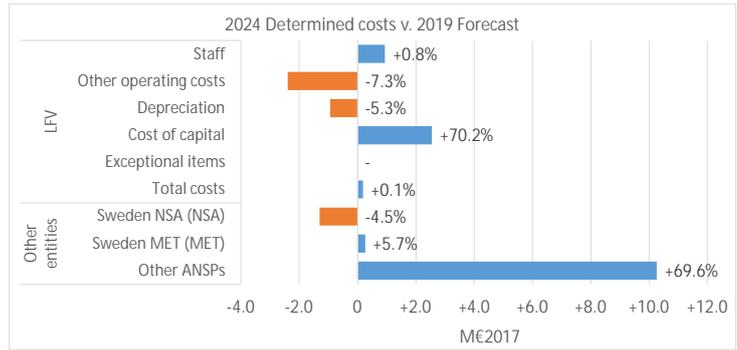
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ⓘ Investments (see details in 3.5)
- ⓘ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ✓ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.50%
Maximum penalty (% of determined costs)	1.50%
Additional incentives?	No



In 2024, the main ANSP (LFV) costs are 0.2M€2017 (or +0.1%) higher than the 2019 forecast. However, the "other (en route) ANSPs" (ACR, ARV, SDATS) plan a higher difference of +10.3M€2017 (or +69.6%) between 2019 forecast and 2024 determined costs. Between 2019 forecast and 2024 cost, the LFV cost of capital is planned to increase by 2.6M€2017 (+70.2%). Other operating costs (-0.9M€) or -5.3% lower. Depreciation costs (-0.9M€) or -5.3% lower.

From "4.3.B Pensions", the pension costs (included in staff costs in the Reporting tables) are planned to slightly decrease over RP3 in real terms and the share of pension cost in total ANSP costs remain higher than the Union-wide average (Note: pension costs differ slightly between the performance plan and the reporting tables).

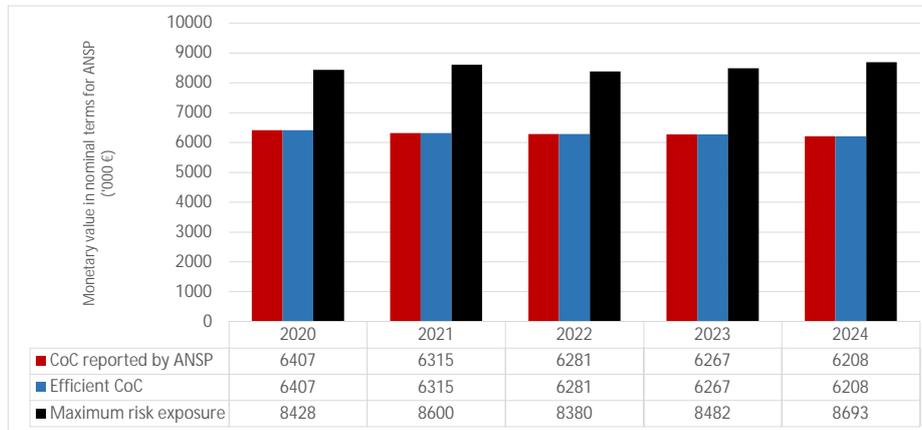
4.3.4 PRB Key Points

- 2019 en route baseline costs amount to 226.434M€2017, which is +2.7M€2017 (+1.2%) higher than the 2019 forecast costs and +2.1% above the 2018 actual level of costs.
- The main ANSP (LFV) 2024 cost are +0.2M€2017 (or +0.1%) higher than the 2019 forecast. However, the "other (en route) ANSPs" (ACR, ARV, SDATS) plan a higher difference of +10.3M€2017 (or +69.6%) between 2019 forecast and 2024 determined costs.

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	191,534	195,445	190,444	192,772	197,570
Monetary value of Return on Equity	761	815	792	853	765
Ratio RoE/DC (%)	0.4%	0.4%	0.4%	0.4%	0.4%

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



4.3.A.3 WACC review

Nominal values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	5.1%	n/a								
Interest on debts	2.0%	n/a								
Capital structure (% debt)	94.8%	n/a	94.3%	n/a	94.4%	n/a	93.9%	n/a	94.5%	n/a
WACC	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%

Is the interest on debts in line with the market? Yes

- LFV has no external loans at the moment. LFV finances the investments with part of the pension debt. The interest on pension debt is set to 2.0%, which is an assumption equal to the inflation development. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate is duly justified and in line with competitive market practices.

- Swedish government requires a return on equity of 4% after tax (5.1% before tax), thus the reported WACC has been calculated based on this requirement. Despite this requirement, the cost of capital reported is in line with the maximum risk exposure.

- Adjustments are not necessary for the reported cost of capital over the period 2020-2024, the cost of capital proposed is in line with the maximum risk exposure.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	179,325	184,528	193,405	202,523	212,948
Net current assets	0	0	0	0	0
Adjustments total assets	107,690	95,724	83,759	71,793	59,828
Total asset base	287,014	280,252	277,164	274,317	272,775

- The fixed asset base will slightly increase over the period. This is in line with the investments described in section 3.5.

- There are no net current assets included in the asset base.

- The adjustments to the asset base consist of an approval by NSA for LFV as a compensation in order to recover uncontrollable costs over two reference periods. However, LFV's assumptions include lower values than the ones calculated by the NSA, hence the cost of capital calculations are subject to approval by the NSA.

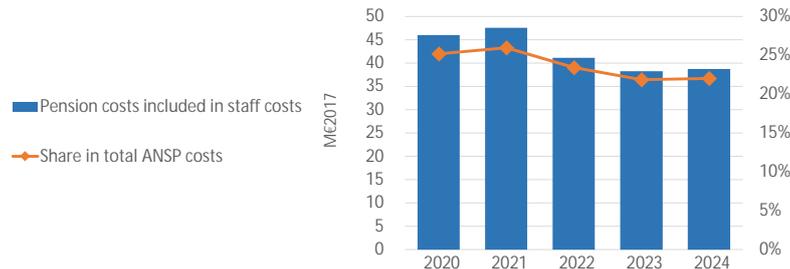
- The total asset base will decrease over the period, in line with the decrease of the adjustments.

4.3.A.5 PRB Key Points

- The Swedish government requires a return on equity of 4% after tax (5.1% before tax), thus the reported WACC has been calculated based on this requirement. Despite this requirement, the cost of capital is in line with the maximum risk exposure.

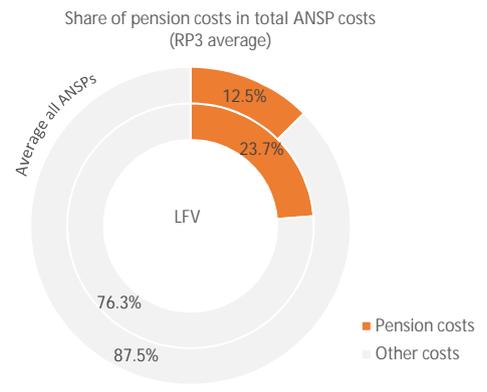
- LFV's assumptions for the adjustments are lower than the values calculated by the NSA, therefore the cost of capital calculations are subject to approval by the NSA.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



	M€2017	2020	2021	2022	2023	2024
Pension costs included in staff costs	M€2017	45.9	47.5	41.1	38.2	38.7
Year on year variation	% change		+3.4%	-13.5%	-7.1%	+1.4%
Share in total ANSP costs	%	25.2%	26.0%	23.4%	21.9%	22.0%
Year on year variation	p.p.		0.8p.p.	-2.5p.p.	-1.6p.p.	0.2p.p.

What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Decrease**



Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Higher**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

This is not applicable according to the additional information to the en route reporting tables (1. f "Pension costs").

In the RP3 performance plan, Sweden reports: "Part of the cost for defined benefit obligations is interest (indexation and interest), which is included in staff cost (cost for pensions). This is however accounted for as interest expenses (line item in financial cost) in the financial statement of LFV in accordance with Swedish Accounting principles." Therefore the defined benefit pension costs are all included under "staff costs" in the reporting tables.

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **No**

Sweden reports in the RP3 performance plan that "We are not aware of any expected changes of the regulations during RP3 of the state pension system."

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

Sweden reports in the RP3 performance plan that "The assumptions for defined contribution scheme are the same for the whole period 2020-2024."

A defined contribution scheme was introduced in 2016 for employees born in 1988 or after. Sweden further reports in the RP3 performance plan that: "Category 1: Employees born in 1988 or later (2018: 83 members of staff) are only covered by defined contribution scheme (no part is defined benefit). The contribution rate for these employees are 6 % in general and then 31,5 % on monthly gross salaries above 37,000SEK. On these premiums a special employer's contribution of 24.26 % is accounted for and paid to the state/the tax authorities. Calculations of actual outcome for 2018 shows an average contribution rate of 13.5% including special employer's contribution. Total salaries for category 1 was 39MSEK in 2018. All active employees of LFV born before 1988 connected to the defined benefit scheme also have a part of the pensions through a defined contribution scheme. The contribution rate is 4.5% of gross salaries. On these premiums a special employer's contribution of 24.26% is accounted for and paid to the state/the tax authorities."

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

The discount rate is reported to be -0.7% from 2020-2024 in the table of the RP3 performance plan. However the text under "3.4.3 Pension" tab of Sweden RP3 performance plan is slightly different: "The forecast of pensions is therefore based on the gross rate -1.3%, and the effect of the changed calculation bases explains the large pension costs in 2020." (...) "LFV's pension costs in the performance plan for 2020-2024 are based on a forecast made by SPV (National Government Employee Pensions Board). In July 2019, SPV announced that a further decrease of the interest rate, calculated by the Swedish Financial Supervisory Authority, is expected for the 2020 bases; a decrease of the gross rate from -0.7% to -1.3%." and "The interest rate -1.3 % has therefore been used for the entire period 2020-2024." The text and the table are therefore inconsistent and the assumptions retained should be confirmed to be a discount rate of -1.3% (or otherwise changed in the meantime).

Most of the other assumptions are still missing in the RP3 performance plan (pensionable payroll, number of employees contributing, etc).

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

"The obligation for defined benefit scheme and cost for pensions is regulated by PA16, the Swedish accounting principles and regulations and assumptions etc decided by National Government Employee Pensions Board based on the market development of interest and inflation. Therefore deemed to be out of control of LFV and of the character that no special risk mitigating action against unforeseen change is applicable."

Sweden also reports that "The LFV staff is to the largest extent covered by a Defined Benefit Scheme. 1072 active members in 2019."

4.3.B.4 PRB Key Points



- According to the "Study on ANSPs Pension Schemes and their costs (review of changes over the 2010-2016 period)" (PRC, 2018), LFV Sweden is one of the top ANSPs in terms of "Pension costs/ANSP costs" ratio and "Pension cost per employee" ratio.
- The lack of transparency in the defined benefit scheme assumptions could be an issue for RP3 cost exempt verification.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- Sweden did not change the cost allocation methodology with respect to RP2.
 - Costs are separated into cost centres, where all costs and revenues for managing the site are allocated. A cost centre is defined after what service it provides and allocated to the specific service to the en route or terminal cost base.

1.2. Are the criteria for cost allocation clearly defined and justified? **Yes** If not, what are the issues identified?
 n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2? **No** If yes, description and justification of the changes from RP2 to RP3 specified in the PP
 n/a

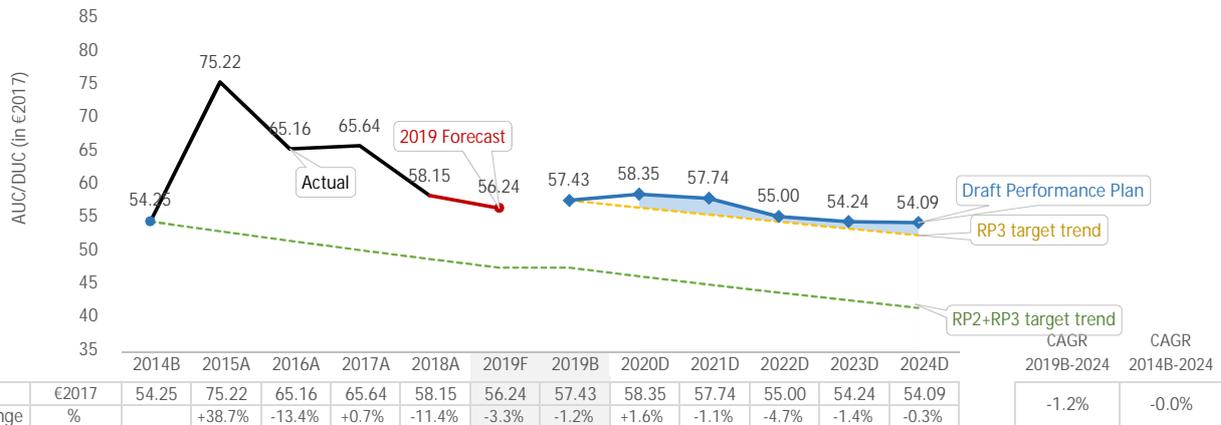
2.2. Are these changes in cost allocation duly described and justified? **n/a** If, not what are the identified issues?
 n/a

2.3. Is there an impact on the determined costs and/or baseline? **n/a** If yes, description of the impact of the changes in methodology in the determined costs and/or baseline
 n/a

4.3.C.3 PRB Key Points ✓

- Sweden did not change the cost allocation methodology with respect to RP2.
 - No major issues identified in the cost allocation methodology.

