

PRB assessment of the revised draft performance plans for RP3

Annex II – FAB / Member States assessment factbooks

March 2022

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INTRODUCTION TO THIS DOCUMENT

- 1 This document describes the methodology followed in the different sections of the factbooks developed by the Performance Review Body (PRB) to assess the revised draft performance plans (hereafter performance plans) as required by Annex IV of Commission Implementing Regulation (EU) 2019/317, hereafter referred to as "the Regulation".
- 2 The sections of the factbooks and the assessment approach are based on the assessment of the draft RP3 performance plans by the PRB in 2020 and have been updated following the implementation of the exceptional measures Regulation.¹
- 3 The aim of this document is to explain how the tool used is organised and what information, figures and tables are shown in each factbook.

Presentation conventions

- 4 Use and interpretation of check marks (ticks, crosses, warning symbols):

	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 draft performance plan.

- 5 Grey text boxes are text areas including factual analysis developed by the PRB and Eurocontrol.
Green text boxes are text areas that summarise the PRB conclusions/recommendations. Finally, texts in quotation marks (" ") indicate direct quotes from the performance plans.

¹ Commission Implementing Regulation (EU) 2020/1627 of 3 November 2020 on exceptional measures for the third reference period (2020-2024) of the single European sky performance and charging scheme due to the COVID-19 pandemic.

Section contents

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

1. Safety	
1.1 Summary of safety key data and assessment results 1.1.1 Target for EoSM for ANSPs 1.1.2 Measures planned to reach the target 1.1.3 Interdependencies and trade-offs 1.1.4 Change management 1.1.5 PRB conclusions	<ul style="list-style-type: none"> • A summary of key data related to the safety KPA. In particular, it presents: <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.
1.2 Target for EoSM for ANSPs and measures 1.2.1 Target for EoSM for ANSPs and associated measures 1.3 Interdependencies and trade-offs 1.3.1 Interdependencies and trade-offs 1.3.2 Change management practices	<ul style="list-style-type: none"> • The EoSM targets for each management objective for each year of RP3.
2. Environment	
2.1 Summary of environment key data and assessment results 2.1.1 Annex IV 1.2: Comparison of ERNIP reference values and performance plan targets 2.1.2 PRB conclusions	<ul style="list-style-type: none"> • A summary of key data related to the environment KPA. It presents: <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 State 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.
2.2 Measures of Achievement 2.2.1 Annex IV 2.1 (a): Measures of Achievement 2.2.2 Annex IV 2.1(f): Incentive schemes	<ul style="list-style-type: none"> • A summary of key data related to the measures committed to in the performance plan, enabling the MS to achieve their targets.
3. Capacity	
3.1 Summary of capacity key data and assessment results 3.1.1 En route ATFM delay 3.1.2 Arrival AFTM delay 3.1.3 Incentives 3.1.4 Investments 3.1.5 PRB conclusions	<ul style="list-style-type: none"> • A summary of key data and insights related to the capacity KPA.
3.2 En route ATFM delay per flight 3.2.1 Overview of en route ATFM delay per flight 3.2.2 Review of planned capacity enhancement measures	<ul style="list-style-type: none"> • A review of the measures and data related to the en route ATFM delay per flight.

<p>3.2.3 Review of previous and existing capacity profile plans per ACC</p> <p>3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant/special events</p> <p>3.2.5 Review of the measures to increase capacity and address capacity gaps</p> <p>3.2.6 PRB Key Points</p>	<ul style="list-style-type: none"> 3.2.4 and 3.2.5 are only filled in if relevant based on the performance plan.
<p>3.3 Arrival ATFM delay per flight</p> <p>3.3.1 Overview of arrival ATFM delay per flight</p> <p>3.3.2 Review of targets and comparison with level and trend of past performance during RP2</p> <p>3.3.3 Contribution of individual airports to the national target</p> <p>3.3.4 Comparison of performance with other similar airports</p> <p>3.3.5 PRB Key Points</p>	<ul style="list-style-type: none"> A review of the measures and data related to the arrival ATFM delay per flight.
<p>3.4 Capacity Incentive schemes</p> <p>3.4.1 En route capacity incentive scheme</p> <p>3.4.2 Terminal capacity incentive scheme</p> <p>3.4.3 Additional capacity incentive scheme</p> <p>3.4.4 PRB Key Points</p>	<ul style="list-style-type: none"> A summary of the en route, terminal, and additional incentive schemes.
<p>3.5 Investments</p> <p>3.5.1 Determined costs of investments over RP3</p> <p>3.5.2 Major investments and justifications for major investments</p> <p>3.5.2.1 New major investments per ANSP (i.e. above 5M€) – Main ANSP</p> <p>3.5.2.2 Justification for major investments (i.e. above 5M€), which are not required by SES legislation</p> <p>3.5.2.3 Other new and existing investments</p> <p>3.5.3 Review of investments contribution to capacity</p> <p>3.5.4 PRB Key Points</p>	<ul style="list-style-type: none"> 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.
4. Cost-efficiency	
<p>4.1 Summary of cost-efficiency key data and assessment results</p> <p>4.1.1 Key data underlying en route cost-efficiency targets</p> <p>4.1.2 Summary of baseline review</p> <p>4.1.3 Summary of cost-efficiency assessment results</p> <p>4.1.4 PRB conclusions</p>	<ul style="list-style-type: none"> Summary of the key cost-efficiency data from the performance plan, the assessment results on the five criteria listed in Annex IV of the Regulation and the conclusions of the PRB.
<p>4.2 Review traffic forecasts and baseline</p> <p>4.2.1 Overview of service units forecasts for RP3</p> <p>4.2.2 Traffic baseline review</p> <p>4.2.3 Review of the PP traffic forecast</p> <p>4.2.4 PRB Key Points</p>	<ul style="list-style-type: none"> 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>4.3 Review of determined costs and baseline</p> <p>4.3.1 Overview of en route costs in RP2 and RP3</p> <p>4.3.2 Baseline review</p> <p>4.3.3 Review of the RP3 determined costs and incentives</p> <p>4.3.4 PRB Key Points</p>	<ul style="list-style-type: none"> • A review of the determined costs, their components and their evolution in RP3 as well as a review of the 2014 and 2019 cost baselines submitted in the performance plan.
<p>4.3.A Cost of capital</p> <p>4.3.A.1 Determined Costs vs Return on Equity</p> <p>4.3.A.2 Cost of capital comparison: reported in PP, efficient cost of capital, maximum risk exposure</p> <p>4.3.A.3 WACC review</p> <p>4.3.A.4 Regulated Asset Base review</p> <p>4.3.A.5 PRB Key Points</p>	<ul style="list-style-type: none"> • An analysis of the cost of capital for the major ANSP as submitted by the Member States.
<p>4.3.B Pensions</p> <p>4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)</p> <p>4.3.B.2 Reporting exceptions and planned changes in assumptions</p> <p>4.3.B.3 Actions taken by the ANSP to manage the cost-risk associated with pensions</p> <p>4.3.B.4 PRB Key Points</p>	<ul style="list-style-type: none"> • An analysis of the pension information as submitted by the Member States.
<p>4.3.C Method for cost allocation between ER and TRM</p> <p>4.3.C.1 Cost allocation overview</p> <p>4.3.C.2 Review of changes to cost allocation</p> <p>4.3.C.3 PRB Key Points</p>	<ul style="list-style-type: none"> • An review of the methods given for en route/terminal cost allocation.
<p>4.4 Determined unit costs (DUC)</p> <p>4.4.1 Overview and trends of the DUC</p> <p>4.4.2 DUC consistency</p> <p>4.4.3 Analysis of the DUC deviation for achieving the capacity targets</p> <p>4.4.4 Analysis of the DUC deviation due to restructuring costs</p> <p>4.4.5 PRB Key Points</p>	<ul style="list-style-type: none"> • An overview of DUC trends and perform the cost-efficiency target assessment following the five criteria listed in Annex IV of the Regulation.
<p>4.5 Terminal</p> <p>4.5.1 Overview and trends of the terminal DUC</p> <p>4.5.2 Comparison of performance with similar airports</p> <p>4.5.3 Elements subject to review</p> <p>4.5.4 PRB Key Points</p>	<ul style="list-style-type: none"> • An overview of terminal costs, traffic and DUC trends.

PRB Assessment

AUSTRIA

Draft Performance Plan

Context and scope

Austria

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4446, F4447, F4475, F4476, F4477, F4478, F4445

Relative weight compared to the SES area (2019):

- % Flight-hours vs SES 2.5%
- % Serv. Units vs SES 2.7%
- % Costs vs SES 3.5%

Scope

FAB: FAB CE

ANSPs: Austro Control

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

ATS, CNS, MET, AIS

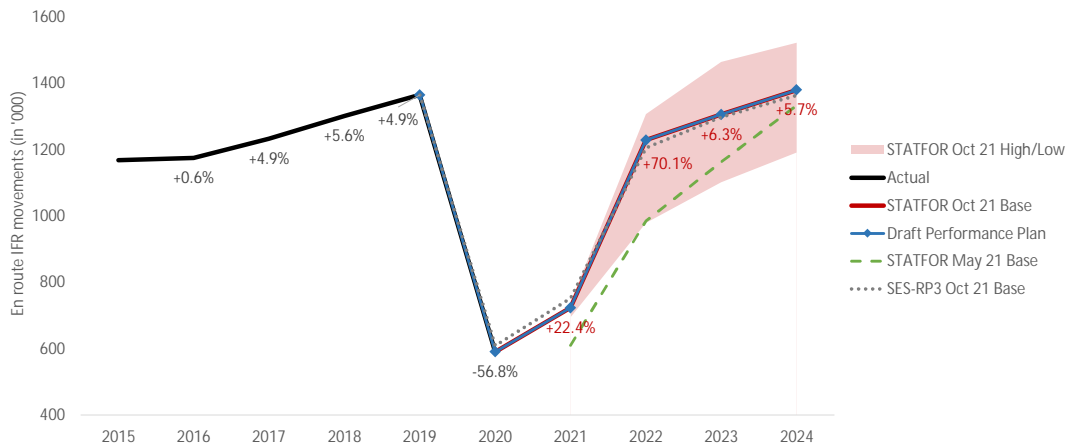
ANS/ATM oversight

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Austria	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP 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 consistent with the Union-wide performance targets.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.90%	1.96%	1.96%	1.96%	1.96%

PRB assessment

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

- Austria's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.00	0.10	0.17	0.17	0.16
National target for terminal and airport ANS ATFM arrival delay per flight (min)	1.25	0.47	0.87	0.84	0.82

PRB assessment

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

- There are discrepancies in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed national targets.
- Capacity plans indicate that Austria may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast. For this reason, Austria has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- The incentive schemes defined by the performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	109.28	62.09	54.65	50.07	-5.7%	-3.6%
Target for determined unit cost (DUC) (€2017) - Terminal	411.29	223.52	195.09	179.02	n/a	-3.2%

PRB assessment

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

- Austria is consistent with the RP3 DUC trend in terms of average reduction.
- Austria is consistent with the long-term Union-wide DUC trend.
- Austria is consistent with the average DUC baseline of the comparator group.

5. PRB recommendations

SAFETY

- Austria should revise the EoS starting levels for RP3 and made them consistent with safety levels achieved for RP2.
- Austria should provide the measures to reach the RP3 targets consistent with the actual starting levels.

ENVIRONMENT

- Austria should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Austria should ensure that all capacity enhancement measures are properly implemented and are aligned with the national targets.

COST-EFFICIENCY

- Austria should report the real WACC parameters instead of notional WACC parameters.
- Austria should detail the methodology and criteria for cost allocation.

AUSTRIA

Safety KPA

1.1 Summary of safety key data and assessment results

Austria

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 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. The starting levels for RP3 should be made consistent with safety levels achieved for RP2 and consequently adequate measures 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 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 formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Austria should revise the EoSM starting levels for RP3 and made them consistent with safety levels achieved for RP2.
- Austria should provide the measures to reach the RP3 targets consistent with the actual starting levels.

1.2 Targets for EoSM for ANSPs and Measures

Austria

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
Austro Control	Safety policy and objectives	B	B	B	B	B	C	✓	
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	B	B	B	B	B	C	✓	
	Safety promotion	B	B	B	B	B	C	✓	
	Safety culture	B	B	B	B	B	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. Austro Control starts RP3 with maturity levels that are lower than the RP3 targets. These levels continue throughout RP3 and meet the RP3 targets only in 2024. No improvements to minimum maturity levels are expected between 2020 and 2023.

The performance plan indicates that existing measures will continue and be adapted to the new EoSM model (new AMC/GM). Improvement in safety risk management is expected to be driven by achieving compliance with Commission Implementing Regulation (EU) 2017/373, while further measures need to be defined in the areas of safety culture. Safety cooperation will be further strengthened by intensifying cross-border safety surveys.

Considering the declared starting safety levels set out in the performance plan, the measures are relevant. The starting levels for RP3 should be made consistent with safety levels achieved for RP2. The consistent measures to reach the RP3 targets should be provided, considering the actual starting levels.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan underlines that the changes to the ATM functional system are assessed according to adopted safety assessment methodologies, which are compliant with the legislative requirements in place. Trade-offs between safety and the other KPAs, confirming that developments needed to improve other KPAs will be ensured through the safety management practices, not to affect safety performance.

The performance plan highlights that 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, the capacity will be reduced, hence safety will not be traded-off.

1.3.2 Change Management Practices

The performance plan describes that the major airspace changes will be accompanied with relevant processes including safety assessments according to the Commission Implementing Regulation (EU) 2017/373 and relevant process documentation approved by the NSA.

The major implementations will be supported by the specific project related roadmaps and implementation plans.

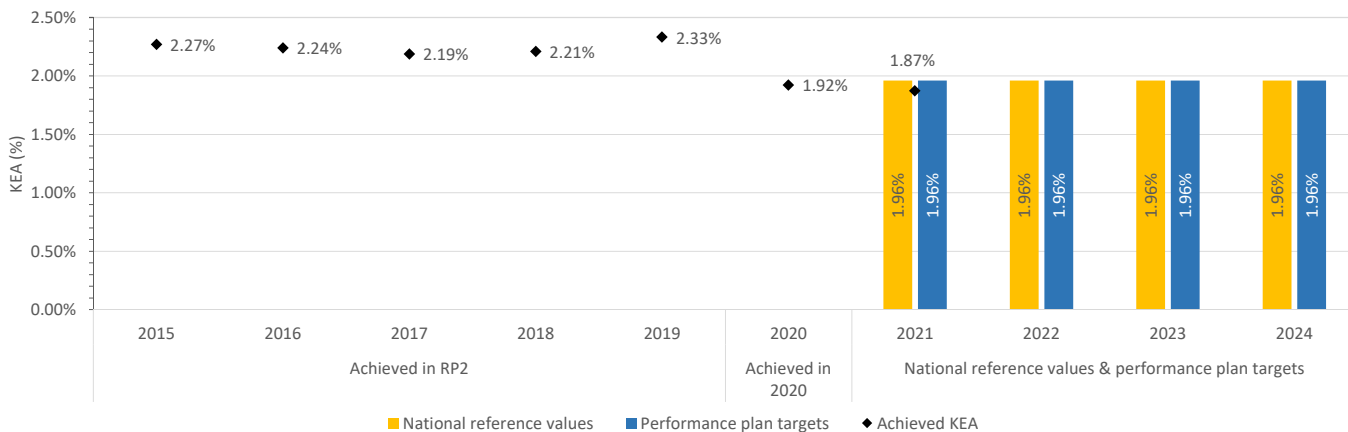
AUSTRIA

Environment KPA

2.1 Summary of Key Data and Assessment Results

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

	2020	2021	2022	2023	2024
National reference values	1.90%	1.96%	1.96%	1.96%	1.96%
Performance plan targets	1.90%	1.96%	1.96%	1.96%	1.96%
Comparison of draft performance targets with reference values	n/a	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Austria's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Austria should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Austria

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✘		Reference in PP	Reference in LSSIP
Austria implemented free route airspace (FRA) within the Vienna flight information region (FIR) in November 2016. Austria is yet to extend FRA towards its western border.				3.2.1 (b)	Page 14
Major ERNIP Recommended Measures:		4		Reference in PP	Reference in ERNIP
Measure included within performance plan?				3.2.1 (c)	Page 148
SECSI FRA - FRALB H24 cross-border FRA		✔		3.2.1 (c)	Page 148
SECSI FRA - M-FRA H24 cross-border FRA		✔		n/a	Page 204
LOVV Re-Structuring		✘		3.2.1 (c)	Page 195
Free Route Airspace Switzerland - FRACH		✔			
FUA Implementation according to latest LSSIP		Implementation			
1		✔			
2		✔			
3		✔			

The chart in section 2.1.1 shows that Austria achieved a KEA of 1.92% in 2020. In 2021, Austria reached a KEA of 1.87% which means it achieved the 2021 target of 1.96% in its performance plan.

Austria achieved free route airspace (FRA) before the PCP implementation date of 1 January 2019 in the airspace it controls. An ATS route network still exists in western Austria, where airspace is delegated to the German and Swiss ANSPs.

Austria undertook initiatives to expand FRA beyond its flight information region (FIR) by supporting the south east common sky initiative FRA (SECSI) consistent with ERNIP recommendations. SECSI sought to merge the Slovenian and Austrian cross-border FRA (SAXFRA) and south-east axis FRA (SEAFRA) to create a large volume of cross-border free route airspace, among Single European Sky (SES) and non-SES States, from ground to FL660 in the case of Austria.

Despite offering the FRA, airspaces in central/southern Austria between GND and FL660 are marked for military training and exercise and managed through an AUP, which can prevent the application of a true FRA. The average extension to be considered by airspace users affected by temporary reserved areas (TRAs) and temporary segregated areas (TSAs) is approximately 10 - 15 nautical miles according to the aeronautical information publications (AIP). Austria plans to implement local and sub-regional airspace management support system (LARA), which should be used to minimise the impact of military training on civil aviation.

Austria explained in the performance plan that permanently increasing traffic complexity within the Austrian FRA means specific constraints need to be applied and adapted via RAD measures so that the required capacity can be offered. However, the major ERNIP project seeking to restructure the FIR was not mentioned as a measure to help mitigate this. Austria should consider easing traffic complexity during its airspace restructuring project.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Austria plan for an environmental incentive scheme?	✘
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

AUSTRIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

Austria

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to national reference values. The targets fall within the range of the delay forecast in 2022 and 2023, however, the target is significantly below the delay forecast range in 2024.

Austria is expected to have a minor capacity gap in 2022, which is inflated to a significant gap of -13% in 2023, and a major capacity gap of -20% in 2024.

Capacity enhancement measures, planned number of ATCO FTEs, capacity profiles and national targets are inconsistent in the performance plan. Based on the evidence provided, if no additional measures are introduced and implemented successfully in 2022 and 2023, Austria will likely not be able to achieve the proposed targets.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	⚠

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

There are six airports included in the performance plan. National targets are set lower than in RP2, although those targets proved to be unreasonably high. RP3 targets are still slightly higher than average past performance.

The expected delay calculated based on the airport breakdown of the national target does not correspond to the expected delay calculated based on the national target, indicating that there is an inconsistency in the performance plan.

The performance of Vienna (which is the main driver of delays), Innsbruck and Salzburg is expected to be worse than that of the group of similar airports in RP3, while the performance of the other airports is expected to be in line with that of their respective group of similar airports.

3.1.3 Incentives

En route:

Austria has chosen not to modulate the pivot values, which are set equal to the national reference values.

Maximum bonus and penalty is set at 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.

Terminal:

Austria has chosen not to modulate the pivot values, which are set equal to the national performance targets.

Maximum bonus and penalty is set at 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

Austria does not provide the annual breakdown of determined costs per investment category (i.e. new major, other new and existing investments). Austria provides limited information regarding the investments planned.

The major investments are clusters of several sub-projects under 5M€ with different lifecycles and dates of entry operation.