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

- ✗ DUC consistency with the Union-wide RP3 DUC trend
- ✗ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-1.2%	Union-wide trend	-1.9%	Difference	+0.7p.p.
PP trend	-0.0%	Union-wide trend	-2.7%	Difference	+2.7p.p.
PP 2019 baseline	57.43	Average comp. group	46.01	Difference	+24.8%

DUC deviation

Are the PP capacity targets consistent?	Yes
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

The RP3 en route DUC trend is -1.2% p.a. on average, worse than the Union-wide RP3 DUC trend (-1.9%). The long-term en route DUC trend is 0.0% p.a. on average, worse than the Union-wide long-term DUC trend (-2.7%). Sweden reports: "Important to note on the long term cost effectiveness trend which is stretched out to 2014, 2014 was a year with exceptional pension adjustments, actually pushing costs downward. If 2014 were to be harmonized to "normal" values it would reveal a decreasing long run trend." However, no numeric values are provided to compute such a "normalised" trend. The 2019 baseline DUC (57.43€2017) is 24.8% higher than the average of the comparators' group (46.01€2017). Sweden en route DUC remains above the average of its comparators' group over the whole of RP3 (2020-2024) and only lower than Denmark.

Sweden reports that "In RP3, LFV plan for increasing ATCO training which will require higher costs. LFV plans to have 30-36 ATCO students beginning their ATCO-training at EPN per year over RP3. The en route cost part for this vary from 51 to 63 mSEK over the years" (en route reporting tables/additional information 1.f).

Sweden claims (see draft performance plan 3.4.1.e) that the deviation is mainly due to:

- Training costs: including change of employers for ATCOs;
- Development of airspace: Airspace 2040. Mainly route design and change in procedures for arrival/departures/approach;
- Regulatory requirements: with additional costs induced by the number of ANSPs: "in SE where number of providers are several for other efficiency purposes these create cost drivers for more than one organisation";
- MET provision: "MET services incur costs from PCP related demands, but also from replacement of radar equipment which is end-of-life. The MET provider has to secure delivery of services specified in EU 716/2014 by 2024 in cooperation with the other NAMCON countries."

4.4.3 Analysis of the DUC deviation for achieving the capacity targets ✘

Deviation (in M€2017):	v. RP3 trend over the period 2020-2024	+34.4	v. RP2+RP3 trend over the period 2020-2024	+256.7
ATCO planning (en route) (see details in 3.2.2 (1b))				
	Cumulative change of ATCOs in OPS during RP3 (FTEs*)	+50.5	Additional ATCO costs (M€2017)*	+9.9
	* assuming recruitment on 1st July of the year		* calculated using ACE2017 ATCO in OPS unit costs	
Determined costs related to investments (en route)				
	Total determined costs of new major investments (in M€2017)	8.5	of which, related to capacity (see Section 3.5 for details)	8.5

Analysis

Only the investments for LFV (the main en route ANSP) are reported in section 3.5. of this document. The total determined costs of LFV en route investments (including depreciation costs, cost of capital and cost of lease) represents 108.7M€ over 2020-2024 with "existing investments" representing the bulk of it (74.8M€). The draft performance plan foresees a recruitment of +50 net additional ATCOs in OPS (FTEs) over RP3 for an estimated 10M€2017.

Some capacity issues were recorded in 2017-2018 (0.03 to 0.05 min of en route ATFM delay per flight) and more delay is expected in 2019. The proposed capacity targets for RP3 are better or in line with the respective reference delay values.

The estimated deviation due to capacity measures (18.4M€2017) is lower than the deviations from the Union-wide cost-efficiency trends (i.e. 34.5M€2017 and 256.7M€2017).

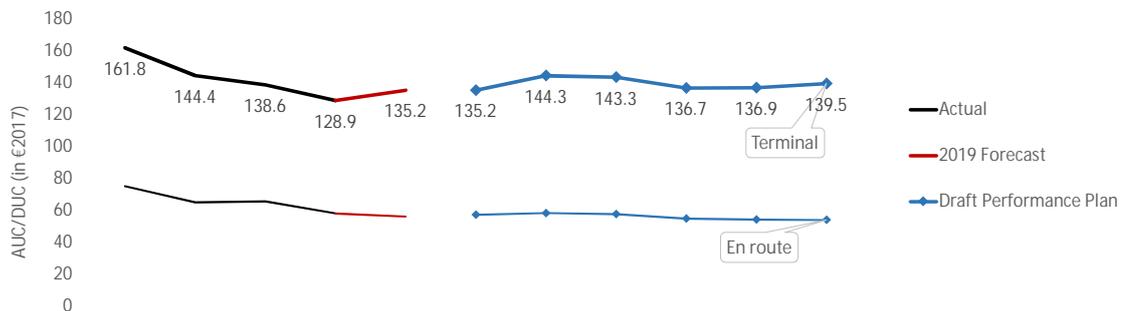
✘ Can it be considered that the deviation is exclusively for the purpose of achieving the capacity targets?

4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✘

- Sweden does not meet any of the cost efficiency criteria.
- The deviations from the cost-efficiency trends are not exclusively for the purpose of achieving the capacity targets.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F
AUC/DUC - Terminal	€2017 161.8	144.4	138.6	128.9	135.2	135.2	144.3	143.3	136.7	136.9	139.5	+0.6%	-4.4%
Annual Change	%	-10.8%	-4.0%	-7.1%	+5.0%	+5.0%	+6.7%	-0.7%	-4.6%	+0.1%	+1.9%		
AUC/DUC - En route	€2017 75.2	65.2	65.6	58.1	56.2	57.4	58.4	57.7	55.0	54.2	54.1	-1.2%	
Annual Change	%	-13.4%	+0.7%	-11.4%	-3.3%	-1.2%	+1.6%	-1.1%	-4.7%	-1.4%	-0.3%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
Stockholm/ Arlanda (ESSA)	GROUP I	139.5	143.5	+2.8%	130.5	140.2	+7.4%

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

For Stockholm/Arlanda (Group I), the average unit cost is slightly above of the median airport unit cost in Group I (+2.8% for RP2 and +7.4% for RP3).

4.5.3 Traffic and Costs review

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	156.3			
2019F (STATFOR Feb 19)	L 191.9	B 195.1	H 197.9	-19.89%
2019F (STATFOR Oct 19)	L 184.0	B 184.7	H 185.2	-15.38%

Costs

2019 forecast & baseline review	ME2017	%
2019 Forecast v. 2018 Actual	+1.1	+5.6%
2019 Forecast v. Avg. 2015-2018 Actual	+0.1	+0.3%
2019 Baseline v. 2019 Forecast	0.0	+0%

The 2019 TNSU baseline is not in line with STATFOR February 2019 base forecast (although Sweden reports their wish to be aligned). The 2019 baseline costs are fully aligned with the 2019 forecast costs (135.2M€2017) which is +1.1M€2017 (or +5.6%) above the 2018 actual level of terminal ANS costs.

Traffic forecasts (terminal)

✗ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

n/a

Sweden reports that it selected the TNSU forecast in line with STATFOR February 2019 base forecast over all years of RP3. However, the data reported is 20% lower.

Determined costs (terminal)

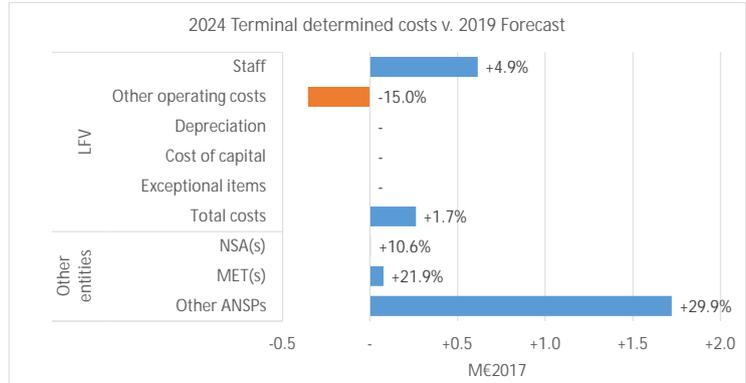
✓ Is inflation in PP in line with IMF (April 2019 forecast)? Yes

Cost elements - LFV (terminal)

- 📌 Investments (see details in 3.5)
- 📌 Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✗ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.10%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



- For LFV, the share of terminal determined costs vs. total determined costs is 8%.
- The terminal RP3, DUC trend is 0.6% p.a. on average, which is worse than the en route DUC trend (-1.2%).
- The terminal 2024 determined costs are +0.3M€2017 (or +1.7%) higher than the 2019 forecast. The cost increase between 2019 forecasts and 2024 is mainly related to LFV Staff costs (+0.6M€2017 or +4.9%) partially balanced by lower Other operating costs (-0.4M€2017 or +15.0%). There is no cost of capital or depreciation charged for LFV in terminal as the ATMCNS systems are owned by the TANS provider (Swedavia). Swedavia costs are planned to be 29.9% higher in 2024 than in 2019 forecasts (+1.7M€2017).

4.5.4 PRB Key Points ✗

- The terminal RP3 DUC trend is +0.6%, which is worse than the en route RP3 DUC trend of -1.2%.
- The terminal RP3 DUC trend is +0.6%, which is worse than the terminal RP2 DUC trend of -4.4%.
- Stockholm Arlanda, the only airport included in the performance plan, had a DUC 2.8% higher than the average of its comparator group over RP2. The difference is expected to become +7.4%, over RP3.
- Sweden used a custom traffic forecast for terminal traffic. The baseline of this forecast is significantly lower (-19.9%) than the baseline of STATFOR February 2019 base forecast. The terminal traffic forecast is not in line with STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs increase over the period, mainly due to staff costs.

PRB Assessment

THE UNITED KINGDOM

Draft Performance Plan

Context and scope

United Kingdom

Performance Plan: Draft performance plan (Article 12) Dated: 30-09-2019
 Documents no:

Relative weight compared to the SES area (2018):	
% Flight-hours v. SES	6.9%
% Costs V. SES	5.6%

Scope

FAB:	UK-Ireland FAB
ANSPs:	NATS (Continental)
Other entities (as per Article 1(2) last para. of Regulation 2019/317):	Department for Transport Met Office UK Civil Aviation Authority

En route services in the Scottish and London Flight Information and Upper Information Regions (FIR/UIR) provided

UK Member State
Aviation met services
UK NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route	United Kingdom	n/a	No	No	no	
Terminal	UK - Zone B	9	Yes	No	no	
	UK - Zone C	1	No	No	no	
Changes in the CZs from RP2		yes				
Biggin Hill airport is included in the Charging Zone C (London Approach) for RP3.						

Comparator group:	Group A	Other States in the comparator group:	France Germany Italy Spain
Currency:	GBP	Exchange rate:	0.87591

1. Safety

Safety performance plan targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
NATS NERL	Safety policy and objectives	C	C	C	C	C
	Safety risk management	D	D	D	D	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C

PRB Assessment

The PRB concludes that the safety targets proposed by the United Kingdom should not be approved.

- The United Kingdom did not provide the EoS targets for all eligible ANSPs operating at their territory.
- The United Kingdom did not provide relevant and sufficient measures to achieve the RP3 safety targets levels for eligible ANSPs.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

2. Environment

Environment performance plan targets

	2020	2021	2022	2023	2024
ANSP target for horizontal en route flight efficiency (KEA) (%)	4.06%	4.05%	4.04%	3.88%	3.72%

PRB Assessment

The PRB concludes that the environment targets proposed by the UK should not be approved.

- NERL's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP

3. Capacity

Capacity performance plan targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.26	0.32	0.32	0.30	0.32
National target for terminal and airport ANS ATFM arrival delay per flight (min)	1.09	1.09	1.09	1.09	1.09

PRB Assessment

The PRB concludes that the capacity targets proposed by the United Kingdom should not be approved.

- The proposed capacity targets for the United Kingdom are lower than the national reference values as stipulated in the NOP 2019-2024 of June 2019, in the first two years of the reference period, with a difference of -0.08 and -0.02 minutes of ATFM delay per flight and are higher than the national reference values in 2022, 2023 and 2024 with a difference of 0.02, 0.04 and 0.05 minutes of ATFM delay per flight respectively.
- The national targets show an overall increasing trend and fall above the NOP delay forecast range in all calendar years of the third reference period.
- Justification for the deviation from the national reference values is based on the rationale that the profile of the proposed targets fits better with the capacity improvement measures of the ANSP and that the proposed targets and the reference values correspond to equal total minutes of generated en route ATFM delay over the reference period. Neither of these rationales justifies the deviation properly.
- A non-compliance issue is noted as regards arrival ATFM delay targets, insofar as the performance plan fails to propose a breakdown value of the national target for the airport of Biggin Hill.
- The United Kingdom did not introduce a terminal capacity incentive scheme for airports which are not under market conditions, which is not compliant with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317.

4. Cost-efficiency

Cost-efficiency performance plan targets

	2020	2021	2022	2023	2024
Target for determined unit cost (DUC) (€2017) - En route	66.14	62.39	61.10	56.85	55.25
Target for determined unit cost (DUC) (€2017) - Terminal	14.24	13.72	14.03	12.97	13.37

CAGR 2014-2024	CAGR 2019-2024
-3.5%	-3.5%
n/a	-2.1%

PRB Assessment

The PRB concludes that the cost-efficiency targets proposed by the United Kingdom should be approved.

- The United Kingdom is meeting the Union-wide RP3 DUC trend and Union-wide long term DUC trend.
- The United Kingdom is not consistent with the average DUC baseline of the comparator group.

PRB Recommendations

SAFETY

- The United Kingdom should provide the EoS targets to all eligible ANSPs.
- The United Kingdom should define more explicit measures to improve maturity levels over RP3 to specifically address Management Objectives needed to be improved for each eligible ANSP individually.

ENVIRONMENT

- The United Kingdom should revise its targets to achieve consistency with its national reference values as the justifications in the performance plan are not consistent.

CAPACITY

- The United Kingdom should revise the performance plan, introduce additional measures if necessary and set more ambitious en route ATFM delay targets to achieve consistency with Union-wide targets, in all calendar years of the third reference period.
- The United Kingdom should ensure that terminal capacity breakdown values are provided for the airport of Biggin Hill.
- The United Kingdom should introduce a terminal capacity incentive scheme for airports, which are not under market conditions.
- The United Kingdom should justify the terminal RP3 capacity targets with respect to similar airports, or should revise terminal RP3 capacity targets downwards.

THE UNITED KINGDOM

Safety KPA

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year for NATS En-route Limited (NERL). The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained in 2020.

No targets were provided for Air Navigation Solutions Ltd. (in charge of London Gatwick and Edinburgh tower services), therefore the draft performance plan is considered as incomplete with regards to the safety targets.

1.1.2 Measures planned to reach the target (if applicable)

The draft performance plan describes some safety performance indicators applied by NERL however misses relevant safety measures in the area of safety risk assessment that needs to be improved in terms of maturity.

Moreover, no measures were provided for Air Navigation Solutions Ltd. that is a relevant ANSP under the scope of the Performance and Charging regulation.

1.1.3 Interdependencies and trade-offs

The draft performance plan in details describes interdependencies between safety and other KPAs and the way of addressing it by standard tools and safety management practices. It is considered that the approach how interdependencies with safety are handled during implementation of major ATM changes is sufficiently described.

1.1.4 Change Management

Two specific change management procedures in accordance with safety regulatory requirements are described, ensuring that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

1.1.5 PRB Conclusions

The PRB concludes that the safety targets proposed by United Kingdom should not be approved.

- United Kingdom did not provide the EoSM targets for all eligible ANSPs operating at their territory.
- United Kingdom did not provide relevant and sufficient measures to achieve the RP3 safety targets levels for eligible ANSPs.

The PRB understands that that change management processes and transition plans are applied to minimise the network impact of planned changes.

1.2.1 Target for EoSM for ANSPs and associated measures

		2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	The targets have been set in accordance with the COMMISSION IMPLEMENTING DECISION (EU) 2019/903 of 29 May 2019.
		Target	Target	Target	Target	Target		
NATS En-route Limited (NERL)	Safety policy and objectives	C	C	C	C	C	✓	
	Safety risk management	D	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year for NERL. The EoSM targets levels, set in accordance with the Union-wide safety targets, are planned to be attained at the end of RP3.

NERL has a very mature safety management system, the RP3 safety targets are already achieved in four out of five management objectives. During RP3 period, only safety risk management area requires an improvement. The draft performance plan declares that safety levels will be maintained, however as the RP3 requirements for safety risk management are more stringent than in RP2, additional measures are required to be implemented. The measures described are not considered relevant and sufficient to improve the risk management area to a maturity level D.

It must be noted that the draft performance plan does not include the Air Navigation Solutions Ltd. that is a relevant ANSP under the scope of the Performance and Charging regulation. Consequently, the EoSM Target and related measures should be provided for Air Navigation Solutions Ltd. The draft performance plan is therefore considered incomplete with regards to safety targets.

1.3.1 Interdependencies and Trade-offs

The draft performance plan describes interdependencies and the way of addressing it by standard tools and safety management practices. The procedures are embedded in NERL project governance and ATC procedure development processes and robustly applied throughout the business, overseen by Operations Directors and the NATS Safety Steering Group.

1.3.2 Change Management Practices

The draft performance plan describes in detail two specific change management procedures: Organisational change management and Transitional management.

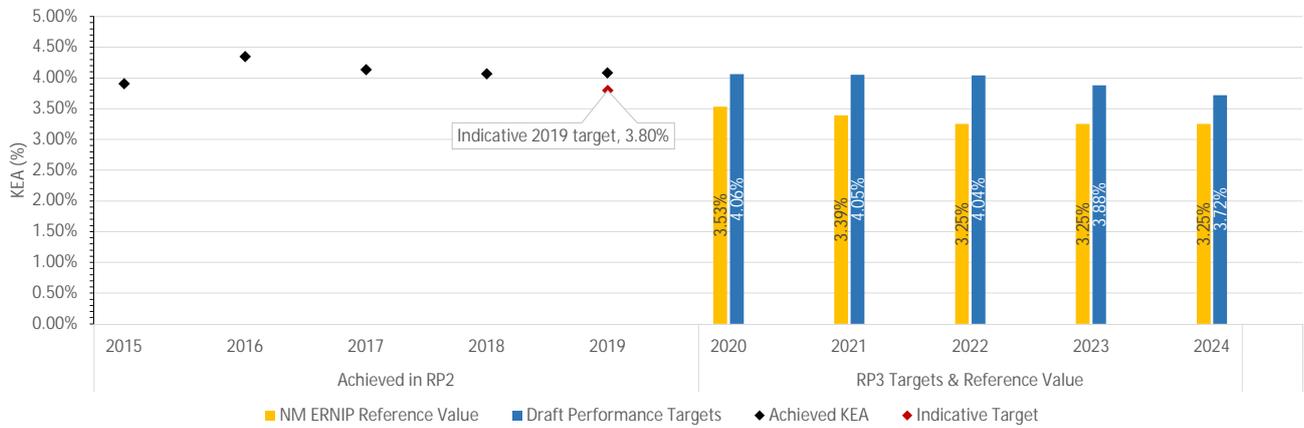
Any significant changes to ATM system changes are conducted in accordance with safety regulatory requirements (with appropriate oversight from the CAA) and in cooperation with airspace users and other interested stakeholders. The described processes ensure that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

THE UNITED KINGDOM

Environment KPA

2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets

	2020	2021	2022	2023	2024
Reference values	3.53%	3.39%	3.25%	3.25%	3.25%
Draft performance targets	4.06%	4.05%	4.04%	3.88%	3.72%
Comparison of draft performance targets with reference values	▲0.53%	▲0.66%	▲0.79%	▲0.63%	▲0.47%
Consistency with reference values	✗	✗	✗	✗	✗



2.1.2 PRB Conclusions ✗

The PRB concludes that the environment targets proposed by the UK should not be approved.
 - NERL's horizontal flight efficiency targets are not in line with its reference values published in the June 2019 ERNIP

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? FRA is currently unavailable in the U.K. although there is some airspace that has direct routing available i.e. Prestwick. The U.K. is a part of the Borealis initiative which seeks to offer a cross-border FRA in northern Europe in 2021.	✓	Reference in PP 3.2.1(a)	Reference in LSSIP Page 65
Major ERNIP Recommended Measures: Measure included within performance plan?	2	Reference in PP 3.2.1(a)	Reference in ERNIP Page 168
Implementation of BOREALIS FRA Step 6 and 7	✓	3.2.1(a)	Page 155
Borealis FRA - Step 4 - Scottish Free Route Airspace	✓		
FUA Implementation according to latest LLSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that UK achieved a KEA of 4.07% in 2018 and needs to meet an indicative target of 3.80% in 2019 to achieve the reference value of 3.53% in 2020. The indicative target is based on a straight-line extrapolation between the 2018 achievement and the 2020 reference value.

In proposing their own targets, the UK considered the following factors:

- Historical performance to date (circa. 0.2% year on year rate of improvement since 2014);
- Lack of clear methodology to generate the reference values;
- NERL's proposals that implementation of FRA will not be available until 2022, which suggest the improvement expected by the NM may only yield results near the end of RP3.

Concerning the first point, the UK's performance in terms of KEA since 2014 was (as shown in the chart in section 2.1.1):

- 2014: 4.08%;
- 2015: 3.91%;
- 2016: 4.35%;
- 2017: 4.14%;
- 2018: 4.07 %, which does not corroborate with the 0.2% year-on-year improvement suggested. In fact, performance was stable and using the U.K. proposal and the targets should be set equal to current performance.

The NM developed the reference values based upon the targets set by the PRB, which were explained in the target setting reports available publicly and the consultation process.

On the last point, the PRB suggested targets on the assumption that full FRA would be available in 2022, in line with NERL's business plan assumption that full FRA will be deployed in Prestwick and Swanwick by this time. The PRB assumed, in agreement with the UK assumption, that FRA will be deployed in stages that should result in step improvements until full deployment and therefore set the targets accordingly.

The UK operates Night Time Fuel Saving Routes that enable the practise of giving flight plannable direct routings to general air traffic at set times overnight. The performance plan of the UK defines performance targets that are inconsistent with its national reference values and are therefore inconsistent with the Union-wide targets for RP3.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does United Kingdom plan for an environmental incentive scheme? The performance plan stated that the UK will continue the use of the 3Di metric.	✓
Does United Kingdom apply the incentive scheme on KEA?	✗
The performance plan stated that the UK will continue the use of the 3Di metric. The United Kingdom is able to do this within the regulations but must consult stakeholders concerning the new metric. 3Di is a metric that combines several aspects of flight to find an efficiency value that is more inclusive than KEA. 3Di accounts for climb, descent, holding, cruise altitude and horizontal inefficiencies. This ensures that the incentive scheme provides several mechanisms for NATS to improve. The PRB do not consider that the 3Di could be in opposition to an improved KEA.	
Does the PP contain a consultation on the scheme and the new metric?	✓
Ryanair, NERL and the Virgin Atlantic responded to the consultation of 3Di. None of the stakeholders objected to KPI but there was a request to link the effect of KEA on 3Di to better understand UK performance in relation to European performance. Further information on the metric is published here: https://www.nats.aero/environment/3di/ .	
Is the scheme legal as per Paragraph 4 of Article 11?	✓
Since the maximum bonuses and penalties applicable are within the +2% and -4% limits, the incentive scheme is legal in this regard.	

THE UNITED KINGDOM

Capacity KPA

3.1.1 En route ATFM delay

The UK proposes national capacity targets, which are below the corresponding reference values in 2020 and 2021 by -0.08 and -0.02 minutes of ATFM delay per flight and are higher than the corresponding reference values in 2022, 2023 and 2024 by a difference of 0.02, 0.04 and 0.05 minutes of ATFM delay per flight respectively. The UK justifies this deviation from the reference values with the reasoning that the proposed targets better reflect the planned airspace and technology programmes of NERL, and that the proposed targets should be net neutral compared to the reference values in terms of total delay minutes, which they are not, calculated with STATFOR 2019 February base forecast.

Proposed capacity targets are higher than NOP delay forecast values in all years of RP3, with a difference of between 0.05 and 0.08 minutes of ATFM delay per flight.

Capacity profiles indicate that The United Kingdom will not face a capacity gap in RP3.

Capacity profiles, NOP delay forecast and capacity enhancement measures indicate that The United Kingdom would be able to meet the national reference values in each year of RP3.

1. PP capacity target is consistent with the reference value	✓	✓	✗	✗	✗
Deviation target v. reference value (minutes per flight)	-0.08	-0.02	0.02	0.04	0.05
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.1.2 Arrival ATFM Delay

The proposed targets for RP3 represent a worsening with respect to RP2 targets, and are in line with observed performance in the last five years. This past performance was driven by the high delays observed at all five London airports. The plan fails to provide the breakdown of the national target for a new airport included, Biggin Hill.

3.1.3 Incentives

En route incentives:

The pivot values are not based on the reference values published in the NOP. The pivot values are based on the national targets proposed by the UK. A modulation mechanism is applied based on the CRSTMP only delays in accordance with a UK process (CAP 1830, Ch4 and CAP1830a, Appendix D). A maximum bonus of 0.05% of revenue is countered with a maximum penalty of 0.25%. The delay forecasts published in the NOP predict delays between 0.15 and 0.24 for all causes during RP3. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive. As was the case in RP2, the UK applies four additional incentive schemes for both capacity and flight efficiency (3Di), regulated by the UK CAA. The total potential bonuses are 0.75% of revenue, countered with a potential penalty of 1.5%.

Terminal capacity:

- The United Kingdom has not introduced a terminal capacity incentive scheme in the performance plan, based on article 35(2) of Implementing Regulation (EU) 2019/317.
- For airports which are not in Terminal charging zone B in the United Kingdom, and thus are not under market conditions, the establishment of an incentive scheme is a substantive requirement for the development of draft performance plans in accordance with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317. Furthermore, the establishment of an incentive scheme is an element subject to review as part of the review of draft performance plans in accordance with point 2.1(f) of Annex IV to that Regulation.

3.1.4 Investments

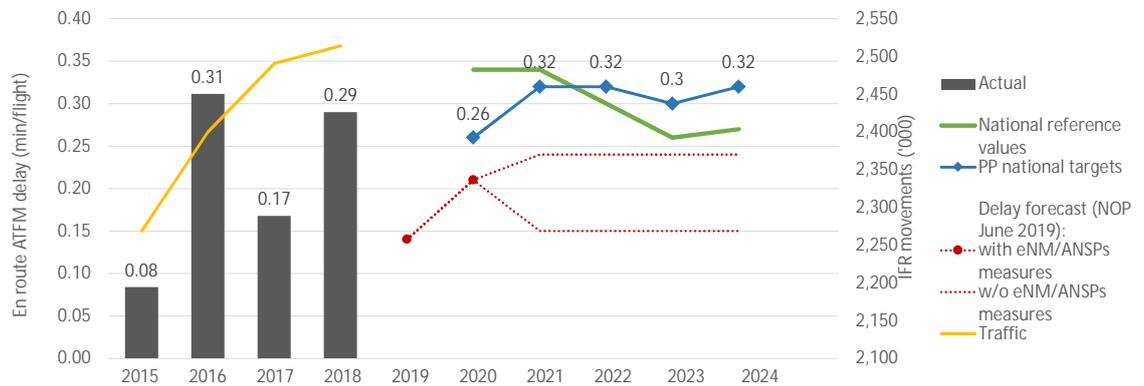
The investments are well described in the performance plan and some of them will support capacity enhancement measures introduced in the NOP in delivering the required capacity. Some of the investments are complex programmes of which the actual link with capacity is hard to establish. There are investments into ATM systems which will only deliver benefits in RP4.