There is a significant capacity shortage expected in Austria by the end of RP3. There are capacity enhancing investments planned for RP3 linked to all six PCP/CP1 ATM Functionalities but their operational deployment takes place at the end RP3 – or later – and they cannot provide the required capacity at the needed time.

Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

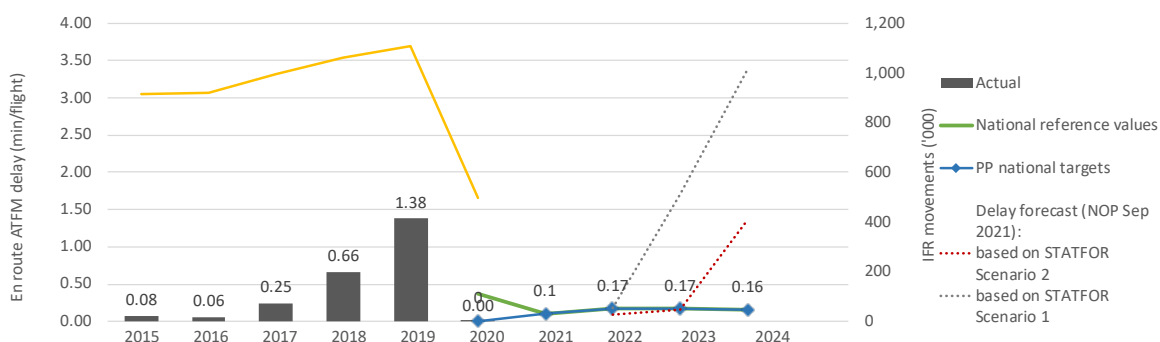
3.1.5 PRB conclusions

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

- There are discrepancies in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed national targets.
- Capacity plans indicate that Austria may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast. For this reason, Austria has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- The incentive schemes defined by the 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



The potential bonus is equal to the potential	+1%	+0.4%	+8.3%	+6.9%	+4.2%	-55.2%				
Actual delay/flight	0.08	0.06	0.25	0.66	1.38	0.00				
National reference values						0.37	0.10	0.17	0.17	0.16
PP national targets						0.00	0.10	0.17	0.17	0.16
Based on STATFOR Scenario 1							-	0.18	1.71	3.38
Based on STATFOR Scenario 2							-	0.09	0.15	1.36

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	⚠

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Austria experienced capacity constraints related mainly to weather, ATM capacity and staffing. Austria missed the capacity targets in 2018 and by a significant margin in 2019.

The performance plan refers to the NOP when listing the capacity enhancement measures. The performance plan provides only high-level descriptions of the measures, which does not allow detailed assessment of the enhancement impact. The ANSP claims that majority of the en route delays were significantly influenced by weather.

The plan addresses the following measures:

- continuous recruiting and training of ATCOs,
- flexible and centralised rostering,
- permanent improvement of flow management activities,
- continued effort to increase staffing levels,
- continued alignment of traffic demand and sector opening times at sector group level,
- Network weather mitigation measures with implementation of the eNM/ANSPs proposed measures,
- Central/South East Europe airspace restructuring project.

The planned number of ATCO FTEs shows an increase of 7.6% (10 FTEs) compared to 2019. It is not clear how this planned increase is consistent with the increasing capacity gap.

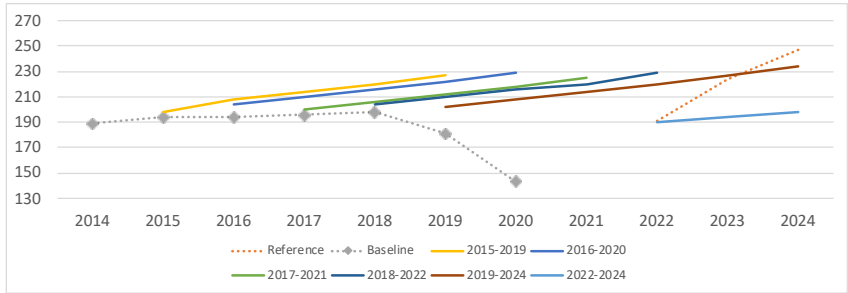
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Vienna ACC (LOVV)	Additional ATCOs in OPS to start working in the OPS room	6	6	4	8	6	9	7
	ATCOs in OPS to stop working in the OPS room	2.75	4	5.5	0	2.55	7	7
	ATCOs in OPS to be operational at year-end	125.35	130.81	128.71	134.86	138.31	140.31	140.31
Total - Austro Control (en route)	Additional ATCOs in OPS to start working in the OPS room	6	6	4	8	6	9	7
	ATCOs in OPS to stop working in the OPS room	2.75	4	5.5	0	2.55	7	7
	ATCOs in OPS to be operational at year-end	125.35	130.81	128.71	134.86	138.31	140.31	140.31

2024 (end) - 2020 (beg.)	
	+10
	+10

3.2.3 Review of previous and existing capacity profile plans per ACC ✘

Vienna ACC (LOVV)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Reference		189	194	194	196	198	181	143		191	224	247
Baseline		189	194	194	196	198	181	143				
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
2022-2024										190	194	198
Latest vs Reference										-1%	-13%	-20%

- Historical data shows an average decrease of 0.8% in the baseline values over RP2, including zero increase between 2015 and 2016. And a sharp decrease in 2019, resulting in a major capacity gap. Planned values were significantly higher than baseline values, however they were not realised.

- The latest planned capacity profile shows a steady annual growth of 2.1%, resulting in the same values as baseline values requested for 2018 (the peak value of RP2). Planned values are systematically below the reference profile: a minor gap of -1% in 2022 is inflated to -13% in 2023 and a major capacity gap of -20% is expected in 2024.

- There is a clear inconsistency between the performance targets, the planned number of ATCO FTEs, capacity enhancement measures and the capacity profiles.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

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

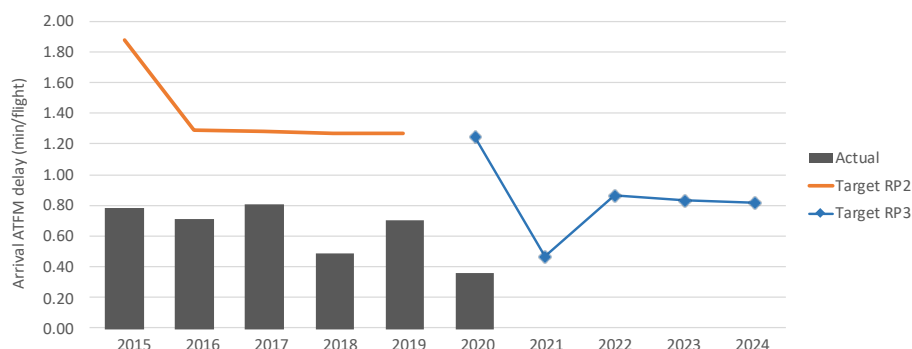
- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? ✘
The performance plan contains no additional measures compared to the NOP.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? ✔
The measures proposed by the NM are implemented in the performance plan.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? ✔
The measures proposed by the NM are implemented in the performance plan.
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? ✘
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) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✘
The performance plan contains no information regarding flexible use of operational staff.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
There is no information in the performance plan regarding ATM system/infrastructure related limitations nor the mitigation thereof. The performance plan includes investments into the ATM system, however those are not listed explicitly amongst the capacity enhancement measures.

3.2.6 PRB Key Points 🔔

- The proposed national capacity targets are set equal to national reference values. The targets fall within the range of the delay forecast in 2022 and 2023, however, the target is significantly below the delay forecast range in 2024.
 - Austria is expected to have a minor capacity gap in 2022, which is inflated to a significant gap of -13% in 2023, and a major capacity gap of -20% in 2024.
 - Capacity enhancement measures, planned number of ATCO FTEs, capacity profiles and national targets are inconsistent in the performance plan. Based on the evidence provided, if no additional measures are introduced and implemented successfully in 2022 and 2023, Austria will likely not be able to achieve the proposed targets.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	Actual	1.88	1.29	1.28	1.27	1.27	1.25	0.47	0.87	0.84	0.82
Vienna (LOWW)	Actual	1.06	0.96	1.08	0.64	0.91	0.49	0.50	0.90	0.88	0.86
Graz (LOWG)	Actual	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Innsbruck (LOWI)	Actual	0.01	0.05	0.22	0.15	0.08	0.18	0.10	0.12	0.12	0.12
Klagenfurt (LOWK)	Actual	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Linz (LOWL)	Actual	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Salzburg (LOWS)	Actual	0.07	0.12	0.05	0.11	0.04	0.04	0.06	0.09	0.09	0.09

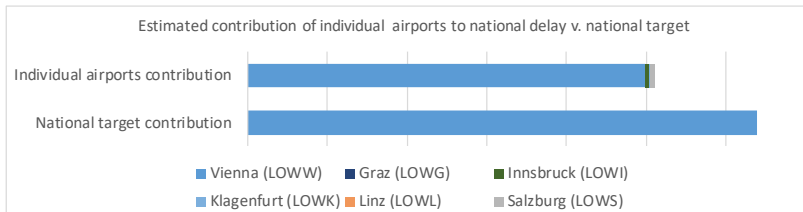
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

The Austrian terminal capacity targets for RP3 are adapted to the current and expected traffic. Austria uses the STATFOR October 2021 base forecast for TCZ, which estimates a decrease of 25.2% IFR movements in 2021 and a CAGR for 2019-2024 of -0.1%.

With a few measures planned (eAMAN implementation, AMAN/DMAN coupling, initial Airport Operations Plan (AOP)), the targets follow a small gradual improvement (0.03 minutes delay reduction each year) from 2022 onwards even with the traffic recovery. Nevertheless, these targets for 2022-2024 (0.87 to 0.82 minutes per arrival) are still above the observed past performance in RP2.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Vienna (LOWW)	0.79
Graz (LOWG)	0.01
Innsbruck (LOWI)	0.12
Klagenfurt (LOWK)	0.01
Linz (LOWL)	0.01
Salzburg (LOWS)	0.08
National Target	0.75



According to the breakdown of the national target per airport, Vienna is the main contributor in terms of delay (as it is in terms of IFR movements). However, this breakdown of the targets per airport do not correspond with the national target: the delay associated to the average national target in 2021-2024 and the average national traffic during RP2 is higher (+25.533 minutes) than the sum of the delay associated to each airport according to its average target in 2021-2024 and the average traffic for that airport during RP2.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Vienna (LOWW)	GROUP I	0.65	0.93	+0.28	0.79	+0.14
Graz (LOWG)	GROUP IV	0.00	0.00	-0.00	0.01	+0.01
Innsbruck (LOWI)	GROUP IV	0.00	0.10	+0.10	0.12	+0.12
Klagenfurt (LOWK)	GROUP IV	0.00	0.00	-0.00	0.01	+0.01
Linz (LOWL)	GROUP IV	0.00	0.00	-0.00	0.01	+0.01
Salzburg (LOWS)	GROUP IV	0.00	0.08	+0.08	0.08	+0.08

* 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, Innsbruck and Salzburg in the past reference period was slightly worse than the median of similar airports. The target set for RP3 for Vienna represents an improvement with respect to its past performance but still worse delays than at similar airports. For the rest of airports, the proposed targets are worse than their own past performance and the observed performance for similar airports. In particular, Innsbruck and Salzburg suffer from delays mainly in the ski season due to specific high traffic weekends.

3.3.5 PRB Key Points

- There are six airports included in the performance plan. National targets are set lower than in RP2, although those targets proved to be unreasonably high. RP3 targets are still slightly higher than average past performance.
- The expected delay calculated based on the airport breakdown of the national target does not correspond to the expected delay calculated based on the national target, indicating that there is an inconsistency in the performance plan.
- The performance of Vienna (which is the main driver of delays), Innsbruck and Salzburg is expected to be worse than that of the group of similar airports in RP3, while the performance of the other airports is expected to be in line with that of their respective group of similar airports.

3.4 Capacity Incentive schemes

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?	No
If yes, is the modulation CRSTMP?	n/a

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

Threshold and pivot value review

The pivot value is fixed at the national target, which is equal to the reference value provided in the NOP for each year of RP3. A threshold of 0.05 minutes is applied either side of the pivot value.

Modulation review

No modulation is applied for the en route capacity incentive scheme.

Review of financial advantages/disadvantages

The potential bonus is equal to the potential penalty at 0.5% of revenue.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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)			±0.435	±0.420	±0.410
Performance Plan targets			0.87	0.84	0.82
Pivot values for RP3			0.87	0.84	0.82

Threshold and pivot value review

The terminal incentive scheme includes a dead band of ±25% that allows for variations in the arrival ATFM delay with no resulting bonuses or penalties (0.653-1.088). The pivot value is not modulated, which means the national target will be used for the calculation of the incentives. The proposed national targets during RP3 are an improvement with respect to the targets in the past reference period but still above the observed past performance during RP2.

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, even with higher traffic were below the target), the dead band and the result (only 0.5% penalty) does not seem to incentivise to improve the current performance.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

⚠

En route:

- Austria has chosen not to modulate the pivot values, which are set equal to the national reference values.
- Maximum bonus and penalty is set at 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.

Terminal:

- Austria has chosen not to modulate the pivot values, which are set equal to the national performance targets.
- Maximum bonus and penalty is set at 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.

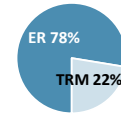
3.5 Investments

Austria - Austro Control

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	30.5	32.6	32.7	32.5	31.8	160.1
	En route	23.7	25.2	25.3	25.3	24.7	124.2
	Terminal	6.8	7.4	7.5	7.2	7.1	35.9

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	TRM
1	Voice Communication	Keeping the voice communication system alive, total exchange of VCS for ENRO in RP3 followed by local Terminal Units and support of Military in RP4. Adaptation of Voice- and Data-Recording (Compliance).	18.3	Yes	No	0.0	0.0
2	NAV Infrastructure	Continue ILS EoL Exchange program (5) including infrastructure compliance. ILS exchange program stretched until 2025 to lower costs in RP3. EoL investments of 7 DMEs and Direction finders. Tbd: CNS-Rationalisation,...	9.0	Yes	Yes	0.0	0.0
3	Carrier Infrastructure	Further development on Carrier Infrastructure to fit to future requirements (Capacity,...) and exchange of system constituents.	4.0	No	No	0.0	0.0
4	Airport Throughput	Advanced Surface Movement Control System, Surveillance Sensors and related Systems Due to procurement constrains: new planning, new bundling of services & functionalities including ITWP	14.0	Yes	Yes	0.0	0.0
5	COOPANS	COOPANS TopSky ATM systems operated in Vienna with connected ATS units.	18.7	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	10.2	Yes	Yes	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	15.4	No	No	0.0	0.0
8	AIM Infrastructure	Functional Evolutions, Infrastructure changes, Static Data Management evolution and electronic Terrain and Obstacle Database measures.	5.1	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, POLARIS) towards automation - Evolution of tailored MET-Services for ATCOs	5.7	Yes	Yes	0.0	0.0
Total:						0.0	0.0

Airspace user feedback regarding major investments

Austria notes that the airspace users were "consulted accordingly", however no feedback from the airspace users is included in the performance plan. The annex regarding investments was not submitted in the performance plan.

Review of investments

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

The breakdown of costs per main investments is not provided because Austria did not plan any new major investments for RP3. Clusters of smaller projects are presented as new major investments, however these smaller projects may have different lifecycles and dates of entry into operation. The interactions of these projects increase the complexity of the data, therefore the determined costs of each "new major investment" are difficult to estimate.

Investments #1, #2, #8 and #9 may be follow-ups of investments with similar names and descriptions from the RP2 performance plan. The CAPEX execution in RP2 was 78% and the amount underspent was 36.1M€. In terms of depreciation and cost of capital, the airspace users have financed 10.2M€ for investments that have not been materialised. It is unknown if the amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Carrier Infrastructure	Local, Non-performance	Safety, Capacity, Cost-efficiency	The Carrier Infrastructure is enabler for new operational concepts (Remote Tower, Centralized Approach Units).
2	ANS Enabler	Network, Local	Safety, Environment, Capacity, Cost-efficiency	Airspace users benefit from more resilient ATM-systems.

Additional information

- Carrier Infrastructure: the carrier infrastructure project ensures a redundant, resilient, and future-proof carrier data connection. The project is an important enabler for existing and future services. It is an overhaul of "Support Connectivity between COOPANS Topsky System in the Areal Center and the local approach units".
- ANS Enabler: "Airspace users benefit from more resilient ATM-systems". The investment is an overhaul and it partially includes end of life replacements. The investment supports the provision of different Master Plan activities.

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 RP3 (M€)
Other new investments	29.6	29.6	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

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?

Vienna ACC is expected to have a capacity shortfall throughout RP3, evolving from -1% in 2022 to a major gap of -20% in 2024.

There are several (9) new major investments defined for RP3 and seven of them are linked to PCP/CP1 ATM Functionalities covering all six AFs. The operational deployment dates of the investments only takes place at the end of RP3 or after, with earliest entry to operations defined as 31st of December 2024. The main investments contributing to enroute capacity are the COOPANS and ATS-Enabler investments while the NAV infrastructure, Airport throughput and MET infrastructure investments contribute to airport/TMA capacity enhancement. COOPANS investment contributes to the digitalisation of the ATM platform in line with European ATM evolution and together with the other investments contribute to resilience, scalability and flexibility.

Other (non-major) investments are described very briefly only and include investments into surveillance and communication improvements and infrastructure for Remote Tower and Integrated Tower Working Positions, contributing to resilience and flexibility.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

The COOPANS investment is expected to enable evolution to the COOPANS Digital ATM Platform and includes e.g. the replacement of the FDP, and improvements to the HMI. The ATS Enabler investment enables new requirements by sub-systems (non-COOPANS) and improvements to the CWPs. The airport/TMA domain capacity enhancing investments enable RNP operations, A-SMGCS improvements, investments for TBS and Wake Vortex and AMAN/DMAN coupling.

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

Taking into consideration the planned operational entry dates of the investments (eight investments by 31st of December 2024 and one investment by 31st of December 2025) and the expected capacity shortfall in Vienna ACC during RP3 it can be argued that the timing of the investments is not optimally planned vis-à-vis the expected demand. LSSIP Austria 2015 notes that a FDPS upgrade took place in 2015 and that FDPS/SDPS updates are performed one to two times annually but clearly these system investments have not been sufficient to respond to the demand growth by themselves.

3.5.4 PRB Key Points

- The CAPEX execution in RP2 was 78% and the amount underspent was 36.1M€. The airspace users have financed 10.2M€ for investments that have not been materialised. It is unknown if the amount will be reimbursed to the airspace users.
- Austria does not provide the annual breakdown of determined costs per investment category (i.e. new major, other new, and existing investments). Austria provides limited information regarding the investments planned.
- The major investments are clusters of several sub-projects under 5M€, with different lifecycles and dates of entry operation.
- There is a significant capacity shortage expected in Austria by the end of RP3. There are capacity enhancing investments planned for RP3 linked to all six PCP/CP1 ATM Functionalities, but their operational deployment takes place at the end RP3 – or later – and they cannot provide the required capacity at the needed time.
- Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

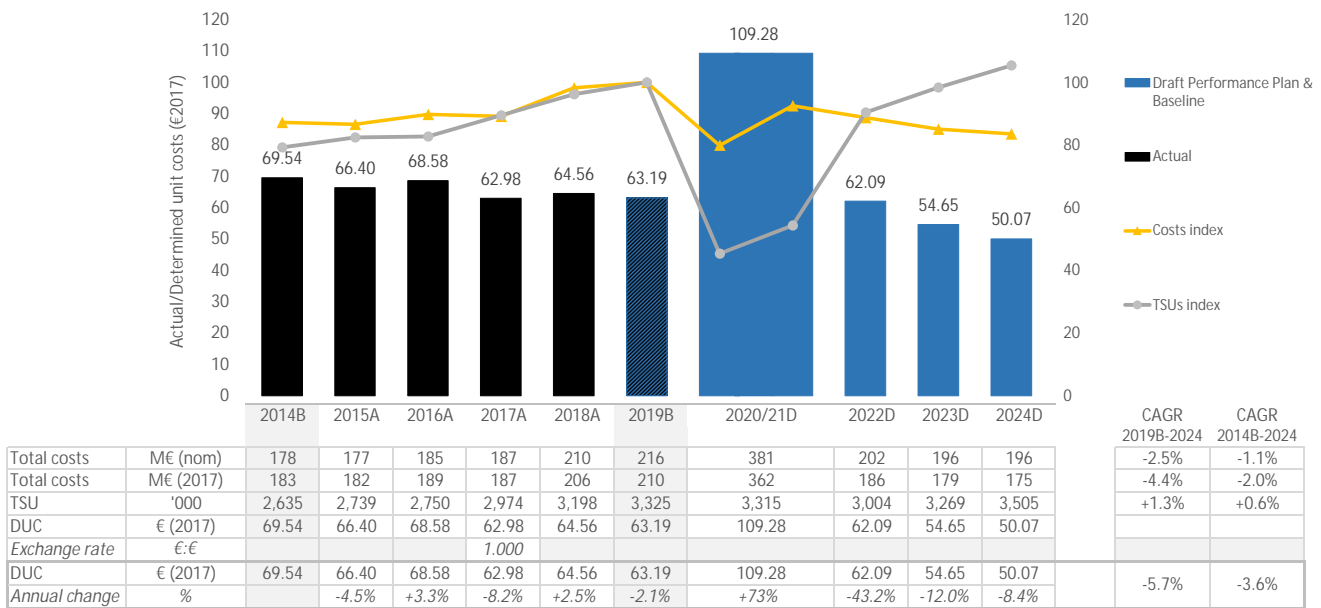
AUSTRIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Austria - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 63.19 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? -5.7% ✓
The DUC is planned to decrease on average by -5.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -3.6% ✓
The DUC is planned to decrease on average by -3.6% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- c) DUC level (2019 baseline) lower than the average of comparator group (E) average (80.26 €2017)? -21.3% ✓
The 2019 DUC level is -21.3% lower 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

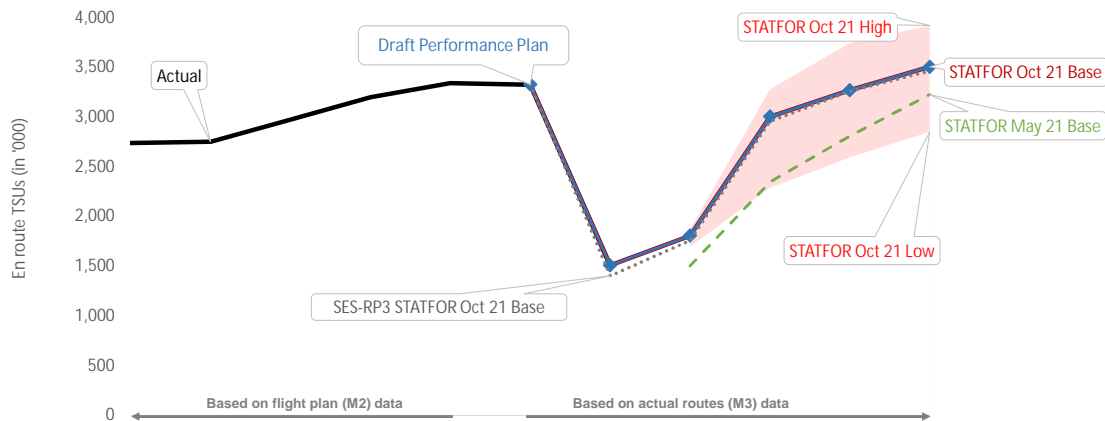
The PRB concludes that the cost-efficiency targets proposed by Austria should be approved.

- Austria is consistent with the RP3 DUC trend in terms of average reduction.
- Austria is consistent with the long-term Union-wide DUC trend.
- Austria is consistent with the average DUC baseline of the comparator group.
- Austria should report the real WACC parameters instead of notional WACC parameters.
- Austria should detail the methodology and criteria for cost allocation.

4.2 Review traffic forecasts and baseline

Austria - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	2,739	2,750	2,974	3,198	3,338	3,325	1,509					
Annual change	%		+0.4%	+8.1%	+7.5%	+4.4%	+4.0%	-54.6%					
STATFOR Oct 21 Base	'000 TSUs								1,807	3,004	3,269	3,505	+5.4%
Annual change	%								+19.7%	+66.3%	+8.8%	+7.2%	
STATFOR May 21 Base	'000 TSUs								1,501	2,346	2,806	3,224	-3.0%
Annual change	%								-0.5%	+56.3%	+19.6%	+14.9%	
Performance Plan	'000 TSUs						3,325	1,509	1,807	3,004	3,269	3,505	+5.4%
Annual change	%						+4.0%	-54.6%	+19.7%	+66.3%	+8.8%	+7.2%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	3,325		2014B (PP baseline)	2,635	
2019A (as in the Reporting tables, M2)	3,338		2014A (as in the Reporting tables, M2)	2,645	
2019B/ 2019A	-0.41%	-0.41%	2014B/ 2014A	-0.41%	-0.41%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.41%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.41%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Austria is in line with the STATFOR October 2021 base scenario.

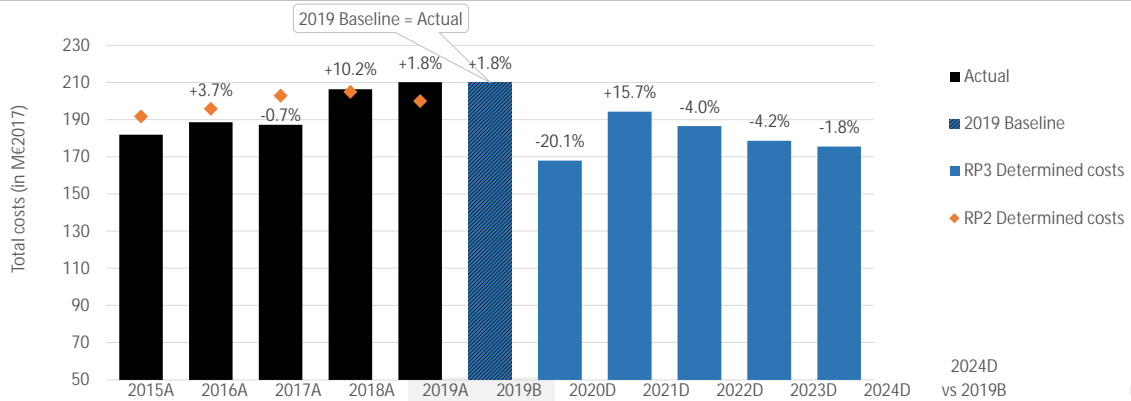
4.2.4 PRB Key Points

- Austria en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Austria - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D
Total costs	M€ (nom)	177	185	187	210	216	216	175	206	202	196	196
Annual change	%		+4.5%	+1.1%	+12.1%	+3.0%	+3.0%	-19.3%	+18.1%	-2.2%	-2.8%	-0.2%
Inflation index	2017 = 100	96.9	97.8	100.0	102.1	103.6	103.6	105.1	107.7	110.3	112.5	114.8
Total costs	M€ (2017)	182	189	187	206	210	210	168	194	186	179	175
Annual change	%		+3.7%	-0.7%	+10.2%	+1.8%	+1.8%	-20.1%	+15.7%	-4.0%	-4.2%	-1.8%
Total costs	M€ (2017)	182	189	187	206	210	210	168	194	186	179	175

2024D vs 2019B: -9.5%
 Exchange rate 2017: €:€ 1.00000

✘ Is inflation in PP in line with IMF (April 2021 forecast)?	No
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

The inflation rates used in the performance plan are in line with the IMF October 2021 forecast. A minor rounding difference is observed for the inflation rate 2022 leading to a deviation of only -0.002 p.p. by the end of RP3.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments applied to the 2014 and 2019 cost baselines.

2014/2019 baseline analysis

The 2014 and 2019 cost baselines are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

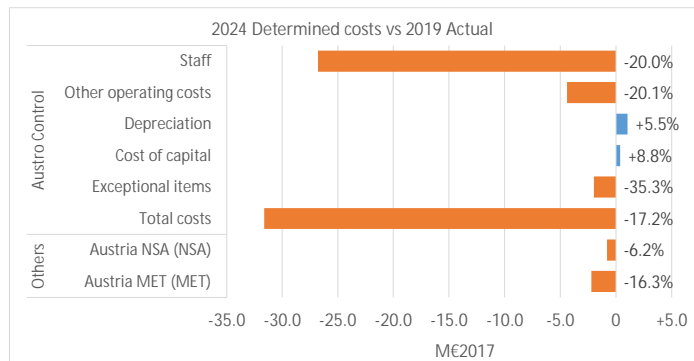
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



The total costs of Austria are planned to decrease by -16.5%, or -34.6M€2017, between 2019 actuals and planned 2024. The main contributor to this planned decrease in costs is Austro Control.

Austria has not provided detailed descriptions of the main factors explaining the planned variations for individual cost items over the reference period for Austro Control.

- In 2024, the en route determined costs for Austro Control are planned to be significantly lower than the 2019 actual costs (-17.2%, or -31.6M€2017). This is mainly due to the large reductions in staff costs (-20.0%, or -26.8M€2017), and other operating costs (-20.1%, or -4.4M€2017), even though Austria indicates that the planned costs include staff build-up, associated training and other capacity enhancing measures for RP3. Exceptional items, which include the recovery of losses relating to the application of IAS19 by Austro Control, are also planned to be significantly lower (-35.3%) than the amount charged to airspace users in 2019. Varying amounts of these costs are carried-over and charged to airspace users over 14 years (starting in 2016) in line with the recovery planning.
- Although separately reported in the reporting tables, the costs for MET services are also borne by Austro Control and follow a similar pattern as the rest of Austro Control costs (-16.3%).

An overall decrease of -6.2% is planned for NSA costs, including staff and Eurocontrol costs, between 2019 and 2024.

En route service units are forecast to reach 2019 levels in 2024, while en route costs are planned to still be significantly below the 2019 actual level in 2024 (by -16.5%).

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for Austro Control are planned to decrease by -17.2% (or -31.6M€2017).
- Austria indicates that the planned costs include staff build-up, associated training and other capacity enhancing measures for RP3.
- Austria presented significant decreases in costs for the entire period, especially in 2020 following cost saving efforts in response to the pandemic.

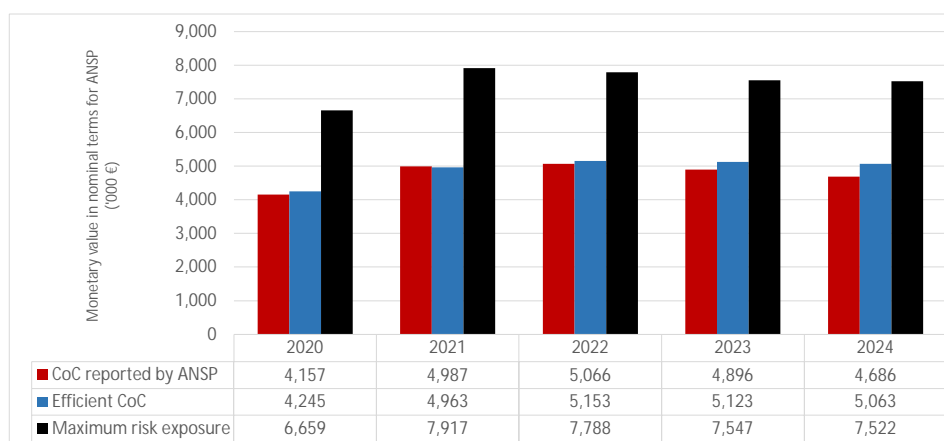
4.3.A Cost of capital

Austro Control - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	151,348	179,933	176,989	171,523	170,951
Monetary value of Return on Equity	4,157	4,987	5,066	4,896	4,686
Ratio RoE/DC (%)	2.7%	2.8%	2.9%	2.9%	2.7%

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	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	7.3%	5.1%	7.3%	5.1%	7.3%	5.2%	7.3%	5.2%	7.3%	5.4%
Interest on debts	3.4%	1.0%	3.4%	1.3%	3.4%	1.4%	3.4%	1.6%	3.4%	1.6%
Capital structure (% debt)	84.6%	25.6%	84.6%	28.8%	84.6%	29.3%	84.6%	29.1%	84.6%	29.1%
WACC	4.0%	4.1%	4.0%	4.0%	4.0%	4.1%	4.0%	4.2%	4.0%	4.3%

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

- Austro Control does not plan to have loans for RP3.
- Notional WACC parameters have been reported in the performance plan instead of the real WACC parameters. The WACC reported in the performance plan has been calculated based on the CAPM. The efficient WACC has been calculated based on option 1 and seems in line with the WACC reported in the performance plan.
- The embedded return on equity over RP3 varies from a minimum of 2.7% to a maximum of 2.9%. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	103,930	124,683	126,650	122,398	117,143
Net current assets	0	0	0	0	0
Adjustments total assets	0	0	0	0	0
Total asset base	103,930	124,683	126,650	122,398	117,143

- The fixed asset base is planned to increase over RP3, while the investments described in section 3.5 of this document slightly decrease.
- The RAB does neither include net current assets, nor adjustments to the total asset base.
- The total asset base is therefore equal to the fixed asset base and will increase over RP3 accordingly.

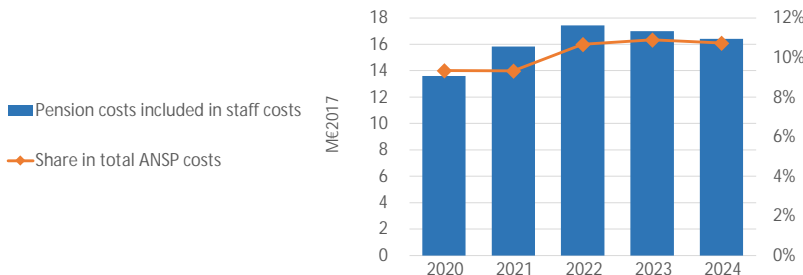
4.3.A.5 PRB Key Points

- Notional WACC parameters have been reported instead of the real WACC parameters.
- The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.B Pensions

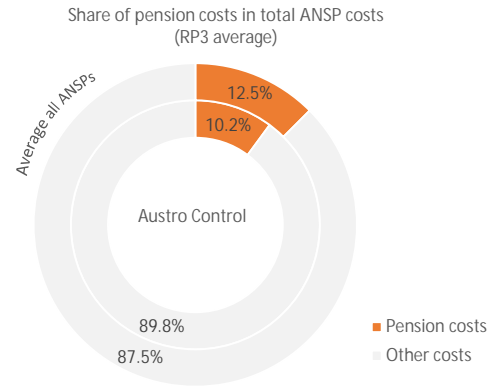
Austro Control - En route

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		+16.3%	+10.2%	-2.5%	-3.5%
Share in total ANSP costs	%	9.3%	9.3%	10.7%	10.9%	10.7%
Year on year variation	p.p.		0.0p.p.	1.3p.p.	0.2p.p.	-0.2p.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 Union-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**

Austria confirms in Annex A to the performance plan that the interest expenses relating to its defined benefit obligation are allocated to the staff costs, even though these are recorded as financial costs in the financial statements of Austro Control.

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 main actuarial assumptions for 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 employed by Austro Control after 01/01/1997 is only eligible for membership to the defined contribution scheme.

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C Methodology for cost allocation between ER and TRM

Austria

4.3.C.1 Cost allocation overview

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

- Austria did not mention changing the cost allocation methodology with respect to RP2.
- Austria allocates costs using cost centres. The 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?

Partially

If not, what are the issues identified?

The methodology and criteria for cost allocation are not detailed enough.

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

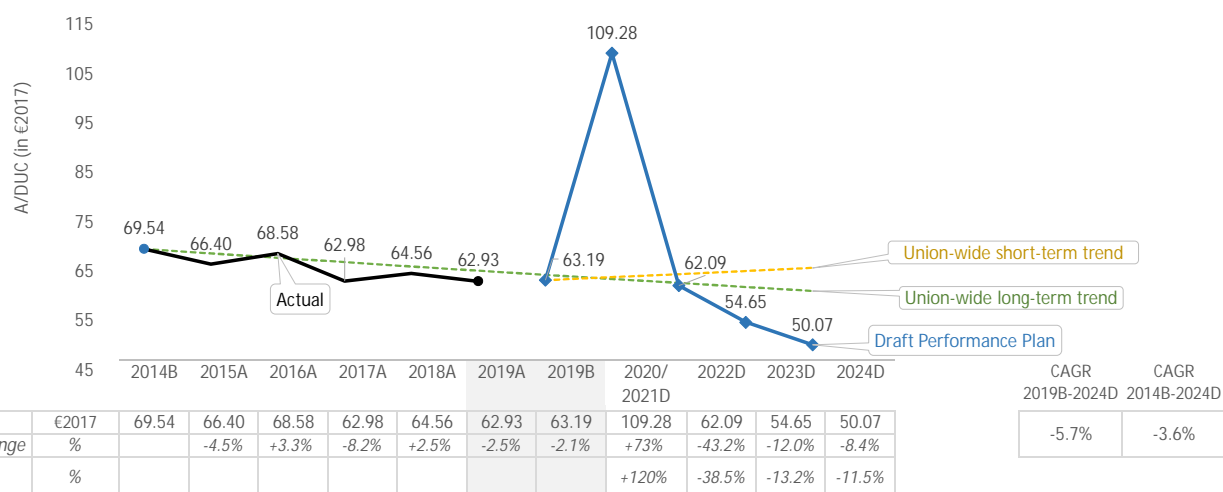


- Austria did not mention changing the cost allocation methodology with respect to RP2.
- The methodology and criteria for cost allocation are not detailed enough.

4.4 Determined unit costs (DUC)

Austria - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-5.7%	+1.0%	-6.7p.p.
Trend (CAGR 2014B-2024)	-3.6%	-1.3%	-2.3p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	63.19	80.26	-21.3%

- The DUC is planned to decrease on average by -5.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -3.6% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -21.3% lower than the average of the comparator 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

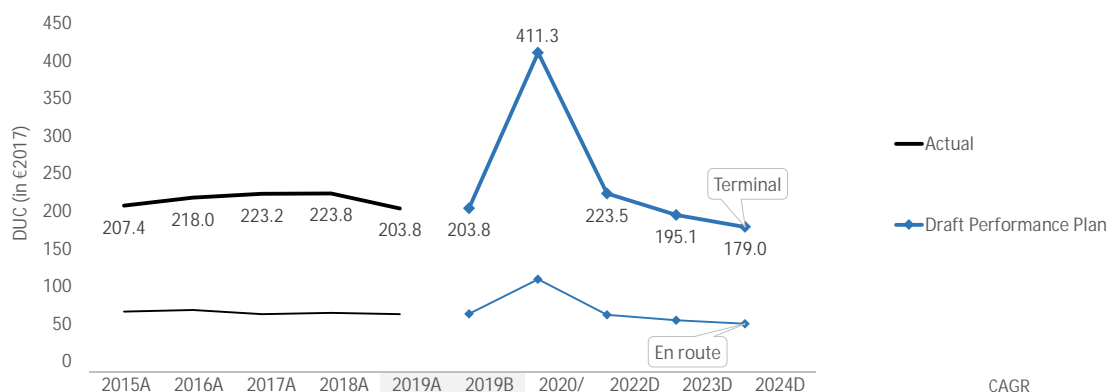
✓

- Austria is consistent with the RP3 DUC trend in terms of average reduction.
- Austria is consistent with the DUC long-term Union-wide trend.
- Austria is consistent with the average DUC baseline of the comparator group.