3.1.5 PRB conclusions ✗

The PRB concludes that the capacity targets proposed by the United Kingdom should not be approved.

- The proposed capacity targets for the United Kingdom are lower than the national reference values as stipulated in the NOP 2019-2024 of June 2019, in the first two years of the reference period, with a difference of -0.08 and -0.02 minutes of ATFM delay per flight and are higher than the national reference values in 2022, 2023 and 2024 with a difference of 0.02, 0.04 and 0.05 minutes of ATFM delay per flight respectively.
- The national targets show an overall increasing trend and fall above the NOP delay forecast range in all calendar years of the third reference period.
- Justification for the deviation from the national reference values is based on the rationale that the profile of the proposed targets fits better with the capacity improvement measures of the ANSP and that the proposed targets and the reference values correspond to equal total minutes of generated en route ATFM delay over the reference period. Neither of these rationales justifies the deviation properly.
- A non-compliance issue is noted as regards arrival ATFM delay targets, insofar as the performance plan fails to propose a breakdown value of the national target for the airport of Biggin Hill.
- The United Kingdom did not introduce a terminal capacity incentive scheme for airports which are not under market conditions, which is not compliant with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317.

3.2.1 Overview of en route ATFM delay per flight ✘



Traffic variation	+2.4%	+5.8%	+3.8%	+0.9%					
Actual delay/flight	0.08	0.31	0.17	0.29					
National reference values					0.34	0.34	0.30	0.26	0.27
PP national targets					0.26	0.32	0.32	0.30	0.32
Forecast with eNM/ANSPs measures*					0.14	0.21			
Forecast w/o eNM/ANSPs measures*					0.14	0.21	0.15-0.24		

* NOP June 2019

1. PP capacity target is consistent with the reference value	✓	✓	✘	✘	✘
Deviation target v. reference value (minutes per flight)	-0.08	-0.02	0.02	0.04	0.05
2. NOP delay forecast is lower or equal to the PP capacity target	✓	✓	✓	✓	✓

Trend of capacity targets shows a gradual convergence towards the reference values? No

Capacity target in the year 2024 is less than or equal to the 2024 reference value? No

3.2.2 Review of PP list of capacity enhancement measures vs NOP ⓘ

Description of capacity enhancement measures

The performance plan contains the following capacity enhancement measures:

- The next stage of the LAMP airspace redesign project in South-Eastern England;
- A reference to increasing ATCO numbers, without any indication of the actual increase;
- Further airspace modernisation programmes;
- Investments into ATM systems to increase resilience;
- Introduction of a resilience condition in the license of NERL;
- Additional incentive schemes related to capacity performance;
- A delivery incentive attached to the capital investment programme of NERL, incentivising the ANSP to deliver in full its capital programme, especially those investments which are related to airspace modernisation.

Measures are in line with those of the NOP, although not all measures from the NOP are listed. A reference to NOP measures is not included in the performance plan. ATCO planning numbers are not provided.

ATCO Planning (FTEs)

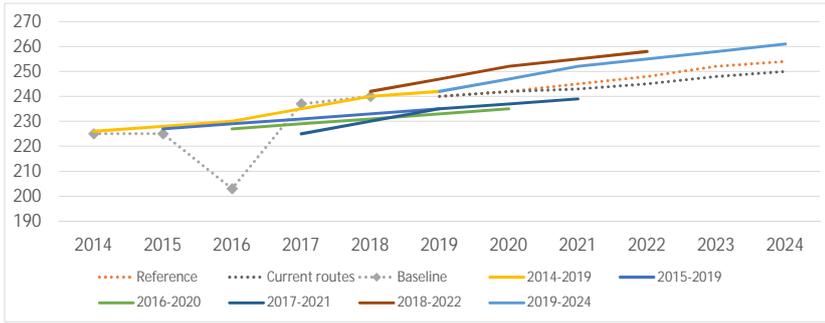
		2018A	2019P	2020P	2021P	2022P	2023P	2024P
Total - NERL (en route)	Additional ATCOs in OPS to start working in the OPS room	n/a						
	ATCOs in OPS to stop working in the OPS room	n/a						
	ATCOs in OPS to be operational at year-end	n/a						

2024 (end) - 2020 (beg.)

n/a



Prestwick ACC (EGPX)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						240	242	245	248	252	254
Current routes						240	242	243	245	248	250
Baseline	225	225	203	237	240						
2014-2019	226	228	230	235	240	242					
2015-2019		227	229	231	233	235					
2016-2020			227	229	231	233	235				
2017-2021				225	230	235	237	239			
2018-2022					242	247	252	255	258		
2019-2024						242	247	252	255	258	261

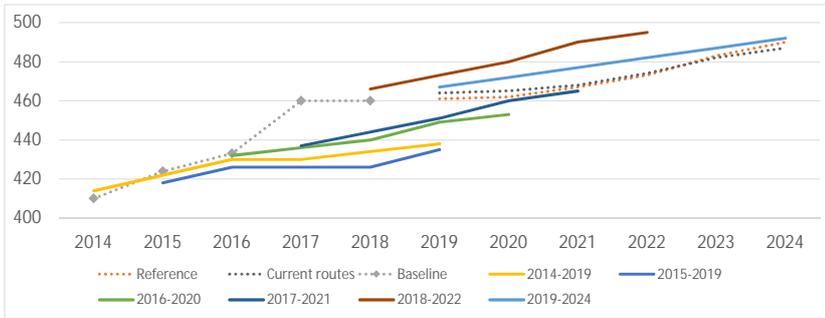
- Historical data shows a significant drop in baseline values in 2016, which is reflected in actual delay values as well. In all other years the baseline and planned values were consistent, except for 2017, where planned capacity was lower than the actual baseline value. Average growth of baseline values is 2.1% annually.

- Latest planned capacity profile shows an average annual growth of 1.52% over RP3. Growth is slightly above 2% in 2020 and 2021, followed by a steady 1.2% growth in 2022-2024.

- When compared to the reference profile, the planned capacity profile shows a 2% - 2.8% capacity surplus. When compared to the current routes profile, the surplus amounts for 2% - 4.2%.

- Capacity profiles indicate that Prestwick ACC will not face a capacity gap in RP3.

London ACC (EGTT)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						461	462	467	473	483	490
Current routes						464	465	468	474	482	487
Baseline	410	424	433	460	460						
2014-2019	414	422	430	430	434	438					
2015-2019		418	426	426	426	435					
2016-2020			432	436	440	449	453				
2017-2021				437	444	451	460	465			
2018-2022					466	473	480	490	495		
2019-2024						467	472	477	482	487	492

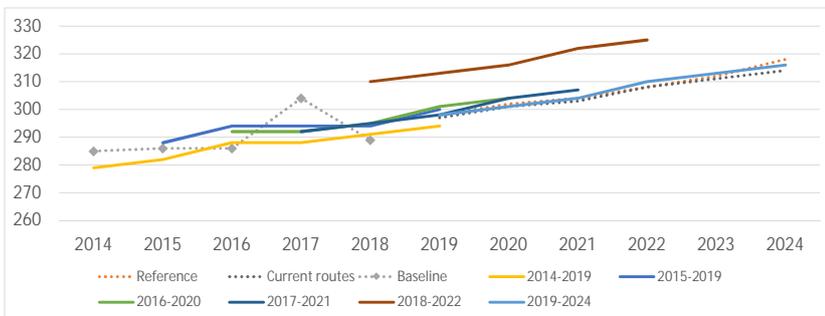
- Historical data shows a steady increase in baseline values until 2017, followed by a maintained value in 2018. Planned values are overall consistent with baseline values, with the exception of 2017, when the planned value is significantly lower than the actual baseline. Average growth of baseline values is 2.9% annually.

- Latest planned capacity profile shows an average annual growth of 1.05% over RP3. Growth is steady between 1.1% and 1.0% over RP3.

- When compared to the reference profile, the planned capacity profile shows a capacity surplus, which decreases from 2.1% in 2020 to 0.4% in 2024. When compared to the current routes profile, the surplus amounts for 1% - 1.9%, and increases until 2021 after which it decreases and settles on 1%.

- Capacity profiles indicate that London ACC will not face a capacity gap in RP3.

London Terminal TC (EGTTT)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference						298	302	304	308	312	318
Current routes						297	301	303	308	311	314
Baseline	285	286	286	304	289						
2014-2019	279	282	288	288	291	294					
2015-2019		288	294	294	294	300					
2016-2020			292	292	295	301	304				
2017-2021				292	295	298	304	307			
2018-2022					310	313	316	322	325		
2019-2024						298	301	304	310	313	316

- Historical data shows no substantial increase in baseline values, with the exception of 2017, when baseline values are increased by 6.3%, followed by a decrease in 2018 of -4.9%. Average growth of baseline values is 0.4% annually.

- Latest planned capacity profile shows an average annual growth of 1.18% over RP3. Growth is steady at 1% with the exception of 2022, when it is 2%.

- When compared to the reference profile, the planned capacity profile shows a mixed picture of minuscule gaps and surpluses between -0.6% and 0.3%. When compared to the current routes profile, the planned value is in line with current routes profile value in 2020, show a small surplus of 0.3% in 2021 and a small surplus of 0.6% in 2022, 2023 and 2024.

- Capacity profiles indicate that London TC will not face a capacity gap in RP3, if capacity enhancement measures are properly implemented.

3.2.4 Significant/special events leading to higher delays in some years of RP3 and related enhancement measures n/a

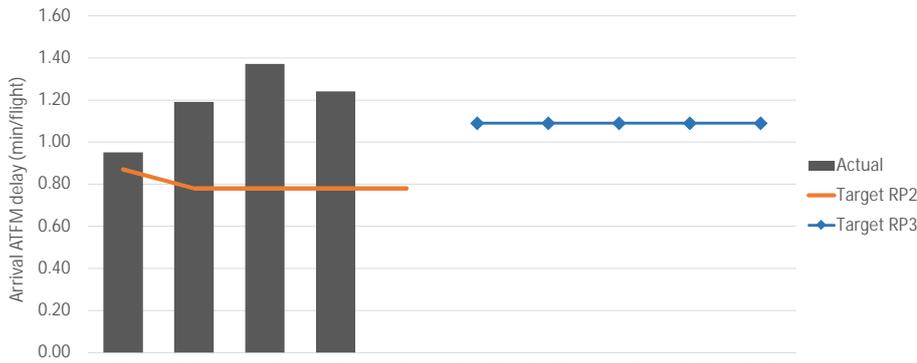
3.2.5 Review of the measures to increase capacity and address capacity gaps

- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure
There are additional capacity enhancement measures planned to address the closure of the capacity gap, as compared to the NOP 2019 June edition, however not all measures from NOP are listed in the performance plan. ✓
- b) Measures proposed by the NM are implemented in the Performance Plan
There are no proposed measures for the United Kingdom as regards ACCs in the NOP 2019 June edition. n/a
- c) The Performance Plan provides the rationale for implementing only a subset of measures proposed by the NM
No such rationale is provided in the performance plan. ✗
- d) The Performance Plan contains additional measures proposed by the NSA to be taken by the operational stakeholders, to fill out the gap between the capacity plans in the NOP and defined reference values
The performance plan refers to additional measures proposed by the NSA to be taken by the ANSP. These include the addition of a resilience condition to the license of NERL, as well an extra delivery incentive on the realisation of capital investment programmes aimed at airspace modernisation. Additional incentive schemes are also introduced by the NSA. ✓
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)
The performance plan provides no information on staffing plans. ✗
- f) Flexible use of operational staff is planned and ensured
The performance plan provides no information on flexible use of operational staff. ✗
- g) Limitations of ATM system/infrastructure is mitigated
The performance plan provides reference to investments aimed at addressing the limitations of ATM systems, in particular as regards resilience and flexibility. ✓

3.2.6 PRB Key Points ✗

- The UK proposes national capacity targets, which are below the corresponding reference values in 2020 and 2021 by -0.08 and -0.02 minutes of ATFM delay per flight and are higher than the corresponding reference values in 2022, 2023 and 2024 by a difference of 0.02, 0.04 and 0.05 minutes of ATFM delay per flight respectively. The UK justifies this deviation from the reference values with the reasoning that the proposed targets better reflect the planned airspace and technology programmes of NERL and that the proposed targets should be net neutral compared to the reference values in terms of total delay minutes, which they are not, calculated with STATFOR 2019 February base forecast.
- Proposed capacity targets are higher than the NOP delay forecast values in all years of RP3 with a difference of between 0.05 and 0.08 minutes of ATFM delay per flight.
- Capacity profiles indicate that the United Kingdom will not face a capacity gap in RP3.
- Capacity profiles, the NOP delay forecast and capacity enhancement measures indicate that the United Kingdom would be able to meet the national reference values in each year of RP3.