4.5 Terminal

Austria

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal		207.4	218.0	223.2	223.8	203.8	203.8	411.3	223.5	195.1	179.0	-3.2%
Annual Change	%		+5.1%	+2.4%	+0.2%	-8.9%	-8.9%	+102%	-45.7%	-12.7%	-8.2%	
DUC - En route		66.4	68.6	63.0	64.6	62.9	63.2	109.3	62.1	54.7	50.1	-5.7%
Annual Change	%		+3.3%	-8.2%	+2.5%	-2.5%	-2.1%	+73%	-43.2%	-12.0%	-8.4%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Vienna (LOWW)	GROUP I	139.3	177.4	+27.4%	171.6	200.4	+16.8%
Linz (LOWL)	GROUP IV	411.9	506.6	+23.0%	573.6	600.5	+4.1%
Salzburg (LOWS)	GROUP IV	411.9	299.0	-27.4%	573.6	437.5	-23.7%
Innsbruck (LOWI)	GROUP IV	411.9	384.8	-6.6%	573.6	598.8	+4.1%
Graz (LOWG)	GROUP IV	411.9	411.9	+0.0%	573.6	548.4	-4.4%
Klagenfurt (LOWK)	GROUP IV	411.9	1009.1	+143.0%	573.6	1361.7	+137.4%

* 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 terminal charging zone of Austria includes six airports in RP3, with Vienna being in the comparator group I. The average DUC for Vienna was +27.4% higher than the comparator group median over RP2. This gap is planned decrease to +16.8% on average over RP3.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP
n/a

2019 baseline analysis

The 2019 traffic and costs baselines are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Austria is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

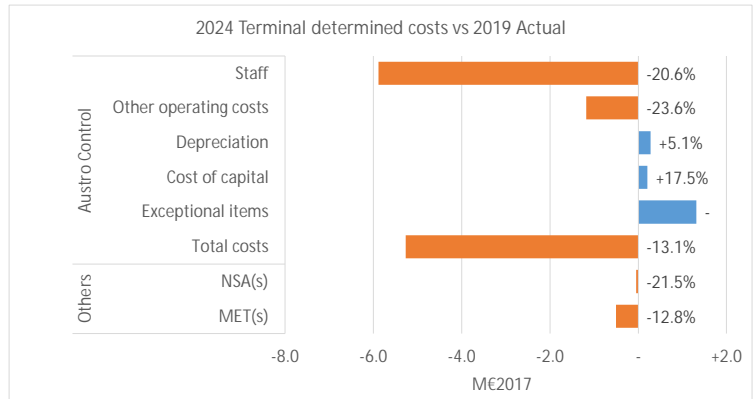
✗ Is inflation in PP in line with IMF (April 2021 forecast)?	No
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

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	4.40%
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 (22%) is slightly higher than the share of terminal total 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 the staff costs and other operating costs being the main drivers for the planned decrease.
- The TNSUs are forecasted to reach the 2019 level in 2024, while costs are not planned to reach the 2019 level in RP3.

4.5.4 PRB Key Points ✗

- The terminal RP3 DUC trend is -3.2%, which is worse than the en route RP3 DUC trend of -5.7%.
- The terminal RP3 DUC trend is -3.2%, which is better than the terminal RP2 DUC trend of -0.4%.
- Vienna, the main airport, had a DUC +27.4% higher than the median of its comparator group over RP2. The difference is expected to be +16.8% over RP3. The other airports included in the performance plan range from a DUC -27.4% lower to +145.0% higher over RP2. The differences are expected to ranged from -23.7% lower to +137.4% higher over RP3.
- Austria applied the STATFOR October 2021 base forecast for terminal traffic.
- The 2024 planned terminal costs decrease compared to the 2019 actuals, mainly due to a decrease in staff costs.

PRB Assessment

BULGARIA

Draft Performance Plan

Context and scope

Bulgaria

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
 Updated: 17/11/2021
 Documents no: F4610, F4615, F4611, F4619, F4555, F4554

Relative weight compared to the SES area (2019):

- % Flight-hours vs SES 2.1%
- % Serv. Units vs SES 3.1%
- % Costs vs SES 1.5%

Scope

FAB: DANUBE FAB

ANSPs: BULATSA

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

ATM/ANS

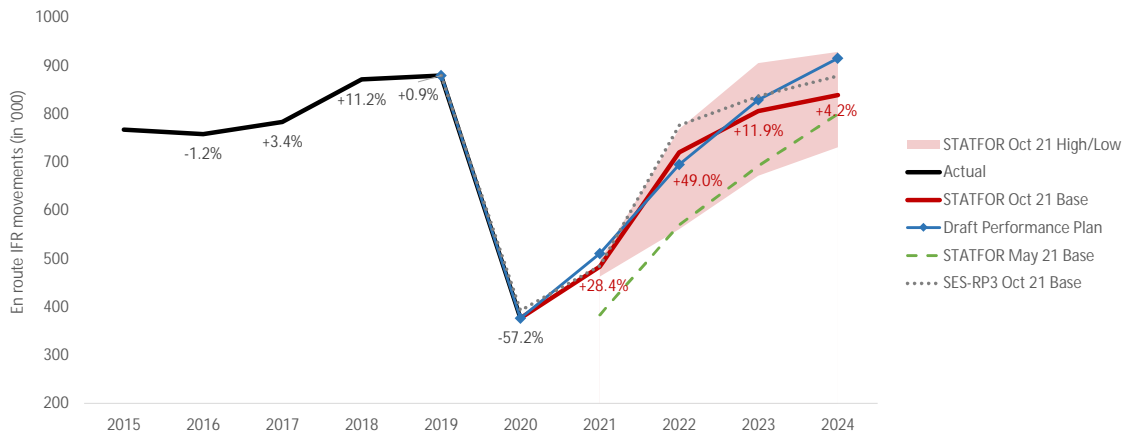
Other
 NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Bulgaria	n/a	No	No	No	
Terminal (TRM)	n/a	0	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



PRB assessment

Bulgaria - Draft Performance Plan

1. Safety

Safety PP 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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment

Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.95%	2.25%	2.25%	2.25%	2.25%

PRB assessment

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

- Bulgaria's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Bulgaria did not achieve the 2021 target of 2.25% in its performance plan. For this reason, Bulgaria has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Bulgaria's performance may be affected by the geo-political situation in Eastern Europe.

3. Capacity

Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.17	0.04	0.08	0.07	0.08
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 Bulgaria should be approved.

- The incentive scheme defined by the performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency

Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	48.89	34.55	31.41	28.44	+0.9%	-0.2%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	-

PRB assessment

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

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

5. PRB recommendations

SAFETY

- Bulgaria should retain the high levels of safety achieved in 2020 throughout RP3.
- Bulgaria should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Bulgaria should ensure it implements all relevant project outlined in the June 2021 ERNIP.

BULGARIA

Safety KPA

1.1 Summary of safety key data and assessment results

Bulgaria

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 RP3 Union-wide safety targets, are planned to be attained in 2023.

1.1.2 Measures planned to reach the target (if applicable)

Even though BULATSA has already attained the RP3 targets levels, the performance plan proposes specific ANSP measures indicating an enhancement in safety culture, just culture, safety risk management, safety assurance and promotion. Some NSA derived measures should be provided.

1.1.3 Interdependencies and Trade-offs

The 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 change management process in BULATSA is endorsed by the DG CAA and it is aligned in accordance with the NSA oversight processes. Considering the level of details provided in the performance plan, these practices, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient to control impacts on safety.

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 are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- In 2020, Bulgaria attained the safety targets for RP3 and exceeded the targets planned for 2020. Bulgaria should retain the high levels of safety achieved in 2020 throughout RP3.
- Bulgaria should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

	2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
	Actual	Target	Target	Target	Target	Target		
BULATSA	Safety policy and objectives	D	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	D	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	✓	
	Safety promotion	D	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	✓	

The EoSM targets have been defined for each year. The EoSM targets levels are set in accordance with the RP3 Union-wide safety targets.

BULATSA has a very mature safety management system that has already attained the RP3 targets and exceeds the target in the area of safety promotion.

Over 2020, BULATSA has improved in the area of safety risk management from level C to level D, exceeding the planned target for the management objective.

Additionally, the performance plan proposes specific ANSP measures indicating an enhancement in safety culture, just culture, safety risk management, safety assurance and promotion.

Specific NSA measures should be provided.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan declares that 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

The performance plan states that the change management process in BULATSA is endorsed by the DG CAA and it is aligned in accordance with the NSA oversight processes.

The change management process assesses the safety impact of changes in the functional systems of the ANSPs together with its external interfaces, including the interfaces with the NM in order to determine any negative impact on the network performance. This process includes major airspace changes, ATM system improvements and any other changes that are identified to introduce hazards and risks to the organisation's functional system and are determined to impact the stakeholders.

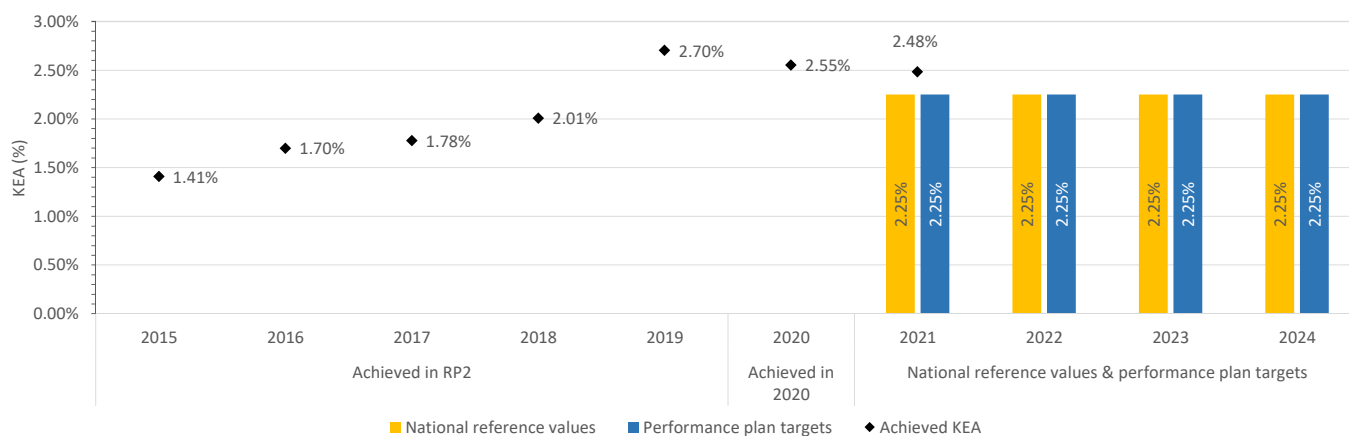
BULGARIA

Environment KPA

2.1 Summary of Key Data and Assessment Results

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

	2020	2021	2022	2023	2024
National reference values	1.95%	2.25%	2.25%	2.25%	2.25%
Performance plan targets	1.95%	2.25%	2.25%	2.25%	2.25%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions

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

- Bulgaria's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Bulgaria did not achieve the 2021 target of 2.25% in its performance plan. For this reason, Bulgaria has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Bulgaria's performance may be affected by the geo-political situation in Eastern Europe.
- Bulgaria should implement all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Bulgaria

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, Bulgaria has operated south-east free route airspace (SEE FRA) - the 24-hour cross-border FRA including Romania and Hungary. SEE FRA expanded on 28 January 2021 including Slovakia. Previously existing south-east Europe night free route airspace (SEEN FRA) within Bulgaria, Hungary, Romania and part of Slovakia airspace (Bratislava CTA) ceased to exist on the same date.	✓	Annex P	Page 37
Major ERNIP Recommended Measures:	6	Reference in PP	Reference in ERNIP
Measure included within performance plan?			
PBN transition plan	✗	n/a	Page 67, 160
SEE FRA Phase 3	✓	Annex P	Page 174
CB FRA operations (between Warsaw FIR and Bratislava FIR)	✗	n/a	Page 174
FRA based re-sectorisation Sofia ACC	✗	n/a	Page 214
Interface re-sectorisation	✗	n/a	Page 214
CB FRA operations (between SEE FRA, FRA Poland and FRA Ukraine)	✗	n/a	Page 218
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

Since November 2019, Bulgaria operates south-east free route airspace (SEE FRA) - the 24 hour FRA including Romania and Hungary. SEE FRA expanded on 28 January 2021 to include Slovakia.

The chart in section 2.1.1 shows that Bulgaria achieved a KEA of 2.55% in 2020. In 2021, Bulgaria reached KEA of 2.48% which means it did not achieve the 2021 target of 2.25% in its performance plan.

Bulgaria's RP2 performance shows a considerable worsening of KEA (2.70% in 2019 vs. 1.41% in 2015). Bulgaria provided a comprehensive explanation in Annex P of its performance plan regarding the challenges it is facing. Bulgaria stated that:

- KEA is heavily influenced by the geopolitical situation in Ukraine.
- An additional ban preventing Russian aircraft from using Ukrainian airspace further increased pressure.
- There are "data inconsistencies" used by Eurocontrol to calculate KEA, which cause fluctuations in KEA.

Bulgaria provided an analysis of the impact that the geopolitical situation had on KEA. It shows that Bulgaria's worsening performance in RP2 stemmed mostly from network inefficiencies rather than its own local performance. Additionally, changes in the underlying origin-destination data used by Eurocontrol to calculate KEA means that KEA fluctuated without any underlying change in performance. Ultimately, the new origin-destination data will improve the data integrity in the longer term as more Network Manager (NM) area airports report data to Eurocontrol.

Bulgaria is uniquely affected by external influences, which have reflected in its KEA performance. However, several major ERNIP projects were not mentioned in the performance plan as a mitigation of the current situation. For example, cross-border (CB) FRA operations, re-sectorisation of Sofia ACC and the performance based navigation (PBN) transition plan were not specifically mentioned or analysed for beneficial impacts on environmental performance. CB FRA operations, specifically between Poland and Ukraine, are of particular interest given the issues Bulgaria raised concerning network inefficiencies. Bulgaria is yet to confirm whether this project will start.

2.3.1 Annex IV 2.1(f): Incentive Scheme

Does Bulgaria plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

BULGARIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to national reference values. Target values are above the range of the delay forecast in 2022 and 2024 and equal to the scenario 1 delay forecast in 2023.

Bulgaria is expected to have sufficient capacity to meet traffic demand in RP3.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

n/a

3.1.3 Incentives

En route:

Bulgaria has chosen not to modulate pivot values, which are set equal to national reference values.

Maximum bonus is set at 0.2%, maximum penalty is set at 0.4%.

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: not applicable.

3.1.4 Investments

Investment "Building of Contingency and Data Center and Equipment" was also included in the RP2 performance plan, but did not receive any investments. Over RP2, Bulgaria's CAPEX execution reached 74% of the planned amount.

There is no capacity surplus/shortage in Bulgaria during RP3.

There are capacity enhancing investments planned for RP3 and previous investments with an unclear implementation status rolling over from RP2 investments but they result in 0% capacity surplus/shortage by the end of RP3, exposing Bulgaria to capacity shortfall risk during RP4.

Other investments contribute to resilience, scalability and flexibility.

3.1.5 PRB conclusions

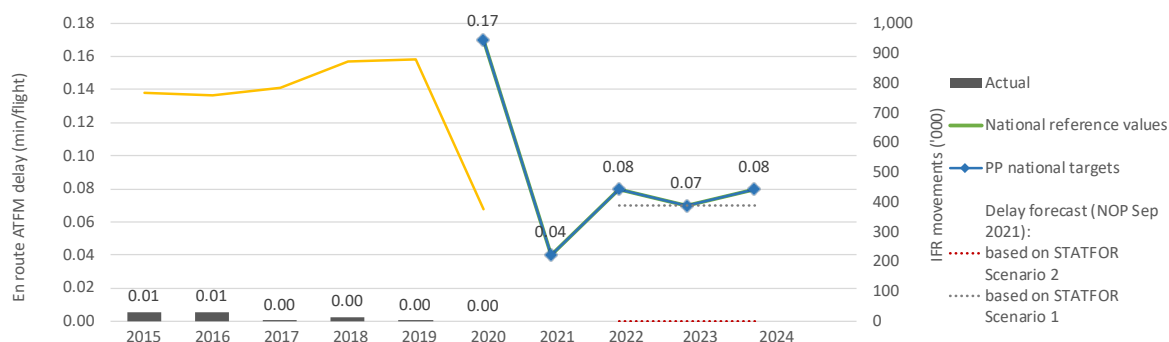


The PRB concludes that the capacity targets proposed by Bulgaria should be approved.

- The incentive scheme defined by the 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
Traffic variation	+12%	-1.2%	+3.4%	+11.2%	+0.9%	-57.2%				
Actual delay/flight	0.01	0.01	0.00	0.00	0.00	0.00				
National reference values						0.17	0.04	0.08	0.07	0.08
PP national targets						0.17	0.04	0.08	0.07	0.08
Based on STATFOR Scenario 1							-	0.07	0.07	0.07
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
Deviation target vs reference value	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Bulgaria experienced capacity constraints related mostly to ATM capacity and weather, which however had no major impact, as Bulgaria achieved capacity targets with significant margin.

The plan contains capacity enhancement measures that are in line with the NOP and supported by the ATCO plan:

- Maintain ACC ATCO numbers according to the demand and forecast traffic levels (2019 level is expected already in 2023),
- Use of implemented Traffic complexity analysing tool tCAT,
- Airspace redesign including FRA, re-sectorisation and dynamic sectorisation,
- Main and supporting investments to maintain the number of sectors to ensure capabilities to open large sector configurations - plan provides several 'Programmes', some of which include the investment projects,
- Application of extensive and intensive measures (mainly related to ATCO planning, use and flexible rostering).

Planned number of ATCO FTEs shows a minor growth of 1.3% compared to 2019, however, there is a more significant growth during 2020-2023, to account for the drop in 2020.

ATCO Planning (FTEs)

	2018A	2019A	2020A	2021P	2022P	2023P	2024P
Sofia ACC (LBSR)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	6	2	4
	ATCOs in OPS to stop working in the OPS room	0	0	0	1.5	0	2.5
	ATCOs in OPS to be operational at year-end	146	156	147	151.5	153.5	155
Total - BULATSA (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	6	2	4
	ATCOs in OPS to stop working in the OPS room	0	0	0	1.5	0	2.5
	ATCOs in OPS to be operational at year-end	146	156	147	151.5	153.5	155

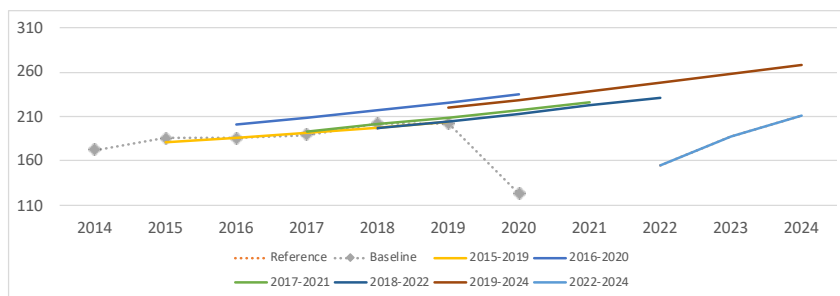
2024 (end) -
2020 (beg.)

+2

+2

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Sofia ACC (LBSR)



- Historical data shows an average annual growth of 3.3% in baseline values during RP2. Planned values were above baseline values in almost all years of RP2.

- Latest capacity plans show an average annual growth of 16.7%, resulting values significantly higher than in 2019. The planned values follow exactly the reference profile: Sofia ACC is not expected to face a capacity surplus or a gap.

- Capacity enhancement measures are in line with capacity profile plans.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									155	188	211
Baseline	172	186	186	189	202	202	123				
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
2022-2024									155	188	211
Latest vs Reference									0%	0%	0%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events 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 national capacity targets are set equal to national reference values. Target values are above the range of the delay forecast in 2022 and 2024 and equal to the scenario 1 delay forecast in 2023.
- Bulgaria is expected to have sufficient capacity to meet traffic demand in RP3.

3.3. Arrival ATFM delay per flight - not applicable

Bulgaria

3.4 Capacity Incentive schemes

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			0.08	0.07	0.08
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.08	0.07	0.08
Pivot values for RP3			0.08	0.07	0.08

Threshold and pivot value review

The annual pivot value is fixed at the national target, which is equal to the NOP reference value. There is a dead band of +/-0.05 minutes around the pivot value before any penalties / bonuses apply. Exceeding the dead band triggers the maximum penalty / bonus.

Modulation review

No modulation applicable.

Review of financial advantages/disadvantages

The maximum bonuses and penalties are relatively small compared to other Member States, only 0.4% of DC fixed as maximum penalty and 0.2% fixed as maximum bonus.

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:

- Bulgaria has chosen not to modulate pivot values, which are set equal to national reference values.
- Maximum bonus is set at 0.2%, maximum penalty is set at 0.4%.
- 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: not applicable.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	17.6	18.5	18.4	20.4	23.1	97.9
	En route	17.6	18.5	18.4	20.4	23.1	97.9
	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.

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 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	TRM
1	New PSRs and SSRs East part of Sofia FIR	New PSRs and SSRs East part of Sofia FIR	7.4	Yes	Yes	4.5	0.05
2	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.	8.4	No	No	0.9	0.02
3	Reconstruction and modernization of the Operations Room of Sofia Air Traffic Control (ATC) Centre and the adjacent infrastructure and facilities	In order to meet the increased future requirements for providing the required additional ATS capacity, efficiency and safety, it is necessary to improve the functional organization, air conditioning and communication infrastructure of the room, taking into account the human factor.	4.4	No	No	0.3	0.01
Total:						5.7	0.1

Airspace user feedback regarding major investments

The airspace users questioned the level of staffing needed as stated by Bulgaria, given that investments and the level of automation are expected to bring improvements in capacity. Bulgaria noted that in order to increase the throughput, an ANSP may resort to the increase of number of sectors (which requires more staff) or the increase of the throughput of existing sectors (which requires less staff but more investments). The approach used is a combination of the two methods.

Review of investments

Investment #2 was included in the RP2 performance plan, but did not receive investment during the period. New major investments represent 5.8% of the total determined costs over RP3. The actual CAPEX for PR2 was 74% of the planned for the same period and the amount underspent was 23.3M€. In terms of depreciation and cost of capital, the airspace users have financed 17.3M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Building of Contingency and Data Center and Equipment	Network, Local	Safety, Capacity	- Improved continuity of ATS services in SE axis in case of exceptional adverse situation; - Improved Safety and Capacity in case of exceptional adverse situation
2	Reconstruction and modernization of the Operations Room of Sofia Air Traffic Control (ATC) Centre and the adjacent infrastructure and facilities	Unknown	Capacity	- Providing the required additional capacity of the ATS units in connection with the implementation of the future project for modernisation of the AATMS and the expected increased number of sectors in the coming years; - Providing an opportunity for increased ANS efficiency; - Maintaining high efficiency and continuity of operations in the Operations room.

Additional information

Building of Contingency and Data Center and Equipment objectives:

- To reduce transition period from 48 to 6 hours,
- To increase the number of ACC sectors from 5 to 12,
- To provide the same capacity as from original location,
- To provide easy configurable facilities that may accommodate APP sectors and optional remote tower as well.

Scope:

- Contingency air traffic service centre (ACC and APP; to be optionally extended to remote tower),
- Data storage and processing centre,
- Delivery of equipment.

Reconstruction and modernisation of the Operations Room of Sofia Air Traffic Control (ATC) Centre and the adjacent infrastructure and facilities objectives:

- Improving the functional organisation, air conditioning and communication infrastructure of the Operations room in order to provide the necessary additional capacity of the room in connection with the implementation of the future project for modernisation of the AATMS,
- Modernisation of existing equipment in order to increase the quality and safety of the provided services,
- Improving the microclimate and the light and noise conditions in the Operations Room.
- Increasing the security and protection of the area that is critical for ANS.

Scope:

- Preparation of a project for functional reorganisation of the existing space,
- Procurement and installation of new operating consoles for ATCOs,
- Design and execution of CIW as well as provision of the necessary equipment to implement the envisaged changes and improvements.

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 RP3 (M€)
Other new investments	37.3	35.4	0.9	1.7	3.5	6.3	8.7	21.1
Existing investments			16.5	16.4	14.3	12.6	11.2	71.0

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	Reconstruction and Modernisation of the Technical room of the Sofia ATCC and the Adjacent Infrastructure and facilities	2.5	2.5	0.0	0.0	0.0	0.1	0.2	0.3	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
2	Modernization of Automated ATC System SATCAS V3DL - hardware upgrade	1.2	1.1	0.0	0.0	0.0	0.1	0.2	0.2	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
3	WAM extension to cover the gap between WAM West and WAM East system	0.5	0.5	0.0	0.0	0.0	0.0	0.1	0.1	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
4	Software upgrade of SATCAS - V3FR	1.8	1.8	0.1	0.1	0.5	0.8	0.8	2.4	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
5	tCAT project	0.8	0.8	0.1	0.4	0.4	0.3	0.3	1.5	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
6	tCAT project Phase 2	0.5	0.5	0.0	0.0	0.0	0.0	0.2	0.2	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
7	Deployment of ORACLE X-data (onsite)	0.9	0.9	0.0	0.0	0.1	0.1	0.4	0.6	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
8	Enterprise Resource Planning (ERP) system	1.6	1.5	0.1	0.6	0.7	0.7	0.6	2.7	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.
9	Aeronautical Information Management (AIM)	0.9	0.9	0.0	0.0	0.1	0.4	0.4	1.0	Project objectives, scope and expected benefits are summarised in Annex E, as an integral part of the performance plan.

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?



Sofia ACC is expected to be able to deliver capacity in accordance with the reference values with 0% over/under capacity during RP3.

New PSRs and SSRs East part of Sofia FIR investment contributes to en route capacity during RP3. The other major investments – Building of Contingency and Data Center and Equipment investment and Reconstruction and modernisation of the Operations Room of Sofia Air Traffic Control (ATC) Centre and the adjacent infrastructure and facilities investment – contribute mainly to resilience and scalability. No major investments are linked to PCP/CP1 ATM Functionalities.

Of the other (non-major) investments the Software upgrade of SATCAS - V3FR and the tCAT / tCAT project phase 2 investments are expected to contribute to capacity, while the other (non-major) investments contribute mainly to resilience, scalability and flexibility. Links with PCP/CP1 ATM Functionalities are not defined for the other (non-major) investments.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?



New PSRs and SSRs East part of Sofia FIR investment enhances radar coverage in the Eastern parts of the FIR and improves traffic management at the interface to New Istanbul Airport and in Varna and Bourgas TMAs. Software upgrade of SATCAS - V3FR investment is expected to increase the level of automation and reduce ATCO workload, the tCAT / tCAT project phase 2 introduces complexity management system support enabling better ATCO workload prediction and better decision making on network level.

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



The reference capacity profile for Bulgaria shows growth from 2022 to 2024, which can be delivered resulting in net zero capacity surplus/shortage. The PSRs and SSRs East part of Sofia FIR investment is expected to be deployed operationally in 2023 but it is likely not responsible for the capacity growth by itself. However, the other (non-major) investments' operational deployment dates are not known so their impact on the available capacity during, or beyond, RP3 is not known. RP2 performance plan for DANUBE FAB notes that an ATM system upgrade for Sofia ACC contributing to PCP ATM Functionalities AF1, AF3, AF4 and AF6 was planned for deployment in the beginning of 2022 and LSSIP Bulgaria 2020 notes that an upgrade to the ATM system was planned in 2021 with a replacement-system due in 2026. This upgrade may be the source of the capacity capability during 2022-2024 but the implementation status is unclear. Capacity capability beyond RP3 is therefore not clear.

3.5.4 PRB Key Points



- Investment "Building of Contingency and Data Center and Equipment" was also included in the RP2 performance plan, but did not receive any investments.
- The actual CAPEX for PR2 was 74% of the planned for the same period and the amount underspent was 23.3M€. The airspace users have financed 17.3M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- There is no capacity surplus/shortage in Bulgaria during RP3.
- There are capacity enhancing investments planned for RP3 and previous investments with an unclear implementation status rolling over from RP2 investments but they result in 0% capacity surplus/shortage by the end of RP3, exposing Bulgaria to capacity shortfall risk during RP4.
- Other investments contribute to resilience, scalability and flexibility.

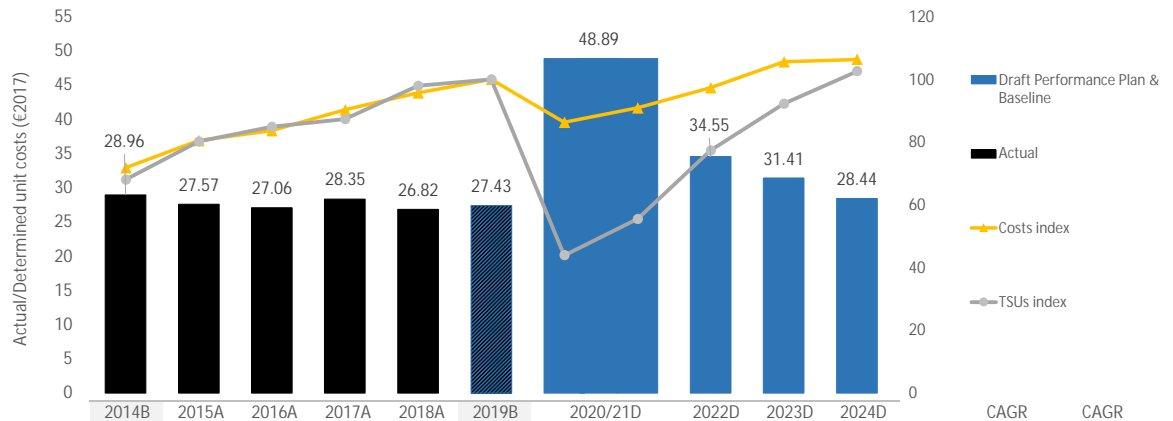
BULGARIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Bulgaria - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020/21D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MBGN (nom)	156	174	179	195	210	224	401	224	247	252	+3.0%	+1.3%
Total costs	MBGN (2017)	155	174	181	195	207	216	382	210	228	230	+1.6%	+0.7%
TSU	'000	2,736	3,223	3,413	3,513	3,938	4,021	3,998	3,109	3,709	4,127	+0.6%	+0.3%
DUC	BGN (2017)	56.62	53.90	52.91	55.44	52.45	53.64	95.60	67.56	61.42	55.62		
Exchange rate	BGN:€				1.955								
DUC	€ (2017)	28.96	27.57	27.06	28.35	26.82	27.43	48.89	34.55	31.41	28.44	+0.9%	-0.2%
Annual change	%		-4.8%	-1.8%	+4.8%	-5.4%	+2.3%	+78%	-29.3%	-9.1%	-9.4%		

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	27.43 €2017	✓
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No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	+0.9%	✓
The DUC is planned to increase on average by +0.9% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-0.2%	✗
The DUC is planned to decrease on average by -0.2% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (40.67 €2017)?	-32.5%	✓
The 2019 DUC level is -32.5% lower 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

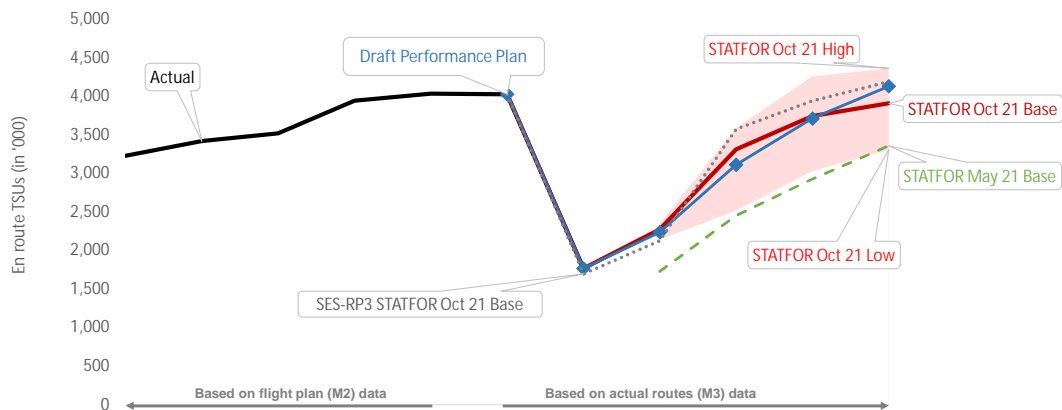
The PRB concludes that the cost-efficiency targets proposed by Bulgaria should be approved.

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

4.2 Review traffic forecasts and baseline

Bulgaria - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	3,223	3,413	3,513	3,938	4,032	4,021	1,766					
	Annual change %		+5.9%	+2.9%	+12.1%	+2.4%	+2.1%	-56.1%					
STATFOR Oct 21 Base	'000 TSUs								2,271	3,307	3,739	3,903	-2.9%
	Annual change %								+28.6%	+45.6%	+13.1%	+4.4%	
STATFOR May 21 Base	'000 TSUs								1,727	2,451	2,924	3,355	-16.6%
	Annual change %								-2.2%	+41.9%	+19.3%	+14.7%	
Performance Plan	'000 TSUs						4,021	1,766	2,232	3,109	3,709	4,127	+2.6%
	Annual change %						+2.1%	-56.1%	+26.4%	+39.3%	+19.3%	+11.3%	

4.2.2 Traffic baseline review

Year	'000 TSUs	CRCO 12-month coefficient
2019 (PP baseline, M3)	4,021	
2019A (as in the Reporting tables, M2)	4,032	
2019B/ 2019A	-0.26%	-0.26%
2014 (PP baseline)	2,736	
2014A (as in the Reporting tables, M2)	2,744	
2014B/ 2014A	-0.26%	-0.26%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.26%).

Review of 2014 and 2019 traffic baseline
 The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.26%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
 - Bulgaria did not update its local traffic forecast in the November submission of the performance plan. The information in the performance plan and its supporting material explaining and justifying the use of a local TSU forecast refers to the deviation from STATFOR May 2021 base forecast and are not updated to reflect variation vis-a-vis the STATFOR October 2021 forecast.
 - According to the information provided in the performance plan (see annex D for details), Bulgaria prefers using in-house planning expertise since it allows to consider detailed local circumstances and factors, which are not necessarily available to STATFOR. In particular, Bulgaria considers that traffic recovery over 2021-2022 will be slower than that in the surrounding ACCs, primarily driven by reroutings from Iran, Iraq, Afghanistan and Simferopol FIR, which resulted in traffic outflows from Sofia FIR. At the same time, the traffic to/from Turkey and Greece is expected to grow in summer 2022.

Review of the PP traffic forecast
 - The forecast selected in the performance plan falls slightly below STATFOR October 2021 base scenario (at the beginning of the period) and between base and high scenario for 2024. In this regard, this distribution (i.e. lower starting point, higher end) positively affects the calculated DUC vis-a-vis the Union-wide target trend.
 - During RP2, actual service units were significantly above the STATFOR base forecasts and above the determined service units 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.

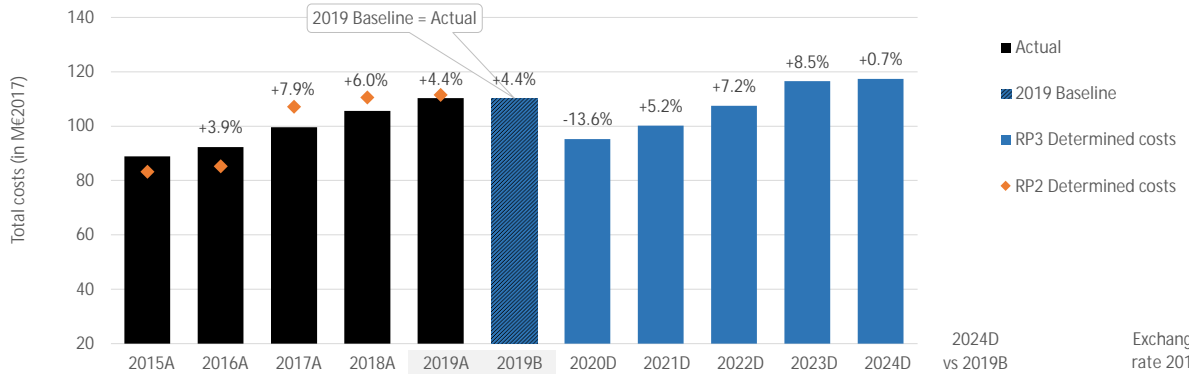
4.2.4 PRB Key Points

- Bulgaria applies a local traffic forecast for en route service units.

4.3 Review of determined costs and baseline

Bulgaria - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	174	179	195	210	224	224	194	206	224	247	252	+12.6%
Annual change	%	+2.9%	+8.8%	+8.1%	+6.3%	+6.3%	-13.1%	+6.0%	+8.9%	+10.1%	+2.0%	+8.4%
Inflation index	2017 = 100	100.1	98.8	100.0	102.6	105.2	105.2	106.4	107.5	109.6	111.8	114.0
Total costs	MBGN (2017)	174	181	195	207	216	216	186	196	210	228	230
Annual change	%		+3.9%	+7.9%	+6.0%	+4.4%	+4.4%	-13.6%	+5.2%	+7.2%	+8.5%	+0.7%
Total costs	M€ (2017)	89	92	100	106	110	110	95	100	107	117	117
												+6.4%

Exchange rate 2017	BGN:€
	1.95543

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? **No**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments applied to the 2014 and 2019 cost baselines.

2014/2019 baseline analysis

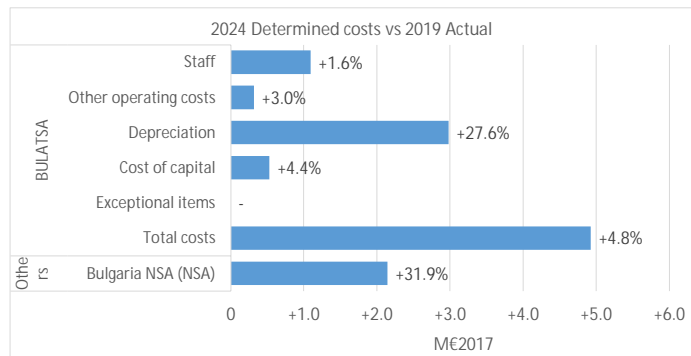
The 2014 and 2019 cost baselines are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



The total costs of Bulgaria are planned to increase by +6.4%, or 7.1M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is BULATSA (+4.8%, or +4.9M€2017), while the costs for NSA are also planned to increase (+31.9%, or 2.1M€2017).

For BULATSA the planned increase in costs is driven by growth across all cost categories.

- Major increases are in depreciation costs (+27.6%, or +3.0M€2017) and, to a lesser extent, staff costs (+1.6%, or +1.1M€2017). Planned increases in depreciation costs are closely linked to the investment programme (see section 3.5 of this document for more details). The growth in staff costs, according to Annex A to the performance plan, is explained by a slight planned increase in operational staff numbers and planned growth in average salaries and social security costs.

The growth in costs for NSA is driven by a requirement for additional resources linked to the increased supervision tasks.

En route service units are forecast to reach 2019 levels in 2024, which, as described in section 4.2 of this document, reflects the use of the local traffic forecast. At the same time, en route costs are planned to reach 2019 actual level in 2023.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for BULATSA are planned to increase by +4.8% (or +4.9M€2017).
- All cost categories and entities are planned to increase.