3.3.1 Overview of arrival ATFM delay per flight



	2015A	2016A	2017A	2018A	2019A	2020T	2021T	2022T	2023T	2024T
National level	0.95	1.19	1.37	1.24	-	1.09	1.09	1.09	1.09	1.09
Birmingham (EGBB)	0.00	0.06	0.23	0.08	-	0.09	0.09	0.09	0.09	0.09
Manchester (EGCC)	0.25	0.10	0.52	0.14	-	0.22	0.22	0.22	0.22	0.22
London/ Luton (EGGW)	0.28	0.83	0.55	0.55	-	0.47	0.47	0.47	0.47	0.47
London/ Gatwick (EGKK)	1.03	2.41	3.18	2.71	-	2.04	2.04	2.04	2.04	2.04
London/ City (EGLC)	0.97	1.77	1.57	1.25	-	1.38	1.38	1.38	1.38	1.38
London/ Heathrow (EGLL)	2.12	1.86	1.92	1.84	-	1.93	1.93	1.93	1.93	1.93
Glasgow (EGPF)	0.02	0.00	0.04	0.00	-	0.01	0.01	0.01	0.01	0.01
Edinburgh (EGPH)	0.00	0.02	0.00	0.07	-	0.02	0.02	0.02	0.02	0.02
London/ Stansted (EGSS)	0.34	0.81	0.93	1.25	-	0.72	0.72	0.72	0.72	0.72

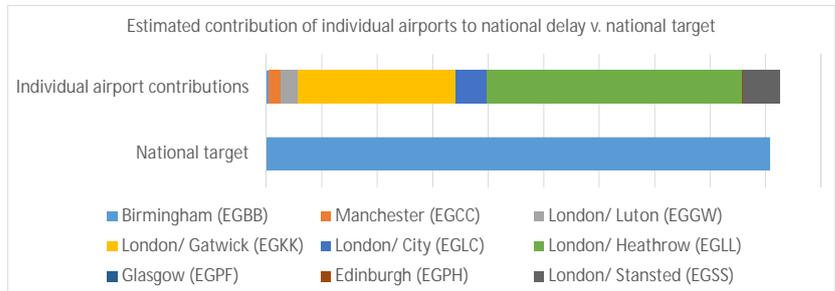
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Heathrow and Gatwick, with high average arrival ATFM delay during RP2, have driven the performance of the UK at national level, followed by London City and London Stansted. The proposed target is in line with the past performance during RP2 but it represents a worsening with respect to the target during RP2, that was never met.

UK Performance Plan includes a new airport, Biggin Hill, but it fails to provide the breakdown of the national target for this airport.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 target (min/flight)
Birmingham (EGBB)	0.09
Manchester (EGCC)	0.22
London/ Luton (EGGW)	0.47
London/ Gatwick (EGKK)	2.04
London/ City (EGLC)	1.38
London/ Heathrow (EGLL)	1.93
Glasgow (EGPF)	0.01
Edinburgh (EGPH)	0.02
London/ Stansted (EGSS)	0.72
National Target	1.09



Heathrow and Gatwick are the biggest contributors to the total arrival ATFM delay at UK airports included in the performance plan. However, the performance plan fails to identify the potential contribution of Biggin Hill airport, as it does not establish the breakdown of the national target for this airport.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2018 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2018	Difference v. Median	RP3 average target	Difference v. Median
Birmingham (EGBB)	GROUP III	0.25	0.10	-0.15	0.09	-0.16
Manchester (EGCC)	GROUP III	0.25	0.26	+0.01	0.22	-0.03
London/ Luton (EGGW)	GROUP III	0.25	0.56	+0.31	0.47	+0.22
London/ Gatwick (EGKK)	GROUP I	0.87	2.35	+1.48	2.04	+1.17
London/ City (EGLC)	GROUP III	0.25	1.39	+1.14	1.38	+1.13
London/ Heathrow (EGLL)	GROUP I	0.87	1.93	+1.06	1.93	+1.06
Glasgow (EGPF)	GROUP III	0.25	0.02	-0.23	0.01	-0.24
Edinburgh (EGPH)	GROUP III	0.25	0.02	-0.22	0.02	-0.23
London/ Stansted (EGSS)	GROUP III	0.25	0.85	+0.61	0.72	+0.47

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

During RP2, all five London airports showed considerably worse ANS performance than similar airports in Europe, mainly due to limited runways and highly complex TMA. The proposed targets continue in that line.



- The proposed targets for RP3 represent a worsening with respect to RP2 targets, and are in line with observed performance in the last five years.
- This past performance was driven by the high delays observed at all five London airports.
- The plan fails to provide the breakdown of the national target for a new airport included, Biggin Hill.

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±15.0%	0.050%	0.250%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	Yes
If yes, is the modulation CRSTMP?	Yes

	2020	2021	2022	2023	2024
NOP reference values	0.34	0.34	0.30	0.26	0.27
Alert threshold (Δ Ref. value in fraction of min)	±0.050	±0.050	±0.050	±0.050	±0.050
Performance Plan targets	0.26	0.32	0.32	0.30	0.32
Pivot values for RP3	0.20	0.25	0.25	0.23	0.25

Threshold review

The pivot values are not based on the reference values published in the NOP. The pivot values are based on the national targets proposed by the UK.

Modulation review

A modulation mechanism is applied based on the CRSTMP only delays in accordance with a UK process (CAP 1830, Ch4 and CAP1830a, Appendix D).

Review of financial advantages/disadvantages

A maximum bonus of 0.05% of revenue is countered with a maximum penalty of 0.25%. The delay forecasts published in the NOP predict delays between 0.15 and 0.24 for all causes during RP3. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
?	0.000%	0.000%
	✔	⚠

Has the NSA chosen to modulate the pivot values?	?
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)	±0.000	±0.000	±0.000	±0.000	±0.000
Performance Plan targets	1.09	1.09	1.09	1.09	1.09
Pivot values for RP3	0.00	0.00	0.00	0.00	0.00

Threshold review

n/a

Modulation review

n/a

Review of financial advantages/disadvantages

The United Kingdom has not introduced a terminal capacity incentive scheme in the performance plan, based on article 35(2) of Implementing Regulation (EU) 2019/317. However, for airports which are not in Terminal charging zone B in the United Kingdom, and thus are not under market conditions, the establishment of an incentive scheme is a substantive requirement for the development of draft performance plans in accordance with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317. Furthermore, the establishment of an incentive scheme is an element subject to review as part of the review of draft performance plans in accordance with point 2.1(f) of Annex IV to that Regulation.

3.4.3 Additional capacity incentive schemes

Review of the additional incentive scheme

The UK applies an additional four incentive schemes which were already applied during RP2.

Review of financial advantages/disadvantages

The total potential bonus is 0.75% against a total possible penalty of 1.5% of revenue.

3.4.4 PRB Key Points

En route incentives:

- The pivot values are not based on the reference values published in the NOP. The pivot values are based on the national targets proposed by the UK.
- A modulation mechanism is applied based on the CRSTMP-only delays in accordance with a UK process (CAP 1830, Ch4 and CAP1830a, Appendix D).
- A maximum bonus of 0.05% of revenue is countered with a maximum penalty of 0.25%. The delay forecasts published in the NOP predict delays between 0.15 and 0.24 for all causes during RP3.
- As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could impact financial incentive.
- As in RP2, the UK applies four additional incentive schemes for both capacity and flight efficiency (3Di), regulated by the UK CAA. The total potential bonuses are 0.75% of revenue, countered with a potential penalty of 1.5%.

Terminal Incentives:

- The United Kingdom has not introduced a terminal capacity incentive scheme in the performance plan, based on article 35(2) of Implementing Regulation (EU) 2019/317.
- For airports which are not in Terminal charging zone B in the United Kingdom, and thus are not under market conditions, the establishment of an incentive scheme is a substantive requirement for the development of draft performance plans in accordance with point (c) of Article 10(2) and Article 11 of Implementing Regulation (EU) 2019/317. Furthermore, the establishment of an incentive scheme is an element subject to review as part of the review of draft performance plans in accordance with point 2.1(f) of Annex IV to that Regulation.

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	233.9	205.3	191.1	197.0	210.9	1038.2
	En route	229.3	201.2	187.2	192.9	206.3	1016.8
	Terminal	4.6	4.1	4.0	4.1	4.6	21.4

RP3 investment ratio ER/TRM



* Determined costs of investments include depreciation, cost of capital and cost of leasing for the main ANSP in the State

The numbers presented in this table do not correspond to the values presented below due to inconsistencies between the performance plan and its annex A and B.

3.5.2 Major investments and justifications for major investments

3.5.2.1 New major investments per ANSP (i.e. above 5 M€) - Main ANSP

Nr	Name of the major investment	Asset description	Total value of the asset (M€)	Is the investment mandatory based on SES legislation?	Is there a justified link with measures to achieve capacity targets?	Costs RP3 (M€)	
						ER	TMZ
1	Airspace	The programme for airspace will draw on the capabilities provided by new technologies to deliver the principal changes and benefits required by customers. Uppermost is the design and implementation of significant airspace change across the south east and Manchester regions through the systemised airspace programme. More details can be found in section 2.1 of the performance plan.	131.3	Yes	Yes	0.0	0.0
2	Domestic En Route	This programme provides investment to deliver small scale operational capability improvements (safety, capacity or environmental benefits) in support of wider airspace systemisation and technology deployments, and the agility to deliver rapid airspace change to address hotspots. Although this programme is mainly reactive, NERL states that the nature of the requirements are well understood which will give NERL the opportunity to plan the programme with customers through annual SIP consultations. More details can be found in section 2.1 of the performance plan.	36.5	No	Yes	0.0	0.0
3	DP En Route	This investment will be delivered in the early part of RP3 to complete the delivery of DP En Route and de-risk future transition steps ahead of the decommissioning of many of our current systems and is known as 'legacy escape'. It incorporates into one sub-programme two discrete areas that began in RP2: > Area control voice communications; and > En route area control and PC Upper iTEC and FourSight. More details can be found in section 2.1 of the performance plan.	29.7	Yes	Yes	0.0	0.0
4	DP Lower	DP Lower will provide a 4D trajectory based FDP with the technology to support systemised airspace and more flexible airspace designs. The iTEC FDP will be deployed to operate with the existing ExCDS paperless solution in both Swanwick terminal control and Prestwick lower airspace. The deployment of ExCDS during winter 2017-18 has already realised significant benefits, including a reduction in safety risk for both terminal control and area control, as well as a reduced requirement for operational support staff. More details can be found in section 2.1 of the performance plan.	203.2	Yes	Yes	0.0	0.0
5	iTEC and Foursight for Terminal Control and Prestwick lower	In order to maximise benefits after delivery of the LAMP systemised airspace, as well as prepare for further evolution of the role of the controller supported by these tools, there will be a need to develop and implement the right types of tools, which will be an evolution of FourSight tactical tools, to work alongside iTEC in lower level airspace. This work would commence in RP3 in order to deploy early in RP4 and enable NERL to be able to continue to support growing traffic demand in the complex lower level airspace including accommodating Heathrow runway 3 and maximise the benefits of the airspace change.	84.5	Yes	Yes	0.0	0.0
6	Technical Resilience	This programme seeks to maintain sufficient investment to deliver a robust and resilient service, legislative compliance, operational performance and cyber resilience. NERL considers it has a firm understanding of its assets and systems, and its planned changes have a high level of maturity. NERL states it is aware that it is essential to have an appropriate and robust maintenance strategy. NERL adopts a risk based approach rather than a schedule based approach, as the risk of the consequence of failure far outweighs the cost of the equipment. More details can be found in section 2.1 of the performance plan.	148.4	No	No	0.0	0.0
7	Business Resilience	This programme will ensure the availability of safe and secure information services and an estate that supports a safe operation. The programme supports this through two lines of development, facilities management (FM) and information solutions (IS). Facilities management includes property services, building and engineering services, environment (NERL have committed to reducing the technical load of estate CO2 emissions by 2024 by 30%) and health and safety. More details can be found in annex 2.1 of the performance plan.	92.5	No	No	0.0	0.0
8	Contingency	The capex contingency for RP3 is set at £31m (2017 process). The aim of the contingency is to enable NERL to manage the impact of risk within the investment plan. NERL will report its use to customers during routine reporting.	35.4	No	No	0.0	0.0
Total:						0.0	0.0

Airspace user feedback regarding major investments

The airspace users reinforced the importance of delivery of airspace modernization in RP3 and noted that they expected higher productivity given the RP2 and RP3 investments.

The airspace users thought that CAPEX governance is moving in the right direction with the evolution to date, however noting that further work is required and that NERL governance could be improved with more cost-benefit analysis transparency.

Review of investments

NERL reported the major new investments as representing the entirety of the determined costs of investments over RP3, noting that there are no other new investments and that the existing investments from RP2 are tracked through the Regulatory Asset Base (amount invested in NERL that has yet to be returned through revenue allowances and therefore represents capital employed). NERL has not reported the lifecycle of the investments. The 2015-2019 actual CAPEX delivery reaches 124% of the planned values for the same period and the amount overspent is 111.64M€.

3.5.2.2 Justifications for major investments (i.e. above 5 M€), which are not required by SES legislation

Nr	Name of the major investment	Level of impact (network/local/none)	Main KPAs impacted	Specific justifications provided
2	Domestic En Route	Network, Local	SAF, ENV, CAP, CEF	Anticipated 5% reduction in RAT points per 100,000 movements over RP3 at a rate of 1% each year. Anticipated 3.5 seconds per flight reduction over RP3 compared to what would be achieved without the programme. Contributes to an overall reduction of 5% in DUC.
6	Technical Resilience	Network, Local	n/a	Maintain sufficient investment to deliver a robust and resilient service, legislative compliance, operational performance and cyber resilience.
7	Business Resilience	Network, Local	n/a	Availability of safe and secure information services and an estate that supports a safe operation.
8	Contingency	Network, Local	n/a	Enable NERL to manage the impact of risk within the investment plan.