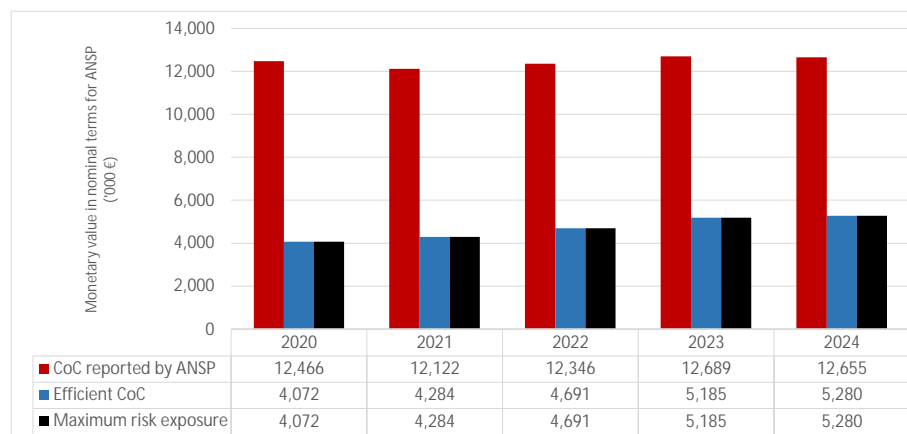
4.3.A Cost of capital

BULATSA - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	92,536	97,364	106,605	117,836	120,006
Monetary value of Return on Equity	12,466	12,122	12,346	12,689	12,655
Ratio RoE/DC (%)	13.5%	12.5%	11.6%	10.8%	10.5%

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



Total 2020-2024	38,766
-----------------	--------

Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	8,394	7,838	7,655	7,504	7,375

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	7.0%	n/a	7.0%	n/a	7.0%	n/a	7.0%	n/a	7.0%	n/a
Interest on debts	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a
Capital structure (% debt)	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a
WACC	7.0%	2.3%	7.0%	2.5%	7.0%	2.7%	7.0%	2.9%	7.0%	2.9%

Is the interest on debts in line with the market?	n/a
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- BULATSA is fully financed through equity, thus no interest on debts is specified.
- The WACC reported in the performance plan has been calculated based on the CAPM.
- The efficient cost of capital is computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 38.8M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 10.5% and 13.5%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	100,281	107,109	110,304	121,182	132,631
Net current assets	77,804	66,062	66,062	60,092	48,152
Adjustments total assets	0	0	0	0	0
Total asset base	178,085	173,171	176,367	181,274	180,783

- The fixed asset base is planned to increase over RP3. This is in line with the increase in investments as detailed in section 3.5 of this document.
- Although the net current assets will decrease over RP3, they seem excessive compared to the expected cash flows.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to slightly increase over RP3, driven by the increase in the fixed asset base.

4.3.A.5 PRB Key Points

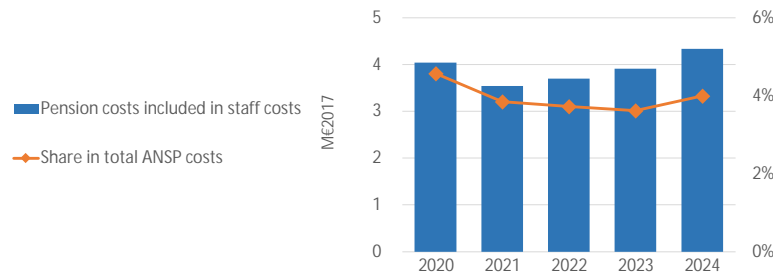


- Over RP3, the reported cost of capital is 38.8M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 10.5% and 13.5%).
- Although the net current assets will decrease over RP3, they seem excessive compared to the expected cash flows.

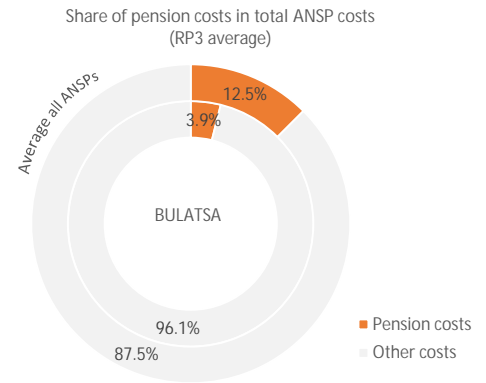
4.3.B Pensions

BULATSA - En route

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	4.0	3.5	3.7	3.9	4.3
Year on year variation	% change		-12.3%	+4.4%	+5.7%	+10.8%
Share in total ANSP costs	%	4.6%	3.8%	3.7%	3.6%	4.0%
Year on year variation	p.p.		-0.7p.p.	-0.1p.p.	-0.1p.p.	0.4p.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 Union-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). An increase in the employer contribution rate of 1% is planned for both staff categories from 2023 to 2024.

Furthermore, the calculation of social security contributions in Bulgaria are based on a 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. According to the information provided by Bulgaria, it is also understood that the level of maximum social security income is expected to increase during 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? **No info provided**

It is understood from the information provided in the 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. It is further understood that an annual report is prepared by a licensed external actuary to estimate the liability arising from this defined benefit pension scheme.

However, no detailed assumptions on the pension costs stemming from the defined benefits scheme are provided in the performance plan. The costs relating to this pension scheme account, on average, for some 35% of pension costs reported by BULATSA over RP3. However, due to the nature of this scheme (lump-payment on retirement), planned costs vary considerably on an annual basis.

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

According to the information in the performance plan: "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 extend. However, it cannot be expected that ANSP staffing should accommodate all unfavourable developments against the ANSP determined costs."

No information has been provided by BULATSA on the actions taken to manage the cost-risk associated with the defined benefit pension scheme.

4.3.B.4 PRB Key Points

- The share of pension costs in total ANSP costs for BULATSA is considerably below the Union-wide average for RP3.
- Contribution rates for the State pension scheme are planned to increase slightly as of 2023. The level of maximum social security income, which is used as a basis to calculate these contributions, is also likely to increase during RP3.
- No detailed assumptions are provided for the occupational defined benefit pension scheme, which accounts for some 35% of total pension costs for BULATSA over RP3. BULATSA also did not provide any details on actions taken to manage the cost-risk associated with this pension scheme.

4.3.C Methodology for cost allocation between ER and TRM

Bulgaria

4.3.C.1 Cost allocation overview

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

- Bulgaria did not mention changing 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. Total costs are determined for each ANS 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.
- Criteria used to allocate costs between en route and terminal are: TCO 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 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

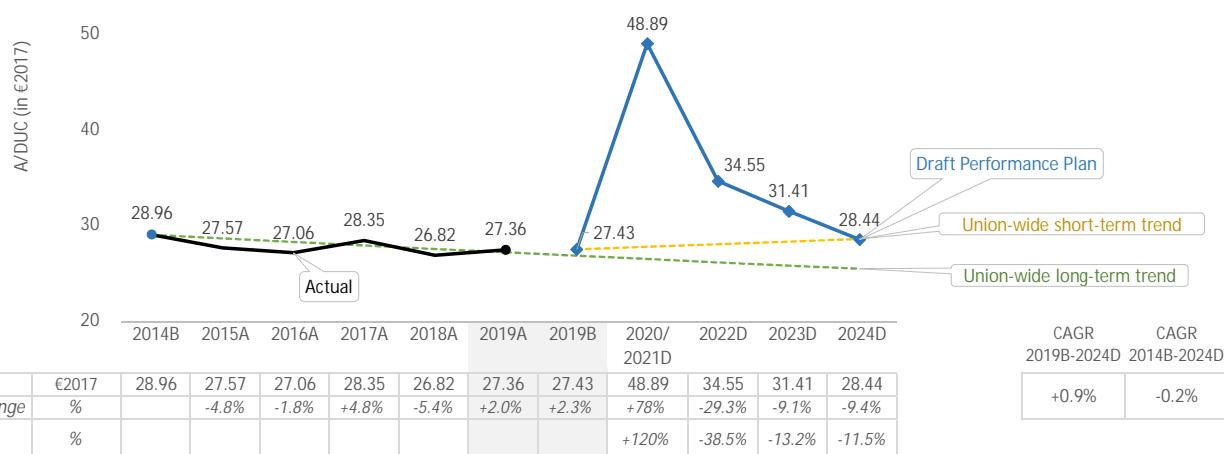


- Bulgaria did not mention changing the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

Bulgaria - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

✓ DUC consistency with the Union-wide RP3 DUC trend	Trend (CAGR 2019B-2024)	Performance Plan +0.9%	Union-wide +1.0%	Difference -0.1p.p.
✗ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	-0.2%	-1.3%	+1.1p.p.
✓ DUC level consistency	2019 baseline	Performance Plan 27.43	Average comparator group 40.67	Difference -32.5%

- The DUC is planned to increase on average by +0.9% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -0.2% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -32.5% lower than the average of the comparator 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

✓

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

4.5 Terminal (not applicable)

Bulgaria has not established any terminal charging zone for RP3.

PRB Assessment

CROATIA

Draft Performance Plan

Context and scope

Croatia

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
 Updated: 23/12/2021
 Documents no: F4962, F4963, F4504, F4964, F4505, F4506, F4507, F4508, F4965

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 1.5%
 % Serv. Units vs SES 1.7%
 % Costs vs SES 1.2%

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)

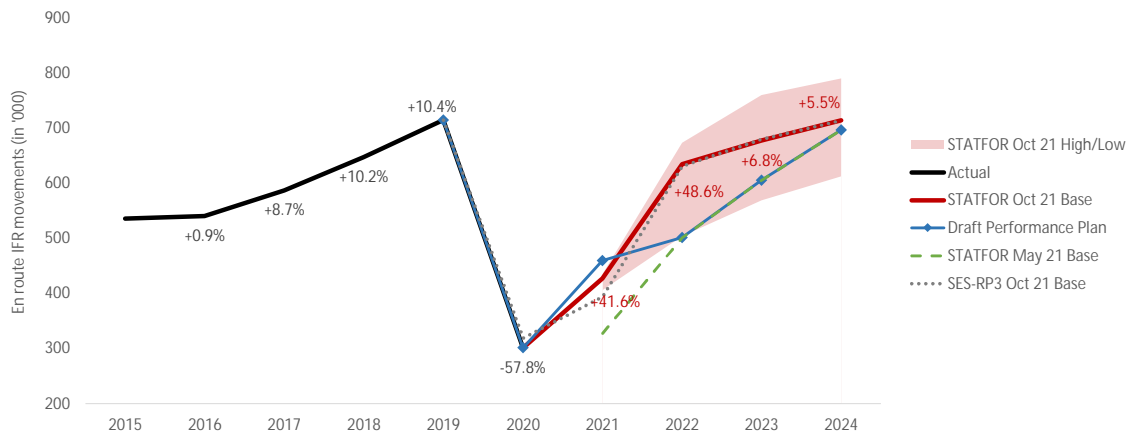
NM, CRCO
 National Supervisory Authority
 SAR activities

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Croatia	n/a	No	No	No	
Terminal (TRM)	n/a	0	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP 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	C	C	C	D
	Safety assurance	B	C	C	C	C
	Safety promotion	B	C	C	C	C
	Safety culture	B	C	C	C	C

PRB assessment

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 measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.49%	1.46%	1.46%	1.46%	1.46%

PRB assessment

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

- Croatia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.43	0.09	0.16	0.17	0.17
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 be approved.

- Croatia is expected to have sufficient capacity to meet traffic demand in RP3, if capacity enhancement measures are successfully implemented.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	69.46	53.35	46.29	40.87	+0.3%	-2.3%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	-

PRB assessment

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

- Croatia is consistent with the RP3 DUC trend in terms of average reduction.
- Croatia is consistent with the long-term Union-wide DUC trend.
- Croatia is not consistent with the average DUC baseline of the comparator group.
- Croatia presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

5. PRB recommendations

SAFETY

- Croatia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

CROATIA

Safety KPA

1.1 Summary of safety key data and assessment results

Croatia

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 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 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 it ensures the monitoring of safety performance. No specific measures are described in order to demonstrate how the ANSP will reach the safety targets in the area of safety policy and objectives. Some NSA derived measures should be provided.

1.1.3 Interdependencies and Trade-offs

The performance plan describes changes to the safety related ATM functional systems (e.g. implementation of system modernisation and airspace re-sectorisation). The revised performance plan underlines that safety will always have the highest priority, hence other targets will need to take into account any negative safety implications. This implies the ANSP is trading-off capacity to ensure safety.

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 measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Croatia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Croatia

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
Croatia Control	Safety policy and objectives	B	B	B	B	B	C	✓	
	Safety risk management	C	B	C	C	C	D	✓	
	Safety assurance	C	B	C	C	C	C	✓	
	Safety promotion	C	B	C	C	C	C	✓	
	Safety culture	C	B	C	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. Croatia Control started RP3 with maturity levels that are lower than the RP3 targets, however the levels of three management objectives have been improved over 2020. Croatia Control has to improve in safety policy and objectives and safety risk management areas.

The performance plan underlines that the ANSP has efficient safety management system that is able to identify and mitigate the safety risk in early phase. The application of the severity classification of the Risk Analysis Tool (RAT), reporting of Just Culture and some specific safety tools (e.g. ETOKAI, ASMT, CMMS, etc.) within the ANSP enables to closely monitor safety performances.

No measures related to improvement of safety policy and objectives were provided despite that the area has to be enhanced to level C. Moreover, specific NSA measures should be provided.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan indicates that Croatia Control has employed a reliable and robust change management process, accepted by the NSA, for the management of changes to the ATM functional system (airspace classification and ATM system modernisation). The process includes the risk management taking into account mitigation measures and their implementation, monitoring and management. The plan claims that safety considerations take priority over commercial, operational, social and any other aspects of business.

Moreover, the NSA with means of regular oversight regularly supervises and reviews the ANSP's financial and personnel resources in accordance with relevant regulatory requirements (Commission Implementing Regulation (EU) 2017/373).

1.3.2 Change Management Practices

The performance plan indicates two main implementations during RP3: airspace change and sectorisation and the implementation of COOPANS Digital ATM platform. Both implementations are accompanied by specific change management processes developed by Croatia Control. The airspace change and re-sectorisation will be conducted in cooperation with the Network Manager, which should assure the optimal capacity gains minimising negative impact on the network performance.

CROATIA

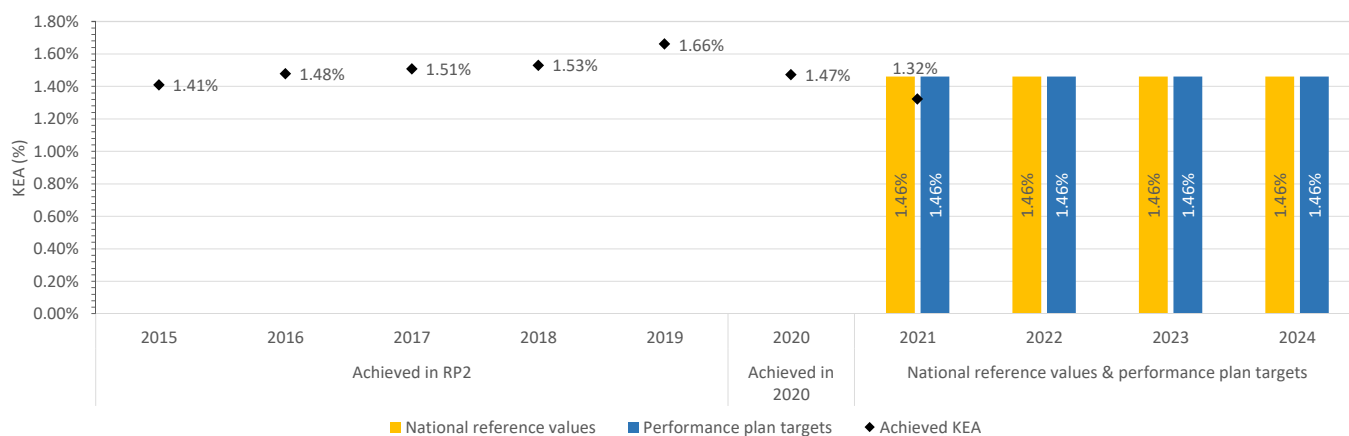
Environment KPA

2.1 Summary of 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
National reference values	1.49%	1.46%	1.46%	1.46%	1.46%
Performance plan targets	1.49%	1.46%	1.46%	1.46%	1.46%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions

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

- Croatia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

2.2 Measures of Achievement

Croatia

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LLSIP
Croatia implemented free route airspace within the Zagreb flight information region (FIR) from FL 205 in 2018.			3.2.1(b)	Page 55
Major ERNIP Recommended Measures:		3	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(c)	Page 76
PBN transition plan		✓	3.2.1(c)	Page 148
SECSI FRA - FRALB H24 cross-border FRA		✓	3.2.1(c)	Page 148
SECSI FRA - M-FRA H24 cross-border FRA		✓		
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Croatia achieved a KEA of 1.47% in 2020. In 2021, Croatia reached a KEA of 1.32% which means it achieved the 2021 target of 1.46% in its performance plan.

In 2015, Croatia implemented south-east axis free route airspace (SEAFRA). In 2018, SEAFRA was merged with the Slovenian and Austrian cross-border FRA (SAXFRA) to create south east common sky initiative FRA (SECSI FRA), providing airspace users with significant cross-border FRA. Although Croatia's own FRA is applicable above FL205, significant airspace delegated to Brindisi ACC (Italy) is operated with a route network, and at the time of writing, mandatory waypoints existed between Croatia and Bosnia & Herzegovina.

Croatia introduced several initiatives, such as the performance based navigation (PBN) concept over selected terminal control areas (TMAs) in 2019 and airspace reorganisation in 2020. In December 2021, Croatia plans to extend SECSI FRA to include the Republic of North Macedonia and Bosnia & Herzegovina.

There is significant airspace that is allocated for flexible use in Croatian airspace, mostly below FL220, which is managed through the AUP. NATO also uses Croatian airspace along the western border. According to its aeronautical information publications (AIP), Croatia expects that the average flight extension due to reserved airspace is no greater than 15 nautical miles.

2.2.2 Annex IV 2.1 (f): Incentive Scheme

Does plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

CROATIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national targets are set equal to the national reference values and are equal to the scenario 1 delay forecast during 2022-2024. Croatia is expected to have sufficient capacity to meet traffic demand in RP3, if capacity enhancement measures are successfully implemented.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

3.1.3 Incentives

En route:

Croatia has chosen not to modulate pivot values, which are set equal to national reference values. Maximum bonus is set 0.9% and maximum penalty is set at 1.1%.

Terminal: not applicable.

3.1.4 Investments

There is no capacity surplus/shortage in Croatia during RP3.

There are capacity enhancing investments planned for RP3 related to PCP/CP1 ATM Functionalities AF3 and AF5 but they result in 0% capacity surplus/shortage by the end of RP3.

Other investments contribute to resilience and scalability.

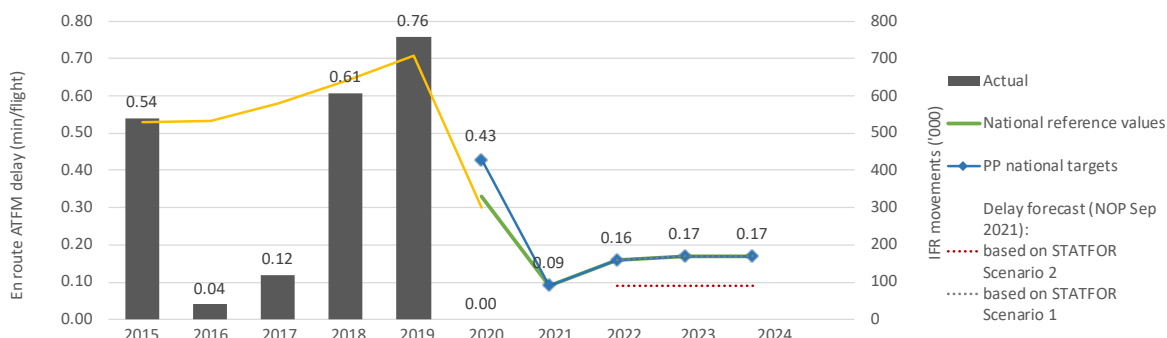
3.1.5 PRB conclusions

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

- Croatia is expected to have sufficient capacity to meet traffic demand in RP3, if capacity enhancement measures are successfully implemented

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+2%	+0.6%	+8.9%	+10.2%	+10.6%	-57.6%				
Actual delay/flight	0.54	0.04	0.12	0.61	0.76	0.00				
National reference values						0.33	0.09	0.16	0.17	0.17
PP national targets						0.43	0.09	0.16	0.17	0.17
Based on STATFOR Scenario 1							-	0.16	0.17	0.17
Based on STATFOR Scenario 2							-	0.09	0.09	0.09

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, Croatia experienced capacity constraints related mainly to ATM capacity and weather. Croatia missed the capacity targets in 2015, 2018 and 2019.

The performance plan provides description of the planned capacity enhancement measures that are in line with the latest NOP and NM measures introduced therein. The measures describe expected benefit although it is difficult to assess the impact due to low level of details provided on those measures with exception of relevant investment projects:

- Continuous upgrade of the ATM system (under COOPANS Alliance) - investment project,
- A new airspace sectorisation,
- ATCO recruitment and training changes,
- Operational/rostering improvements,
- New ATFCM measures.

Planned number of ATCO FTEs show an increase of 13% compared to 2019 (14 FTEs), the increase is expected mostly during 2022-2024.

ATCO Planning (FTEs)

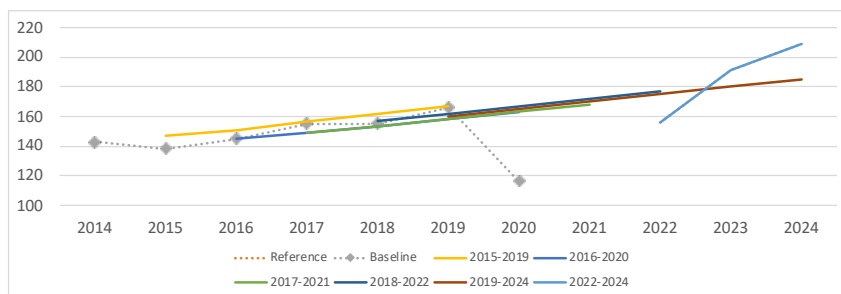
		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Zagreb ACC (LDZO)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	2	9	9	10
	ATCOs in OPS to stop working in the OPS room	0	0	0	2	1	1	4
	ATCOs in OPS to be operational at year-end	107	107	92	92	107	115	121
Total - Croatia Control (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	2	9	9	10
	ATCOs in OPS to stop working in the OPS room	0	0	0	2	1	1	4
	ATCOs in OPS to be operational at year-end	107	107	92	92	107	115	121

2024 (end) - 2020 (beg.)	+14
	+14

3.2.3 Review of previous and existing capacity profile plans per ACC



Zagreb ACC (LDZO)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									156	191	209
Baseline	143	138	145	155	155	166	116				
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
2022-2024									156	191	209
Latest vs Reference									0%	0%	0%

- Historical data shows an average annual growth of 3% over RP2, most which happened in from 2018 to 2019. Planned values were oscillating around the baseline values in RP2.

- Latest planned capacity profile shows an average annual growth of 15.7%, resulting values which are almost 26% higher than in 2019. Planned values exactly follow the reference profile: Zagreb ACC is not expected to face a capacity surplus or gap in RP3.

- Capacity enhancement measures seem to be in line with the latest planned capacity profiles.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events

n/a

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



- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap?
No capacity gap is foreseen. Performance plan contains no additional measures compared to the NOP. n/a
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan?
The performance plan contains capacity enhancement measures from the latest version of the NOP. ✓
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described?
n/a n/a
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap?
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 contains plans to increase ATCO FTEs in order to address capacity gap, in line with the related capacity enhancement measures. ✓
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity?
The flexible rostering is enlisted in the capacity measures, however only a high-level description is provided. ✓
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome?
Continuous upgrades of the ATM system are addressed by the performance plan although only high-level description is provided. ✓

3.2.6 PRB Key Points



- The proposed national targets are set equal to the national reference values and are equal to the scenario 1 delay forecast during 2022-2024.
- Croatia is expected to have sufficient capacity to meet traffic demand in RP3, if capacity enhancement measures are successfully implemented.

3.3. Arrival ATFM delay per flight - not applicable

Croatia

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±10.0%	0.900%	1.100%
	✓	✓

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			0.16	0.17	0.17
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.16	0.17	0.17
Pivot values for RP3			0.16	0.17	0.17

Threshold and pivot value review

The threshold is fixed at +/-10% of the pivot value for each year of the reference period, before penalties / bonuses apply. The pivot values are fixed at the annual reference values from the NOP. Full penalties / bonuses apply at +/-0.05 minutes around the pivot value.

Modulation review

No modulation is applied.

Review of financial advantages/disadvantages

The maximum penalty is fixed at 1.1% of DC compared with a maximum bonus of 0.9%.

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:

- Croatia has chosen not to modulate pivot values, which are set equal to national reference values.
- Maximum bonus is set 0.9% and maximum penalty is set at 1.1%.

Terminal: not applicable.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	16.2	12.7	10.9	12.1	13.8	65.6	
	En route	M€ (nominal)	16.2	12.7	10.9	12.1	13.8	65.6
	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 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	TRM
1	COOPANS - sustainment and transition to digital ATM platform	<p>The COOPANS alliance has been a successful collaboration of ANSPs for the definition of common operational requirements towards harmonized ATM system software builds.</p> <p>This project is part of the joint investment of the COOPANS partners towards:</p> <p>a) The existing (legacy) ATM system, primarily for compliance with regulatory requirements (e.g. SWIM), ensuring continuity of service, and enhancing service provision through introduction of updated tools.</p> <p>b) Development of the next generation digital ATM platform, horizontally integrated with an open IT architecture meeting the needs of all ATSPs with a single HMI interface, enabling use cases towards the vision of the Airspace Architecture Study and EU ATM Masterplan.</p> <p>More details can be found in section 2.1 of the performance plan.</p>	32.1	Yes	Yes	5.8	0.0
2	Zadar training, extended APP and TWR centre	<p>As proposed in the initial draft RP3 plan, the programme delivers a centre at Zadar which seeks to meet multiple challenges in as cost-effective manner as possible. It contains operational working positions, training facilities (including simulators) and a Remote Tower capability.</p> <p>The existing facilities in Zadar are at their end-of-life for the provision of ATC services due to their obsolescence.</p> <p>CCL has decided to gradually implement Remote TWR technology, where the efficient provision of TWR services by implementation of new virtual technologies in line with harmonized EU development strategies would result in the service optimization. Additionally, because of the state and serviceability of the existing TWR infrastructure, Zadar is the ideal candidate for the first phase of implementation of RTWR technology, especially having in mind that there is no space for the installation of RTWR and simulators in any of the existing CCL's facilities.</p> <p>The introduction of new RTWR technology in Zadar will therefore serve as a basis for possible RTWR technology extension to other airports, with the possibility of introducing the options of Multiple Remote TWR centre.</p> <p>More details can be found in section 2.1 of the performance plan.</p>	22.9	No	Yes	0.2	0.0
Total:						6.0	0.0

Airspace user feedback regarding major investments

The airspace users addressed remarks regarding the cost allocation of the Zadar centre and regarding the lifecycle of the COOPANS investment. Croatia clarified that the Zadar centre also receives investments in terminal, however Croatia did not establish a terminal charging zone for RP3, therefore these costs are not included in the performance plan. Regarding the lifecycle of COOPANS, it was noted that COOPANS investments are consecutive and not in bulk.

Review of investments

New major investments represent 9.1% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 1% higher than planned for the same period and the amount overspent was 0.5M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total actual costs related to investments were 11.9M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Zadar training, extended APP and TWR centre	Network, Local	Safety, Capacity, Cost-efficiency	<p>The Zadar centre therefore aims to deliver:</p> <ul style="list-style-type: none"> - A solution to existing severe obsolescence at Zadar. - Required training / simulator facilities, necessary for planned ATCO training to meet the capacity challenges that were seen in 2019, and for CCL to train its own ATCOs efficiently and flexibly. - Improved APP/ACC airspace design, bringing increased capacity in ACC (by moving traffic to APP), and enabling a more efficient centralized approach in future. - A centralized Approach Control Service (APS), bringing increased productivity, effectiveness, and flexibility. - A potential contingency centre for Zagreb ACC, delivering continuity of service. - An initial Remote TWR service, with the potential to develop a Remote TWR centre and bring significant efficiency for terminal services in Croatia.

Additional information

The introduction of Remote Tower technology is one of the basics of virtualisation foreseen in ATM Master Plan, as well as one of preconditions for the realisation of Digital European sky. It has a significant role in "SESAR Vision" section of ATM Master Plan, especially in sections 2.1.3. "Improved airport performance and access" and in 2.1.6 "Optimal use of air navigation services infrastructure and use of scarce resources", while in section "Operational View" its significance is stressed in 4.2.5 Virtualisation of service provision (by new COOPANS system and possible implementation of service continuity (contingency) sites for the provision of ACC service and for possible extension of airspace capacity).

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 RP3 (M€)
Other new investments	79.9	45.3	0.5	1.2	2.0	4.3	6.3	14.2
Existing investments			15.3	10.9	7.9	6.2	5.1	45.5

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	VOICE COM GG	3.9	2.2	0.1	0.0	0.1	0.3	0.3	0.7	Two new radio facilities developed, and a series of VHF/UHF radio station upgrades. Full implementation of 8.33 kHz channel spacing Radio equipage replacement. Investment revised in less 9.7Mkn. Main driver: Sustainment and replacement.
2	NAV-DME	3.6	1.2	0.1	0.0	0.0	0.1	0.2	0.3	Replacement of end-of-life NAV sensors (VOR/DME), provision of DME/DME fall back infrastructure for PBN. Investment revised in less 3.3Mkn. Main driver: Regulatory compliance.
3	SUR-WAM	3.9	3.9	0.1	0.0	0.0	0.2	0.5	0.8	Rollout of nationwide WAM providing continuity of service and extended coverage. Investment revised in more 3Mkn. Main driver: Regulatory compliance.
4	NET-MAGnet	3.9	3.6	0.1	0.3	0.4	0.5	0.6	1.9	Upgrade of Network Infrastructure for the purposes of G/G and A/G VoIP, radar over IP and emergency system. Investment revised in more 4Mkn. Main driver: Regulatory compliance.
5	Buildings reconstruction	3.0	1.2	0.1	0.0	0.1	0.1	0.1	0.3	Continuation of existing work programme on facilities, electrics, lighting, climate control and security. Main driver: Sustainment and replacement.
6	ICT modernization	3.1	1.6	0.1	0.0	0.0	0.1	0.3	0.5	Business ICT sustainment and upgrades, including videoconferencing, ERP and a new access control system. Investment revised in less 8.3Mkn. Main driver: Sustainment and replacement and capacity enabling.
7	Other	58.6	31.7	0.1	0.7	1.4	3.0	4.4	9.5	Remaining investments in line with business continuity and regulatory compliance, further details in Annex E.

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls? 

Zagreb ACC is expected to be able to deliver capacity in accordance with the reference values with 0% over/under capacity during RP3.

There is one major investments planned for RP3 in Croatia contributing to enroute capacity, the COOPANS - sustainment and transition to digital ATM platform investment which is linked to PCP/CP1 ATM Functionalities AF3 and AF5. Additional major investment contributes to TMA capacity in the Zadar area, the Zadar training, extended APP and TWR centre. This investment is not linked to any PCP/CP1 ATM Functionalities. These investments contribute to resilience, scalability and flexibility.

The other (non-major) investments in communication, navigation, surveillance, and infrastructure domains contribute mainly to resilience and scalability.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 

The COOPANS - sustainment and transition to digital ATM platform investment will introduce support for SWIM, NM driven capabilities and additional tools (TCT, TBS, blind spot detection, etc.) contributing to capacity in the enroute environment. The Zadar training, extended APP and TWR centre will enable improved APP/ACC airspace design and centralised Approach Control Service (APS) bringing capacity benefits in the TMA environment end at the APP/ACC interfaces.

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

The COOPANS - sustainment and transition to digital ATM platform investment is a multi-phased investment with operational deployment dates spread out over 2020-2026, i.e. extending beyond RP3. The individual capacity enhancing implementation dates cannot be identified and whether the investment generates capacity benefits/surplus beyond RP3 is unknown. According to LSSIP Croatia 2020 there is a plan to replace the existing system with a new system (CO-FLIGHT or similar) in 2023 but the performance plan is unclear concerning this transition from COOPANS to CO-FLIGHT – if it is still planned.

3.5.4 PRB Key Points 

- The actual CAPEX for RP2 was 1% higher than planned for the same period and the amount overspent was 0.5M€. Despite overspending on investments, the total actual costs related to investments were 11.9M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.
- There is no capacity surplus/shortage in Croatia during RP3.
- There are capacity enhancing investments planned for RP3 related to PCP/CP1 ATM Functionalities AF3 and AF5 but they result in 0% capacity surplus/shortage by the end of RP3.
- Other investments contribute to resilience and scalability.

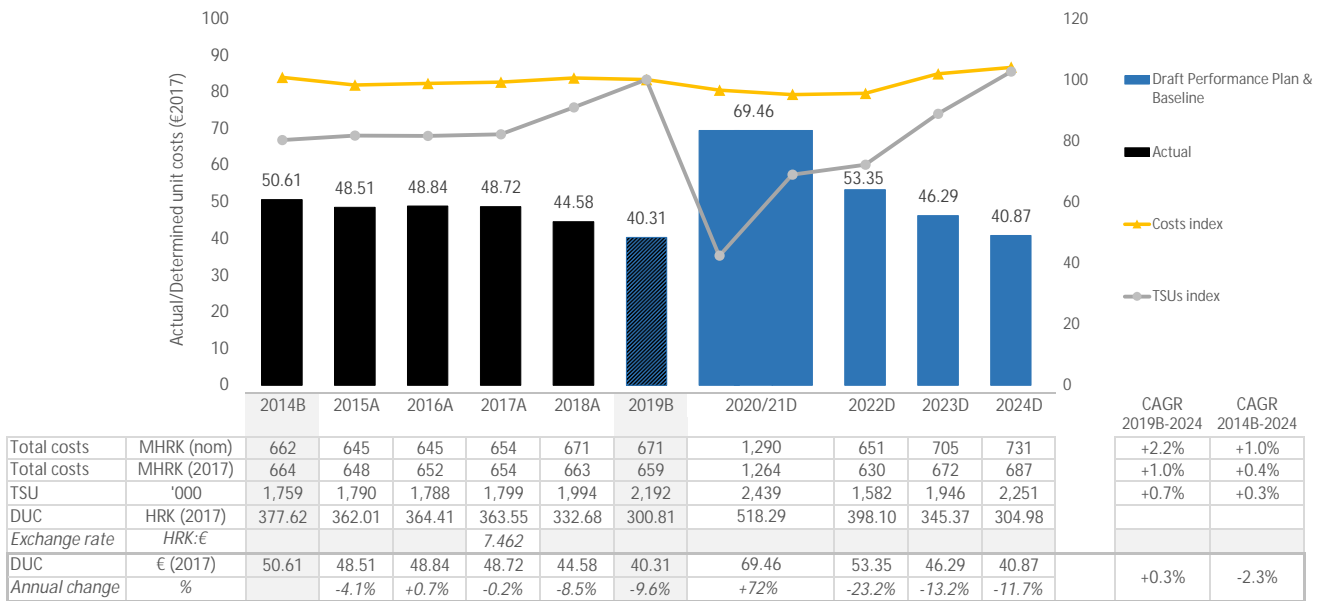
CROATIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Croatia - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 40.31 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? +0.3% ✓
The DUC is planned to increase on average by +0.3% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -2.3% ✓
The DUC is planned to decrease on average by -2.3% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- c) DUC level (2019 baseline) lower than the average of comparator group (C) average (39.06 €2017)? +3.2% ✗
The 2019 DUC level is +3.2% 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

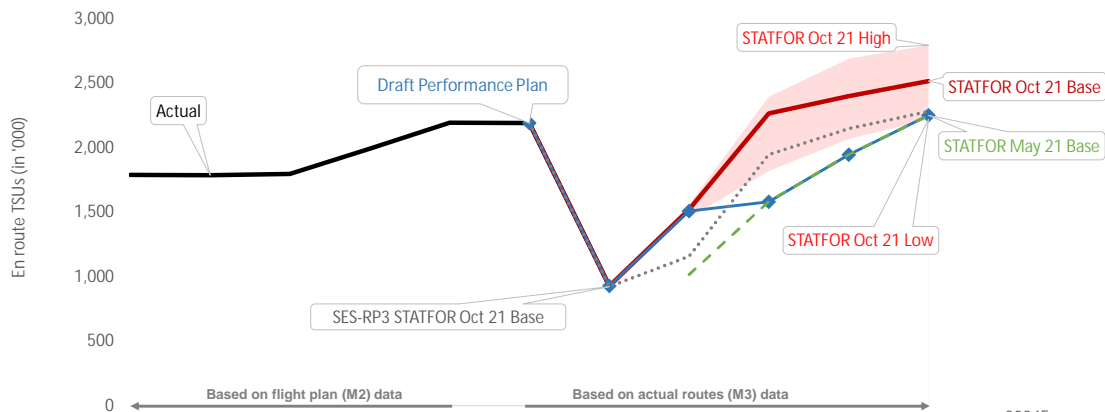
The PRB concludes that the cost-efficiency targets proposed by Croatia should be approved.

- Croatia is consistent with the RP3 DUC trend in terms of average reduction.
- Croatia is consistent with the long-term Union-wide DUC trend.
- Croatia is not consistent with the average DUC baseline of the comparator group.
- Croatia presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

4.2 Review traffic forecasts and baseline

Croatia - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	1,790	1,788	1,799	1,994	2,193	2,192	929					
Annual change	%		-0.1%	+0.6%	+10.8%	+10.0%	+9.9%	-57.6%					
STATFOR Oct 21 Base	'000 TSUs								1,523	2,266	2,400	2,516	+14.8%
Annual change	%								+63.9%	+48.8%	+5.9%	+4.8%	
STATFOR May 21 Base	'000 TSUs								1,017	1,582	1,946	2,251	+2.7%
Annual change	%								+9.4%	+55.6%	+23.0%	+15.7%	
Performance Plan	'000 TSUs						2,192	929	1,510	1,582	1,946	2,251	+2.7%
Annual change	%						+9.9%	-57.6%	+62.5%	+4.7%	+23.0%	+15.7%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	2,192		2014B (PP baseline)	1,759	
2019A (as in the Reporting tables, M2)	2,193		2014A (as in the Reporting tables, M2)	1,760	
2019B/ 2019A	-0.07%	-0.07%	2014B/ 2014A	-0.07%	-0.07%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

Both the 2014 and the 2019 traffic baselines are based on the actual number of service units, adjusted to take into account the transition from M2 to M3 on the basis of the CRCO 12-month coefficient (-0.07%).

Review of 2014 and 2019 traffic baseline

The application of the M2/M3 coefficient to both the 2014 and 2019 traffic baselines is as expected.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- The service units underlying the proposed RP3 cost-efficiency targets for Croatia for the period 2022-2024 are in line with STATFOR May 2021 base forecast, rather than the STATFOR October 2021 base forecast.
- The 2021 service units amount to 1,510K SUs, significantly above the STATFOR May 2021 base forecast but -0.8% below the STATFOR October 2021 forecast. The 2021 SUs forecast was updated to reflect the latest estimate for 2021 actuals (i.e. actual traffic recorded until mid-December 2021 plus expected traffic for the rest of December 2021).
- According to the information provided in Annex T to the performance plan, Croatia believes that the STATFOR October 2021 base forecast is overly optimistic at local level as "TSU per flight has been forecasted approx. 15% above historical values and trends that we are expecting to continue from RP2".
- Considering the potential risk associated with the non-realisation of the TSUs forecasted in the October forecast, and the fact that this was not consulted with the ANSP, Croatia decided to maintain a conservative approach and to include TSUs in line with STATFOR May 2021 forecast.