Additional information

The airspace users showed support for all the major investments which are not required by SES legislation during the consultations, noting that:
 - Investment #2: "Airspace modernisation and tools are critical to meet current demand, not just future demand because the airspace was already constrained."
 - Investments #6, #7: "Support of the strategic thrust to replace outdated technology which enables the improvement of airspace."
 - Investment #8: "A CAPEX contingency fund held at the portfolio level is in principle more efficient than if contingency was built into each project."

3.5.2.3 Other new and existing investments

	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total costs RP3 (M€)
Other new investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing investments			0.0	0.0	0.0	0.0	0.0	0.0

Description and justification of other new and existing investments in fixed assets planned over RP3	<p>NERL reported no other new investments for RP3. Regarding existing investments, NERL notes that investments are tracked through the Regulatory Asset Base (amount invested in NERL that has yet to be returned through revenue allowances).</p> <p>Chapter 7 of CAP 1830 CAA Decision states that NERL proposed to continue to index the RAB by the retail price index (RPI) in RP3. IATA noted that they broadly support the proposed approach to the RAB and noted the approach to inflation.</p> <p>More details can be found in Chapter 7 of the CAP 1830 CAA Decision.</p>
--	--

3.5.3 Review of investments contribution to capacity

a) Investment levels contribute to the provision of capacity that is scaled to demand ✓

Capacity enhancement measures introduced in the NOP 2019-2024 are expected to deliver sufficient capacity scaled to forecast demand. It is estimated that capacity surplus will be reasonable and stable at Prestwick ACC and slowly decreasing to zero at London ACC. The Investments #1 to #5 will support capacity enhancement measures introduced in the NOP.

Investment #1: Supports many enhancement measures in the airspace management, airspace organisation, FRA, ATFM procedures and operational procedures and system (e.g. AMAN), it is expected to deliver 6.9 seconds reduction against what would be delivered without this programme (measured as the average ATM delay per flight), the project is linked with other projects listed below as an enabler.

Investment #2: Smaller scale and more flexible capacity enabling programme focused on airspace management and organisation. It is aimed at enabling to react more flexibly to traffic demands and to address hotspots. It is anticipated to deliver 3.5 seconds per flight reduction over RP3 compared to what would be achieved without the programme.

Investment #3: Deployment programme for en route airspace completing some project and activities initiated already in RP2, it is supposed to enable and support enhanced ATM operations and functions with the new ATM system covered by the Investment #5 below.

Investment #4: Same as above or the lower airspace, it is expected to deliver 0.7 seconds reduction against what would be delivered without this programme measured as the average ATM delay per flight in seconds.

Investment #5: Investment in technology, iTEC new system with FourSight conflict detection tool and 4D trajectory based FDP.

The investments are well described in the performance plan. As many of them will support capacity enhancement measures introduced in the NOP delivering required capacity, it seems that the Investment level of #1 to #5 is scaled to demand. Some of the enhancements however are supported by the investments initiated in RP2. More information is necessary to assess the investment levels.

b) Operational aspects of necessary capacity improvements, including the rationale and timing, are considered in the investment section of the performance plan ✓

The investments are reported as 'programmes' made up of several sub-project, thus making the assessment difficult. Investments #1 to #5 could be linked with the enhancement measures included in the capacity plan introduced in the NOP 2019-2024. The timing of the investments seems to be synchronised with the implementation of the capacity measures which in turn are expected to deliver required capacity as simulated by the NM in the NOP.

c) Capacity related capital expenditure takes due account of the time needed to get the ATM systems implemented ✓

Capital expenditure of the capacity relevant projects is described in the performance plan and it seems to be synchronised with the capacity plan and relevant measures implementation.

Investment #1 will be implemented in phases in RP3 into RP4.

Investment #2 will be implemented in phases in RP3.

Investment #3 and #4 will enter operation by 2021 respectively 2022.

Investment #4 is expected to deliver benefits to airspace users no sooner than RP4.

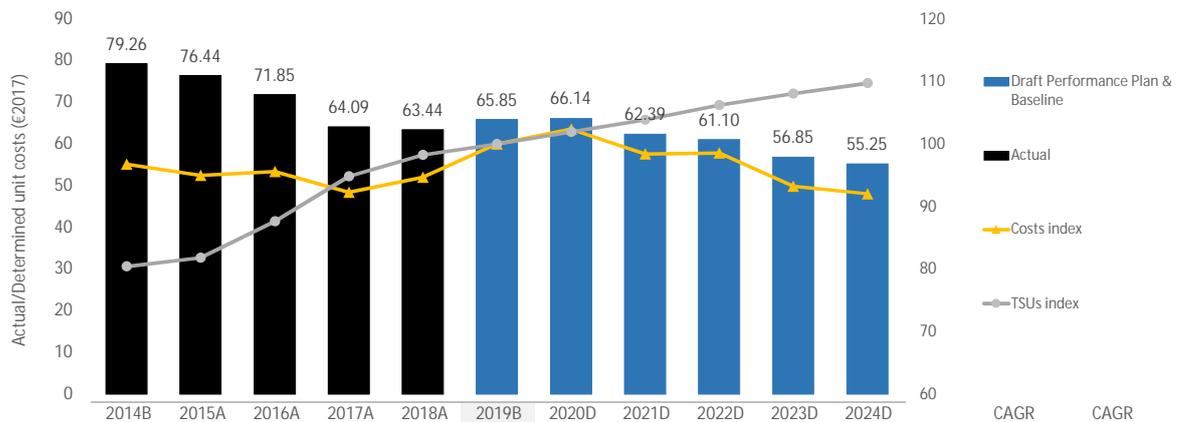
3.5.4 PRB Key Points !

- Existing investments are included in the Regulatory Asset Base.
- Investments are described as complex programmes which include many sub-projects. Exact evaluation of the capacity level contribution is therefore difficult.
- Some of the investments could be linked with the capacity measures which are expected to deliver required capacity in UK.
- Capacity related to Investment #4 is expected to deliver benefits to airspace users no sooner than RP4.

THE UNITED KINGDOM

Cost-efficiency KPA

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MGBP (nom)	669.9	657.4	666.4	660.6	694.4	0.0	779.9	764.8	781.3	754.1	759.1	-	+1.3%
Total costs	MGBP (2017)	692.8	679.8	684.4	660.6	677.6	715.7	732.7	704.4	705.5	667.6	658.8	-1.6%	-0.5%
TSU	'000	9,979	10,154	10,875	11,768	12,194	12,408	12,648	12,891	13,183	13,406	13,615	+1.9%	+3.2%
AUC/DUC	GBP (2017)	69.42	66.95	62.93	56.14	55.57	57.68	57.93	54.64	53.52	49.80	48.39		
Exchange rate	GBP:€				0.876									
AUC/DUC	€ (2017)	79.26	76.44	71.85	64.09	63.44	65.85	66.14	62.39	61.10	56.85	55.25		
Annual change	%		-3.6%	-6.0%	-10.8%	-1.0%	+3.8%	+0.4%	-5.7%	-2.1%	-7.0%	-2.8%	-3.5%	-3.5%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with latest available forecast or deviation adequately justified?	65.85 €2017	✗
The 2019 traffic baseline is based on the STATFOR february 2019 base forecast, however using the M2 methodology instead of M3.		
The United Kingdom indicates that the 2019 cost baseline has been established with the latest data available, noting that the increase from the 2018 actual costs are due to an increase in NERL's other operating costs.		

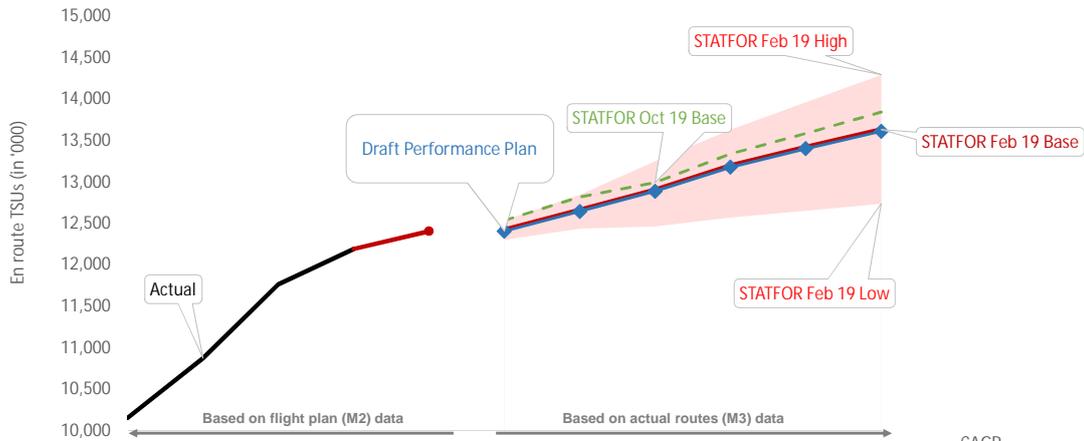
4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide target (-1.9%)?	-3.5%	✓
The RP3 DUC trend is planned to decrease by -3.5% per year between 2019 and 2024, which is better than the RP3 Union-wide trend of -1.9%.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide target (-2.7%)?	-3.5%	✓
The long-term DUC trend is planned to decrease by -3.5% per year between 2014 and 2024, which is better than the Union-wide long term trend of -2.7%.		
c) DUC level (2019 baseline) lower than the average of comparator group (A) average (61.37 €2017)?	+7.3%	✗
The 2019 baseline DUC is 7.3% higher than the average of the comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?		n/a
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?		n/a

4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by the United Kingdom should be approved.	✓
- The United Kingdom is meeting the Union-wide RP3 DUC trend and Union-wide long term DUC trend.	
- The United Kingdom is not consistent with the average DUC baseline of the comparator group.	

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019F(M2)	2019B(M3)	2020F	2021F	2022F	2023F	2024F	CAGR 2019B-2024
Actual	'000 TSUs	10,154	10,875	11,768	12,194								
Annual change	%		+7.1%	+8.2%	+3.6%								
STATFOR Feb 19 Base	'000 TSUs					12,408	12,429	12,669	12,912	13,205	13,428	13,637	+1.9%
Annual change	%					+1.8%	+1.9%	+1.9%	+1.9%	+2.3%	+1.7%	+1.6%	
STATFOR Oct 19 Base	'000 TSUs					-	12,539	12,821	12,997	13,343	13,592	13,847	+2.0%
Annual change	%					-	+2.8%	+2.3%	+1.4%	+2.7%	+1.9%	+1.9%	
Performance Plan	'000 TSUs					12,408	12,648	12,891	13,183	13,406	13,615		+1.9%
Annual change	%						+1.8%	+1.9%	+1.9%	+2.3%	+1.7%	+1.6%	

4.2.2 Baseline review

M3/M2 coefficient check	'000 TSUs	CRCO Coefficient	
		3 months	12 months
2019B (PP baseline, M3)	12,408		
2019F (as in the Reporting tables, M2)	12,408		
2019B/ 2019F	0.00%	+0.16%	+0.20%

Comparison vs. STATFOR forecasts	'000 TSUs			Δ(B) (%)
2019B (PP baseline, M3)	12,408			
2019F (STATFOR Feb 19, M3)	L 12,302	B 12,429	H 12,537	-0.17%
2019F (STATFOR Oct 19, M3)	L 12,502	B 12,539	H 12,573	-1.04%

- The United Kingdom states that the STATFOR February 2019 base scenario was used for the baseline in the performance plan, however, the forecast chosen reflects the baseline TSUs expressed in M2 methodology, while M3 should have been used.
 - Considering the CRCO adjustment coefficients (+0.16% for 3 months and +0.20% for 12 months), the impact of the discrepancy on the 2019 baseline TSUs is limited.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

The United Kingdom decided to use the STATFOR February 2019 base scenario for the whole period, however, used the M2 methodology instead of M3. The impact of the deviation is limited (-0.16% over the period).

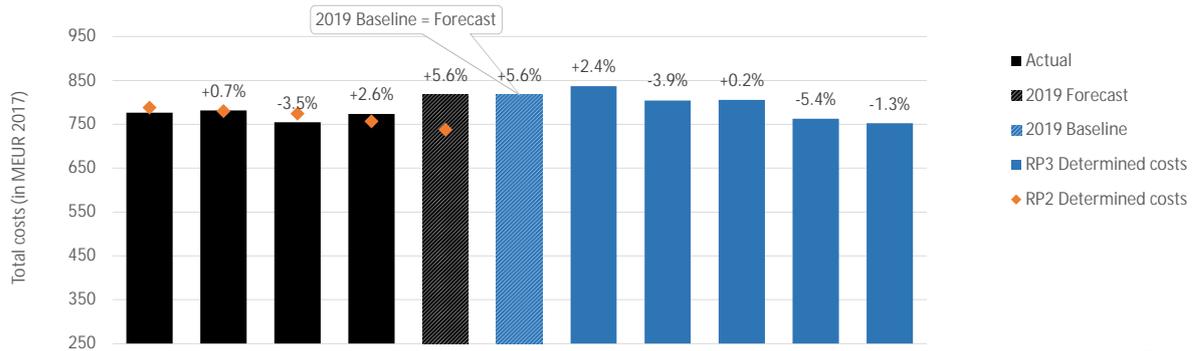
Review of the PP traffic forecast

See above.

4.2.4 PRB Key Points

- Both baseline and forecast TSUs for RP3 reflect STATFOR February 2019 base forecast, however, they are expressed in M2 methodology while M3 should have been used. However, the impact of the discrepancy is limited (-0.16%).

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	Exchange rate 2017
Total costs	MGBP (nom)	657.4	666.4	660.6	694.4	746.9	0.0	779.9	764.8	781.3	754.1	759.1	-	GBP:D78
Annual change	%	-	+1.4%	-0.9%	+5.1%	+7.6%	-	-	-1.9%	+2.2%	-3.5%	+0.7%	+2.0%	0.87591
Inflation index	2017 = 100	96.7	97.4	100.0	102.5	104.4	104.4	106.4	108.6	110.7	113.0	115.2	-	-
Total costs	MGBP (2017)	679.8	684.4	660.6	677.6	715.7	715.7	732.7	704.4	705.5	667.6	658.8	-1.6%	-
Annual change	%	-	+0.7%	-3.5%	+2.6%	+5.6%	+5.6%	+2.4%	-3.9%	+0.2%	-5.4%	-1.3%	-1.6%	-
Total costs	ME (2017)	776	781	754	774	817	817	836	804	805	762	752	-1.6%	-

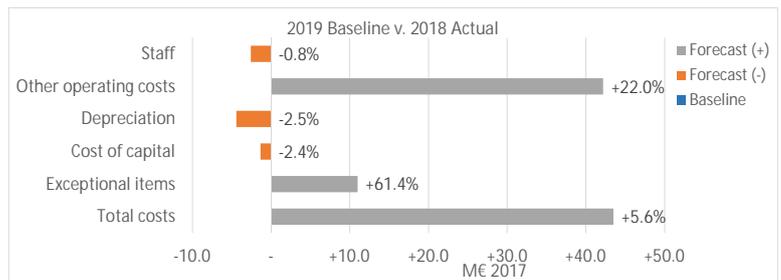
Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

The inflation rates used in the performance plan for the years 2019-2023 are slightly below the IMF forecasts. By the end of RP3, the cumulative effect on the inflation index is less than 1 index point. The impact on the results of this analysis is negligible.

4.3.2 Baseline review

2019 forecast analysis	M€2017	%
2019F v. 2018A	+43.5	+5.6%
2019F v. 2019 RP2 DC	+78.7	+10.7%
2019F v. average 2015-2018	+45.8	+5.9%

2019 baseline analysis	M€2017	%
2019B v. 2019F	0.0	+0%



2019 forecast analysis

The 2019 forecast is +5.6% (+43.5M€2017) higher than the 2018 actual costs. Compared to the 2019 RP2 determined costs, the 2019 forecast is +10.7% higher.

The United Kingdom notes that the main drivers for the increase in costs are an increase in NERL's determined costs (mostly due to an increase in operating costs), a reduction in the MET Offices' costs and an increase in NSA costs (mainly due to an increase in Eurocontrol costs). The United Kingdom notes that the increase in costs is driven by traffic changes, the introduction of new technology to replace legacy systems, improvement in operational resilience and management of air traffic growth.

The CAA considered, from the analysis undertaken by Steer/Helios and from the airspace users' feedback that NERL's forecast was not properly justified, however CAA accepted NERL's projected costs increases, noting that NERL could achieve more significant efficiency in line with historical trends. "From this review, we acknowledged that NERL needs to deal with quality of service issues, make progress with technology change, and push forward work on airspace modernisation. We have therefore accepted NERL's projected cost increases from 2017 to 2019, but assumed that NERL could achieve more significant efficiencies over RP3, in line with historical trends."

2019 baseline analysis

The 2019 cost baseline is in line with the 2019 cost forecast.

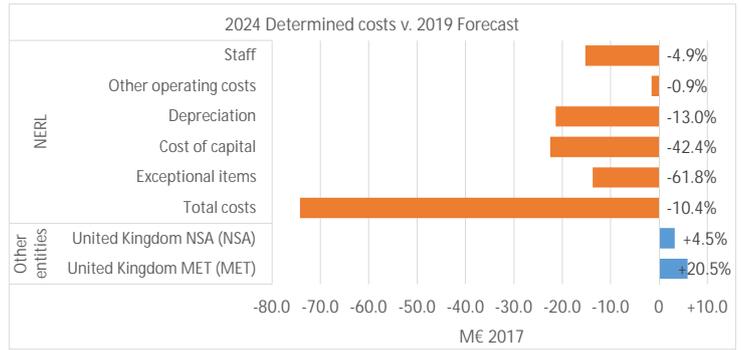
4.3.3 Review of the RP3 determined costs and incentives

Review of cost elements

- ⓘ Investments (see details in 3.5)
- ⓘ Cost of capital (see details in 4.3.1)
- ✓ Pension costs (see details in 4.3.2)
- ⓘ Allocation ER-TCZ methodology (see details in 4.3.3)

Incentives (see details in 3.4)

Traffic risk sharing parameters modulated?	No
Maximum risk exposure to traffic	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.05%
Maximum penalty (% of determined costs)	0.25%
Additional incentives?	No



Between 2019 and 2024, the costs of NERL are planned to decrease in every category: staff (-4.9% or 15.2M€2017), other operating costs (-0.9% or 1.5M€2017), depreciation (-13% or -21.3M€2017), cost of capital (-42.4% or -22.5M€2017) and exceptional items (-61.8% or 13.7M€2017), resulting in a total decrease of -10.4% (74.2M€2017) over the period.

The United Kingdom applied the inflation rates in the reporting tables incorrectly. The figures presented in this document use the values reported by the United Kingdom in the reporting tables.

The costs of the NSA and MET will both increase over the period, with +4.5% (3.3M€2017) and +20.5% (6M€2017), respectively.

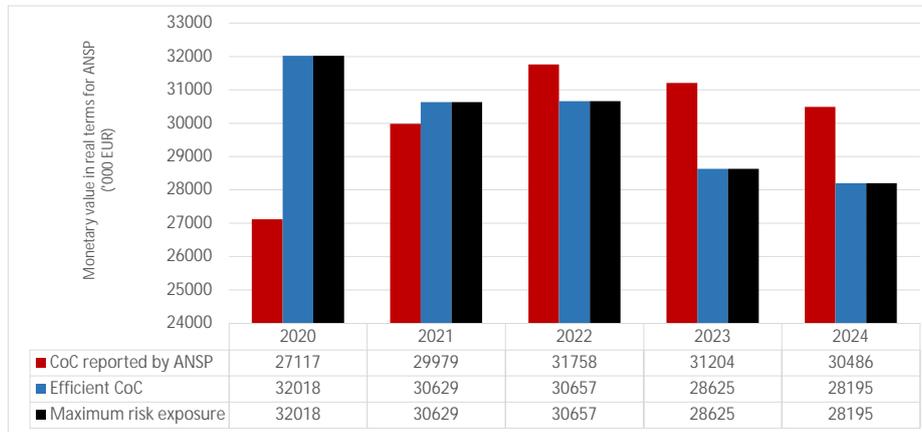
4.3.4 PRB Key Points

- There is a significant increase (+5.6% between the 2018 actual costs and the 2019 forecast/baseline costs) due to increases in other operational costs and exceptional items.
- The CAA accepted NERL's costs increases. However, increases are not properly justified and not in line with historical behaviours. It is noted that an increase in the baseline facilitates the achievements of RP3 DUC trend.
- Overall, over the RP3, costs for the United Kingdom are planned to decrease, due to decreases in each category of cost for NERL. The decrease is as well facilitated by an high starting point.

4.3.A.1 Determined Costs vs Return on Equity

Real values ('000 €)	2020	2021	2022	2023	2024
Determined costs	727,688	696,112	696,756	650,577	640,799
Monetary value of Return on Equity	n/a	n/a	n/a	n/a	n/a
Ratio RoE/DC (%)	n/a	n/a	n/a	n/a	n/a

4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure



Difference CoC reported by ANSP v. Efficient ('000 €)	2020	2021	2022	2023	2024
	-4901	-650	1101	2579	2291

Total 2020-2024	420
-----------------	-----

4.3.A.3 WACC review

Real values (%)	2020		2021		2022		2023		2024	
	PP	Efficient								
Return on Equity	6.0%	n/a								
Interest on debts	0.9%	n/a								
Capital structure (% debt)	60.0%	n/a								
WACC	2.9%	3.4%	2.9%	3.0%	2.9%	2.8%	2.9%	2.7%	2.9%	2.7%

Is the interest on debts in line with the market? **Yes**

- The ANSP reports one loan, which is a combination of multiple loans, along with assumed new debt for RP3, with an average interest rate of 3.89% each year. However, to estimate an appropriate cost of capital for RP3, the CAA reviewed a wide range of evidence, including Europe Economics report, PwC report and recent UK regulatory precedent. Considering this, the interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate for both real and reported interest rates is duly justified and in line with competitive market practices.
- The reported cost of capital was calculated using parameters that follow CAA's final decision of RP3 WACC calculation (RPI deflated).
- The efficient cost of capital is computed in line with the maximum risk exposure.
- Over the period 2020-2024 the reported cost of capital is 0.85M€. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provides notional parameters for the WACC.

4.3.A.4 Regulated Asset Base review

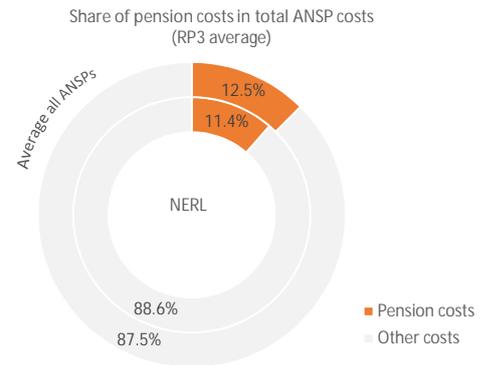
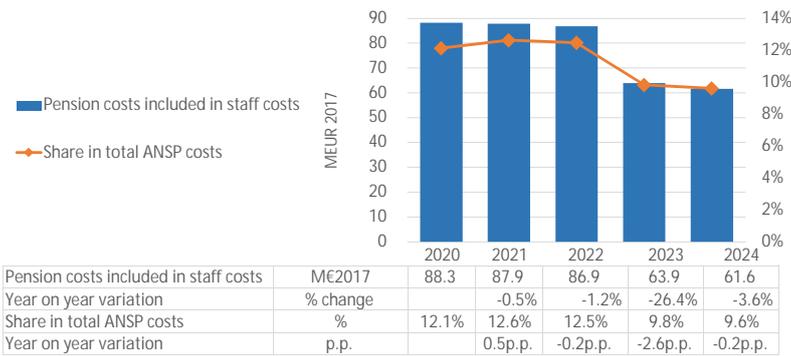
Real values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	1,141,555	1,174,267	1,128,785	1,081,349	1,045,830
Net current assets	-35,935	32,305	36,454	29,984	27,135
Adjustments total assets	-113,727	-88,052	43,350	99,923	134,102
Total asset base	991,892	1,118,521	1,208,590	1,211,255	1,207,068

- The fixed asset base will slightly decrease over the period. This is in line with the evolution of investments described in section 3.5 of this document.
- The net current assets will register a high increase over the period. The net current assets are calculated as the working capital assets attributed to Eurocontrol that forms part of NERL's regulatory asset base.
- Adjustments of the total assets are calculated as the difference between NERL's regulatory asset base, the fixed assets and net current assets. Adjustments register a high increase over the period.
- The total asset base register an increase over the period, mainly due to the evolution of adjustments and net current assets.

4.3.A.5 PRB Key Points

- The reported cost of capital is 0.42M€2017 above the efficient cost of capital over the period 2020-2024. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provides notional parameters for the WACC.

4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



What is the trend of pension costs share in the total ANSP costs between 2020 and 2024? **Decrease**

Is the ANSP RP3 average share of pension costs higher or lower than the EU-wide average? **Lower**

4.3.B.2 Reporting exceptions and planned changes in assumptions

Does the ANSP allocate some defined benefit pension costs to another cost category than staff costs in the reporting tables? **No**

For state pension contributions, are there planned changes in the contribution rate between 2020 and 2024? **N/A**

No "State" pension costs are identified in the performance plan.

For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024? **No**

The occupational defined contribution scheme is offered to employees recruited from 01 April 2009 onwards. The share of NERL employees benefiting from this scheme is therefore rising while the share of employees benefiting from the defined benefit scheme is falling. NERL does not report the average percentage contribution rate. It is understood from information provided in the performance plan that the level of contribution is not only depending on a fixed contribution rate but also on future "salary sacrifices" from employees, which NERL has to match with a ratio of 2:1 (up to a maximum of 18%). When considering the level of planned pension costs compared to the planned payroll, we observed a share of 15% which remains stable over RP3.

NERL also reports as part of its planned Defined Contribution scheme the "pension cash alternative" which includes costs relating to ex-Defined Benefit members who have opted out of the defined benefit scheme. When considering the level of planned pension costs compared to the planned payroll, we observed a share of 27% which remains stable over RP3.

For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024? **No**

There are no planned changes in the main actuarial assumptions between 2020 and 2024. The defined benefit pension costs are planned to decrease mainly due to the exclusion of non-recurring deficit repair in 2023 and 2024, and also due to a large reduction in the number of employees benefiting from that scheme (-21% between 2020 and 2024).

4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions

Several actions have been taken in the past years, especially: the closure of defined benefit scheme to new entrants in 2009; capping in general pensionable pay increases and revised indexation of liabilities in 2013; introduction of a "pension cash alternative" in 2017 encouraging staff to opt out from the defined benefit scheme. Changes to the investment strategy and application of an efficiency adjustment (i.e. no deficit repair included in 2023 and 2024) while maintaining the planned end date of the deficit recovery plan to 2026.

4.3.B.4 PRB Key Points



- The trend in pension costs does not constitute a penalty for the United Kingdom to meet the cost efficiency assessment criteria.
- Although NATS had in the past a pension cost per employee which was higher than the European average, the numerous measures taken to mitigate risks and reduce pension costs seem to payoff.
- During completeness verification, a mismatch in pension costs between the performance plan and the reporting tables was noted. This is acknowledged by the United Kingdom in the performance plan but the explanation given is too vague.

4.3.C.1 Cost allocation overview

1.1. Overall principles and criteria for cost allocation methodology between ER and TN

- NERL has two en route charging arrangements: the UK FIR and the Shanwick Oceanic area. Costs are allocated to each using an activity management process. The Charging Zone C (London Approach services) is considered a separate terminal charging zone. To reflect that London Approach has both terminal and en route elements, around a third of the cost of the service is allocated to Charging Zone C, with the remainder allocated to en route charges.

- For the allocation of approach functions between en route and terminal, NERL noted that en route charges do not apply within a 20 km boundary from airports.

- For RP3, Biggin Hill airport was included in the scope of the London Approach. The services NERL provides to Biggin Hill airport will be acknowledged as operationally similar to those in scope of London Approach.

1.2. Are the criteria for cost allocation clearly defined and justified?

Yes

If not, what are the issues identified?

n/a

4.3.C.2 Review of changes to cost allocation

2.1. Are there any changes to cost-allocation compared to RP2?

Yes

If yes, description and justification of the changes from RP2 to RP3 specified in the PP

"The services NERL provides to Biggin Hill airport will be acknowledged as operationally similar to those in scope of London Approach and will therefore be considered a commercial approach service that is treated as 'other revenue' in the meaning of the performance regulation, and therefore netted off the London Approach regulated charge with nil impact on airports in scope of the London Approach charge or their users. The remaining proportion of the current arrangements with Biggin Hill will be included in the en route component."

2.2. Are these changes in cost allocation duly described and justified?

Yes

If, not what are the identified issues?

Changes have been implemented following a consultation with users.

2.3. Is there an impact on the determined costs and/or baseline?

n/a

If yes, description of the impact of the changes in methodology in the determined costs and/or baseline

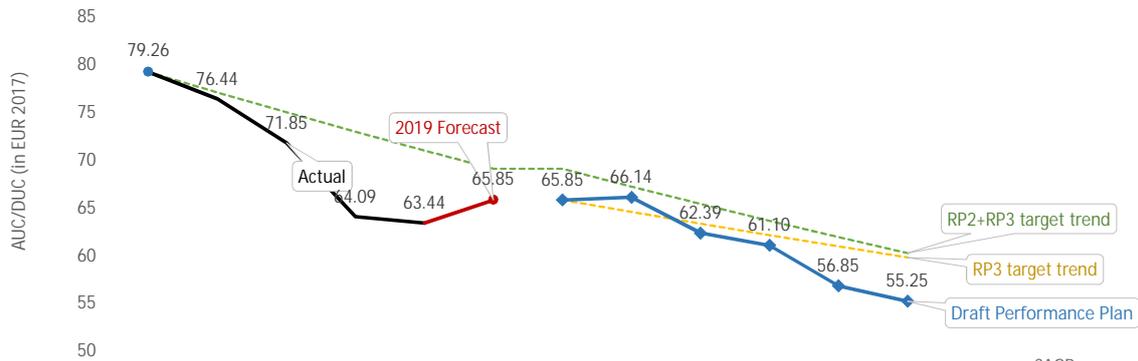
It is not clear if there is an impact on the determined costs.

4.3.C.3 PRB Key Points



- For RP3, Biggin Hill airport is included in the scope of the London Approach. It is not clear if the change is going to impact the determined costs.

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024	
AUC/DUC	€2017	79.26	76.44	71.85	64.09	63.44	65.85	65.85	66.14	62.39	61.10	56.85	55.25	-3.5%	-3.5%
Annual Change	%		-3.6%	-6.0%	-10.8%	-1.0%	+3.8%	+3.8%	+0.4%	-5.7%	-2.1%	-7.0%	-2.8%		

4.4.2 DUC consistency

- ✓ DUC consistency with the Union-wide RP3 DUC trend
- ✓ DUC consistency with the Union-wide long-term DUC trend
- ✗ DUC level consistency

PP trend	-3.5%	Union-wide trend	-1.9%	Difference	-1.6p.p.
PP trend	-3.5%	Union-wide trend	-2.7%	Difference	-0.8p.p.
PP 2019 baseline	65.85	Average comp. group	61.37	Difference	+7.3%

DUC deviation

Are the PP capacity targets consistent?	No
Is the deviation due to restructuring costs invoked?	No
If yes, are the PP restructuring costs compliant with the definition in article 2(18) of the Regulation?	n/a

- The RP3 DUC trend is -3.5%, 1.6 p.p. better than the -1.9% Union-wide trend. It is noted that the 2019 DUC baseline has not been computed using the M3 traffic coefficient. If this would have been the case, the impact in the RP3 DUC trend is limited (from the current -3.45% CAGR to -3.48% CAGR).
- The long term DUC trend is also -3.5%, 0.8 p.p. better than the -2.7% long term Union-wide trend.
- The 2019 DUC level is 7.3% higher than the average of the comparator group, however, by the end of the period, the DUC will be lower than the average of the comparator group.
- Correcting the application of the inflation mistake, the RP3 DUC trend becomes -3.2% p.a., while the long-term DUC trend becomes -3.4% p.a.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

n/a

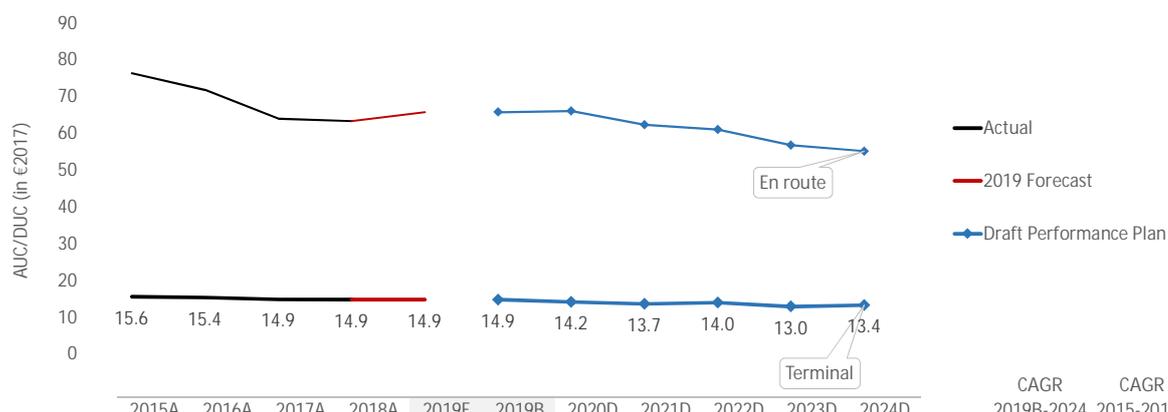
4.4.4 Analysis of the DUC deviation due to restructuring costs

n/a

4.4.5 PRB Key Points

- The United Kingdom is achieving the RP3 DUC and long term DUC trends.
- The United Kingdom applied the inflation rates in the reporting tables incorrectly. However, when using the corrected inflation rates, the United Kingdom would meet both the RP3 DUC trend (-3.2%) and long-term DUC trend (-3.4%).
- The United Kingdom is not consistent with the average DUC baseline of the comparator group.

4.5.1 Overview and trends of the terminal DUC



	2015A	2016A	2017A	2018A	2019F	2019B	2020D	2021D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2015-2019F
AUC/DUC - Terminal	€2017	15.6	15.4	14.9	14.9	14.9	14.2	13.7	14.0	13.0	13.4	-2.1%	-1.2%
Annual Change	%		-1.2%	-3.2%	-0.3%	-0.2%	-4.2%	-3.7%	+2.2%	-7.5%	+3.1%		
AUC/DUC - En route	€2017	76.4	71.8	64.1	63.4	65.9	66.1	62.4	61.1	56.9	55.2	-3.5%	
Annual Change	%		-6.0%	-10.8%	-1.0%	+3.8%	+0.4%	-5.7%	-2.1%	-7.0%	-2.8%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2018)			RP3 Plan (2020-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference v. Median	Group median - airport DUC	Average airport DUC	Difference v. Median
London/ Luton (EGGW)	GROUP III	171.3	-	-	167.4	-	-
London/ Gatwick (EGKK)	GROUP I	139.5	-	-	130.5	-	-
London/ City (EGLC)	GROUP III	171.3	-	-	167.4	-	-
London/ Heathrow (EGLL)	GROUP I	139.5	-	-	130.5	-	-
London/ Stansted (EGSS)	GROUP III	171.3	-	-	167.4	-	-

* GROUP I - Avg. mvts. in 2016-2018 ≥ 225,000; GROUP II - Avg. mvts. in 2016-2018 ≥80000 and <225000 and seasonal; GROUP III - Avg. mvts. in 2016-2018 ≥80000 and <225000 and not seasonal; GROUP IV - Avg. mvts. in 2016-2018 < 80,000

- As for RP2, the UK has established two terminal charging zones (TCZ): TCZ B, which includes the ANS services provided at the 9 airports listed in Chapter 1.4 of the PP: London/Heathrow (EGLL), London/Gatwick (EGKK), Manchester (EGCC), London/Stansted (EGSS), London/Luton (EGGW), Edinburgh (EGPH), Birmingham (EGBB), Glasgow (EGPF) and London/City (EGLC); and TCZ C, which includes London Approach service, which consists of the control and sequencing of flights provided by NERL's Swanwick center between NERL's en route service and the control tower services. The airports serviced by London approach included in the scope of the performance plan are Heathrow, Gatwick, Stansted, Luton, London City (already included in RP2) and Biggin Hill (added to the TCZ in RP3). London Approach's operational characteristics have elements of both terminal and en route functions and, to reflect this, around a third of the cost of the service is allocated to TCZ C, with the remainder allocated to NERL's en route charge.
- The airports included in TCZ B are considered to be under market conditions and, according to article 35 (2) of the performance and charging Regulation, are exempted from some provisions of the Regulation, including the application of cost-efficiency targets. Therefore no determined costs are set up for this charging zone and the comparison with similar airports is not possible.
- For TCZ C, the UK only provides costs at aggregated level, without breakdown at airport level. The comparison with similar airports would nevertheless be not relevant due to the different nature of the services included in TCZ C compared to other terminal charging zones.

4.5.3 Traffic and Costs review (Terminal Charging Zone C)

Baseline review (terminal)

Traffic

Comparison vs. STATFOR forecasts	'000 TNSUs			Δ(B) (%)
2019B (PP baseline)	994.1			
2019F (STATFOR Feb 19)	L 979.9	B 994.1	H 999.2	=B
2019F (STATFOR Oct 19)	L 985.7	B 990.4	H 992.8	+0.37%

Costs

2019 forecast & baseline review	M€2017	%
2019 Forecast v. 2018 Actual	+0.2	+1.2%
2019 Forecast v. Avg. 2015-2018 Actual	+0.3	+2.2%
2019 Baseline v. 2019 Forecast	0.0	+0%

- The 2019 traffic baseline is in line with STATFOR February base scenario.
- The 2019 cost baseline is the same as the cost forecast, which is +1.2% above 2018 actual costs.

Traffic forecasts (terminal)

✓ Is the forecast for terminal TNSUs in line with STATFOR February 2019 Base forecast, for every year 2020-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR February 2019 Base forecast

Not applicable

Review of the PP traffic forecast

The performance plan traffic forecast for the years 2020-2024 is in line with the STATFOR February base scenario.

Determined costs (terminal)

✗ Is inflation in PP in line with IMF (April 2019 forecast)? Deviation from index < 1p.p. in 2024

Cost elements - NERL (TCZ C)

- 📌 Investments (see details in 3.5)
- ✓ Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ✓ Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	TCZ B: n/a; TCZ C: No
Maximum risk exposure to traffic	4.4%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	n/a
Maximum penalty (% of determined costs)	n/a
Additional incentives?	No



- As explained in 4.5.2 above, airports in TCZ B are considered to be under market conditions and are thus exempted from the setting of determined costs and financial incentives, therefore the analysis in this section only covers TCZ C.
- The terminal RP3 trend (-2.1%) is higher than the en route trend (-3.5%). This is mostly due to the effect of the higher 2019 costs forecasts for en route (+5.6% than the 2018 actuals) than for terminal (+1.2% than the 2018 actuals).
- The 2024 determined costs for NERL are planned to be -0.6M€2017 (or -4.0%) lower than the 2019 forecast mainly due to a decrease in the cost of capital (-0.6M€2017 or -42.8%) and depreciation (-0.2M€2017 or -6.9%), while staff costs and other operating costs are planned to moderately increase.
- As for en route, the decrease in cost of capital reflects the CAA's decision to use a real pre-tax WACC of 2.91%, compared with the 5.07% in NERL's business plan and the 5.86% allowed in RP2.
- Also as for en route, the depreciation costs are planned to increase in 2020 reflecting mainly an acceleration of some SESAR deployments. From 2021 onwards there is a reduction mainly due to the ending of the depreciation of the opening RAB from when NERL was privatised.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is -2.1%, which is worse than the en route RP3 DUC trend of -3.5%.
- The terminal RP3 DUC trend is -2.1%, which is better than the terminal RP2 DUC trend of -1.2%.
- The airports included in the performance plan are considered to be under market conditions and, according to article 35 (2) of the performance and charging Regulation, exempted from some provisions of the Regulation, including the application of cost-efficiency targets, therefore a breakdown of DUC at airport level is not available.
- The United Kingdom used the STATFOR February 2019 base forecast for terminal traffic. The terminal traffic forecast is in line with the STATFOR February 2019 base forecast, for every year from 2020 to 2024.
- Terminal costs slightly decrease over the period, mainly due to a decrease in cost of capital.