Review of the PP traffic forecast

- Croatia decided not to align the TSU included in the performance plan to the latest STATFOR October forecast, as this was considered overly optimistic, but preferred to follow the STATFOR May 2021 base forecast, as presented in the initial performance plan for the 2022-2024 period.
- The 2021 SUs forecast deviates from STATFOR May 2021 base forecast as this reflects the latest estimates for 2021 actuals. This update aims at "mitigating an expected 2021 traffic risk sharing effects".
- The TSUs forecasted by the STATFOR October 2021 base scenario are on average +28% higher than the TSUs presented in the May base forecast (and +9% above the May high forecast). According to STATFOR October base forecast, Croatia should reach, already in 2022, 2,266K SUs, which are +3.3% above the actual 2019 traffic and +18.5% higher than the average TSUs recorded in RP2.
- Based on these considerations, it seems that while the October base forecast might overestimate the TSUs expected over RP3, the May forecast might provide an underestimation.

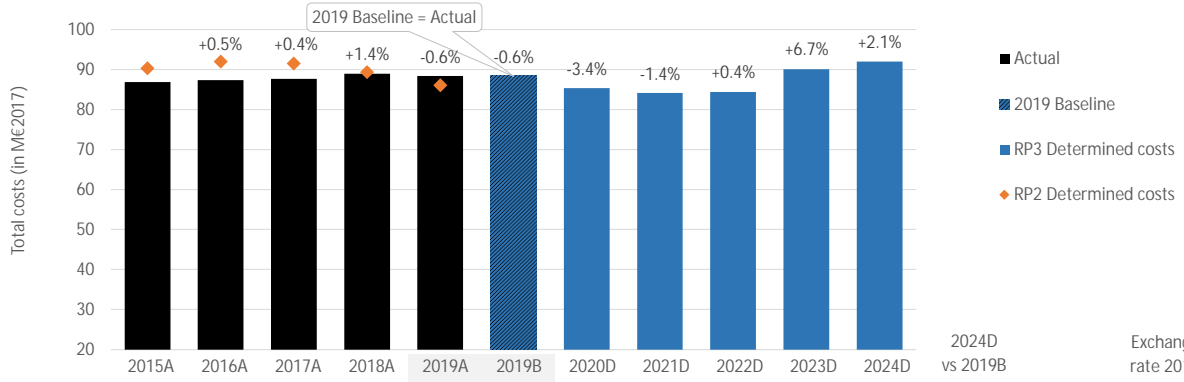
4.2.4 PRB Key Points

- Except for 2021, Croatia en route traffic is based on STATFOR May 2021 base scenario.

4.3 Review of determined costs and baseline

Croatia - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	MHRK (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	MHRK (nom)	645	645	654	671	671	671	648	642	651	705	731	+9.0%
Annual change	%		+0.1%	+1.4%	+2.6%	-0.0%	-0.0%	-3.5%	-0.8%	+1.3%	+8.3%	+3.8%	
Inflation index	2017 = 100	99.3	98.7	100.0	101.6	102.4	102.4	102.4	103.1	104.3	106.3	108.7	+6.1%
Total costs	MHRK (2017)	648	652	654	663	659	659	637	628	630	672	687	+4.1%
Annual change	%		+0.5%	+0.4%	+1.4%	-0.6%	-0.6%	-3.4%	-1.4%	+0.4%	+6.7%	+2.1%	
Total costs	M€ (2017)	87	87	88	89	88	88	85	84	84	90	92	+4.1%

Exchange rate 2017	HRK:€
	7.46175

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? **No**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review ✓

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments were implemented by Croatia to the 2014 and 2019 cost baselines, which are exactly in line with the actual 2014 and 2019 costs.

2014/2019 baseline analysis

No adjustments were implemented by Croatia to the 2014 and 2019 cost baselines, which are exactly in line with the actual 2014 and 2019 costs.

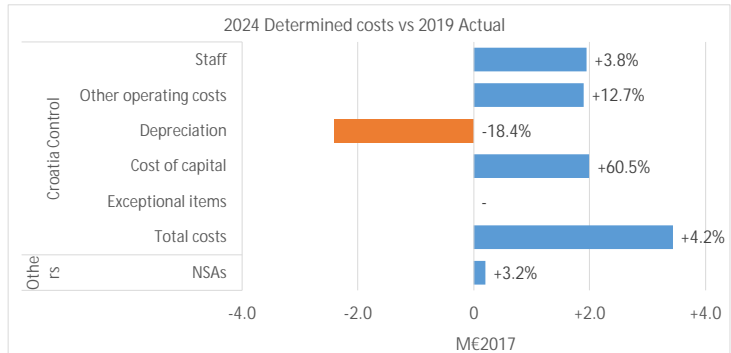
4.3.3 Review of the RP3 determined costs and incentives !

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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)	0.90%
Maximum penalty (% of determined costs)	1.10%
Additional incentives?	No



The total 2024 determined costs included by Croatia in the performance plan are +4.1% (+3.6M€2017) higher than the 2019 actual costs. Specifically, planned costs are expected to remain below the 2019 level for the first three years of the reference period and to increase only in 2023 and 2024. This trend is driven by Croatia Control (accounting on average for more than 90% of the total en route costs).

For Croatia Control, the 2024 planned costs increase by +4.2% (+3.4M€2017) compared to 2019, for which the following trends are noted:

- 2024 planned staff costs are expected to be +3.8% (+1.9M€2017) above 2019 actuals. After an initial reduction over the 2020-2022 period, staff costs are expected to increase in 2023 and 2024. According to the information provided in the performance plan, the expected increase in staff costs towards the end of the reference period results from the recruitment of additional ATCOs in response to the expected traffic increase. Additionally, the number of support staff is expected to increase as normal operations restart (e.g. execution of the RP3 investment plan and closure of the support staff gap already present in 2019).
- Other operating costs are expected to end up in 2024 at +12.7% (+1.9M€2017) above 2019 actuals. The increase is expected to materialise towards the end of the reference period as a result of the gradual recovery to normal activity. It is understood that the increase in other operating costs is partially connected with the execution of the RP3 CAPEX plan.
- While depreciation costs are expected to reduce gradually as of 2020 to reach -18.4% (-2.4M€2017) in 2024 as compared to 2019, the cost of capital will follow an opposite trend (+2.0M€2017 or +60.5% in 2024 vs. 2019). The increase in the cost of capital is entirely explained by the increase in net current assets, resulting from the inclusion of 2020-2021 under-recoveries.

NSA costs are planned to increase by +3.2% in 2024 compared to 2019 actual costs.

According to the STATFOR May 2021 base forecast selected by Croatia in its performance plan, en route service units are forecast to reach 2019 levels in 2024 (in 2022 if the October base forecast is considered), while en route costs are planned to reach the 2019 actual level in 2023.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for Croatia Control are planned to increase by +4.2% (or +3.4M€2017).
- Increases are planned for staff costs, other operating costs, and cost of capital.

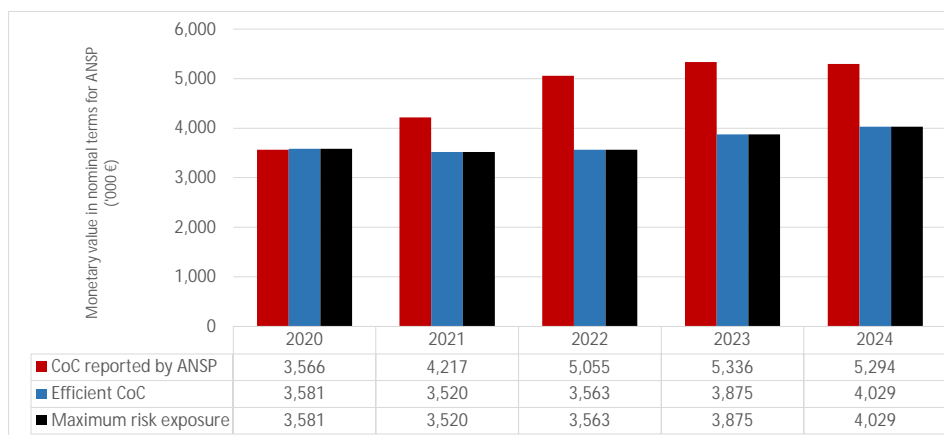
4.3.A Cost of capital

Croatia Control - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	81,390	80,006	80,979	88,079	91,562
Monetary value of Return on Equity	3,461	4,097	4,779	4,878	4,702
Ratio RoE/DC (%)	4.3%	5.1%	5.9%	5.5%	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 vs Efficient ('000 €)	2020	2021	2022	2023	2024
	-15	697	1,491	1,460	1,266

Total 2020-2024
4,899

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	6.5%	n/a	5.9%	n/a	6.3%	n/a	7.0%	n/a	7.5%	n/a
Interest on debts	1.1%	n/a	0.9%	n/a	1.2%	n/a	1.3%	n/a	1.5%	n/a
Capital structure (% debt)	15.2%	n/a	15.5%	n/a	23.9%	n/a	33.9%	n/a	39.4%	n/a
WACC	5.7%	5.7%	5.1%	4.3%	5.1%	3.6%	5.1%	3.7%	5.1%	3.9%

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 are duly justified and in line with competitive market practices.
- The WACC reported in the performance plan has been calculated based on the CAPM.
- The efficient cost of capital is computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 4.9M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 4.3% and 5.9%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	47,563	43,882	47,005	54,009	61,702
Net current assets	15,415	38,817	52,117	50,629	42,126
Adjustments total assets	0	0	0	0	0
Total asset base	62,978	82,699	99,122	104,638	103,828

- The fixed asset base is planned to increase over RP3. This is not fully in line with the investments described in section 3.5 of this document.
- The net current assets will increase significantly over RP3 and seem excessive considering the expected cash flow. Croatia noted that under-recovery rights are included in the net current assets.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over RP3, driven by an increase in both, the fixed asset base and the net current assets.

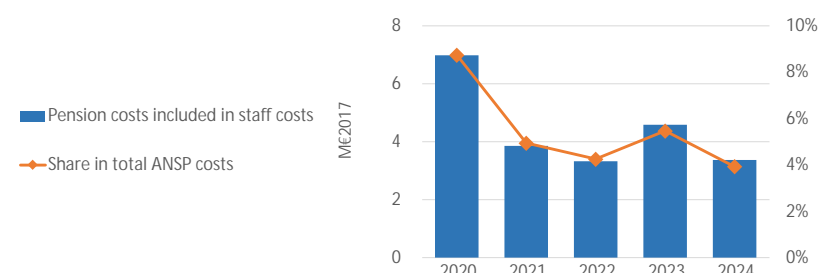
4.3.A.5 PRB Key Points

- The reported cost of capital is 4.9M€ above the efficient cost of capital over RP3. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 4.3% and 5.9%).
- The net current assets will increase significantly over RP3 and seem excessive considering the expected cash flow. Croatia noted that under-recovery rights are included in the net current assets.

4.3.B Pensions

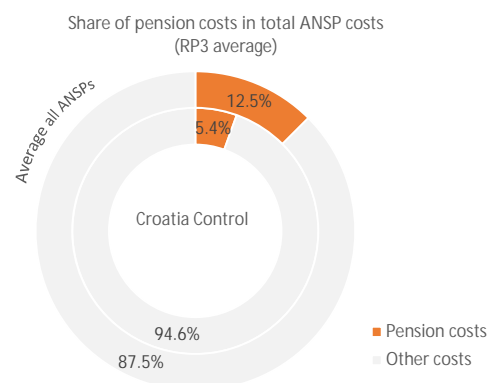
Croatia Control - En route

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	7.0	3.9	3.3	4.6	3.4
Year on year variation	% change		-44.7%	-13.9%	+37.8%	-26.6%
Share in total ANSP costs	%	8.7%	4.9%	4.2%	5.5%	3.9%
Year on year variation	p.p.		-3.8p.p.	-0.7p.p.	1.2p.p.	-1.5p.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 Union-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?	No
--	----

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 percentage 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

In relation to the employer contribution to the State pension scheme applicable to ATCOs, the 11.3% contribution rate is defined by the Croatian government and therefore outside Croatia Control's control.

In relation to the occupational defined contribution scheme, government holds exclusive control over the existing and future terms and conditions ruling the eligible retirement age.

Croatia Control holds control over the realisation of the RP3 staff plan and it aims at executing the staff plan according to development in the relevant business environment.

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C Methodology for cost allocation between ER and TRM

Croatia

4.3.C.1 Cost allocation overview

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

- Croatia did not mention changing the cost allocation methodology with respect to RP2.
- The methodology for allocation of costs between en route and terminal follows the provisions and guidelines set within the Performance and Charging Regulation, and Eurocontrol principles. It considers the dimension of the charging zone, the location, and the specific ANS provided.
- The criteria for allocation of costs between en route and terminal are: number of staff, traffic structure and magnitude, fixed assets net book value, resources used for ANS provision, and the "20km rule" for 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

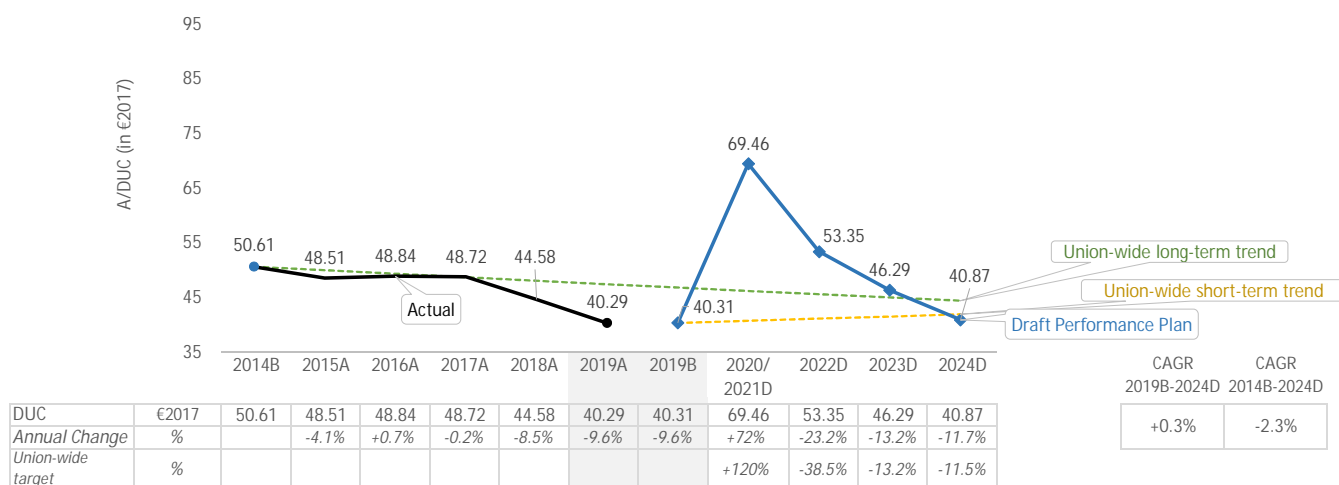


- Croatia did not mention changing the cost allocation methodology with respect to RP2.
- No major issues have been identified.

4.4 Determined unit costs (DUC)

Croatia - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

	Trend (CAGR 2019B-2024)	Performance Plan	Union-wide	Difference
✓ DUC consistency with the Union-wide RP3 DUC trend		+0.3%	+1.0%	-0.7p.p.
✓ DUC consistency with the Union-wide long-term DUC trend		-2.3%	-1.3%	-1.0p.p.
✗ DUC level consistency				

	Performance Plan	Average comparator group	Difference
2019 baseline	40.31	39.06	+3.2%

- The DUC is planned to increase on average by +0.3% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -2.3% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +3.2% higher than the average of the comparator group.
- Croatia presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

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 consistent with the RP3 DUC trend in terms of average reduction.
- Croatia is consistent with the DUC long-term Union-wide trend.
- Croatia is not consistent with the average DUC baseline of the comparator group.
- Croatia presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

4.5 Terminal (not applicable)

Croatia has not established any terminal charging zone for RP3.

PRB Assessment

CYPRUS

Draft Performance Plan

Context and scope

Cyprus

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
 Updated: 17/11/2021
 Documents no: F4576, F4568, F4573, F4579, F4580, F4575

Relative weight compared to the SES area (2019):

- % Flight-hours vs SES 1.3%
- % Serv. Units vs SES 1.6%
- % Costs vs SES 0.7%

Scope

FAB: BLUE MED FAB

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

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

ATS/CNS* /AIS
 MET

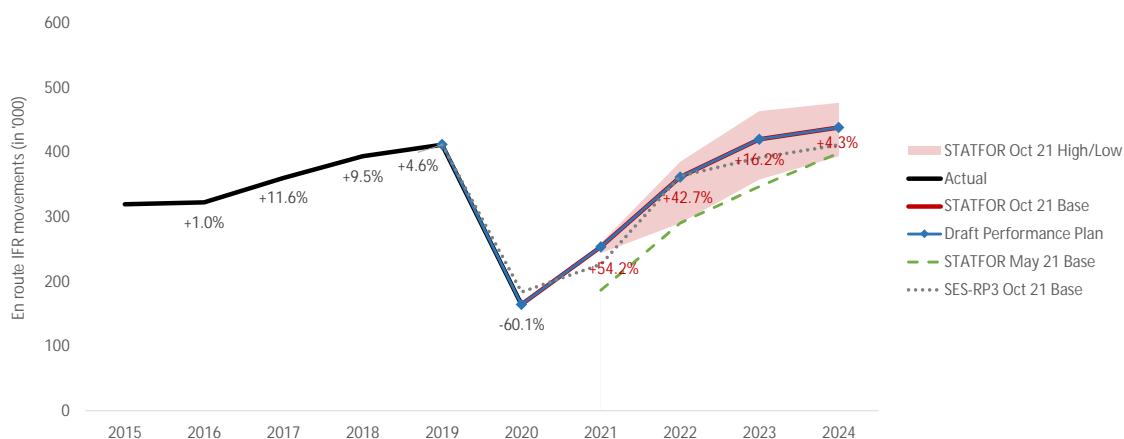
ANS oversight
 SAR

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Cyprus	n/a	No	No	No	
Terminal (TRM)	n/a	0	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: Estonia, Greece, Latvia, Lithuania, Malta

Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP 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 assessment

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

- The EoS safety targets are consistent with the Union-wide performance targets.
- The measures are not sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	4.10%	3.84%	3.84%	3.84%	3.84%

PRB assessment

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

- Cyprus's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Cyprus did not achieve the 2021 target of 3.84% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Cyprus has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	1.00	0.10	0.30	0.40	0.30
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 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 2022, 2023 and 2024.
- Capacity plans and capacity enhancement measures indicate that more ambitious targets would be realistic.
- The incentive scheme defined in the draft performance plan allows maximum bonuses to be paid at a delay performance significantly worse than the national reference values.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	49.85	34.14	32.52	32.26	+4.9%	-0.2%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	-

PRB assessment

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

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

5. PRB recommendations

SAFETY

- Cyprus should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.
- Cyprus should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Cyprus should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

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 address the capacity gap projected in their capacity plans by implementing structural enablers and current plans in a timely manner, as well as by developing additional capacity enhancement measures to align to the reference values.
- Cyprus should revise the incentive scheme so that no bonuses are incurred by the ANSP while delay performance is worse than the national reference values.

COST-EFFICIENCY

- Cyprus should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
- Cyprus should consider in the RP3 cost base the 19.3M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.

CYPRUS

Safety KPA

1.1 Summary of safety key data and assessment results

Cyprus

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 RP3 Union-wide safety targets, are planned to be attained at the beginning of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The 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 starting EoSM levels, Cyprus should revise the initial targets and provide the specific measures describing how the ANSP will improve the maturity of safety management system in five management objectives. Moreover, detailed NSA-derived measures should also be provided.

1.1.3 Interdependencies and Trade-offs

The 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 performance plan claims that Cyprus ANSP revised its change management processes to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

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 measures are not sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Cyprus should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.
- Cyprus should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actuals	Target	Target	Target	Target	Target		
DCAC	Safety policy and objectives	B	C	C	C	C	C	✓	
	Safety risk management	C	D	D	D	D	D	✓	
	Safety assurance	B	C	C	C	C	C	✓	
	Safety promotion	B	C	C	C	C	C	✓	
	Safety culture	B	C	C	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 beginning of RP3. DCAC started RP3 with maturity levels that are lower than the RP3 targets and needs to improve in five management objectives.

The 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 in all five safety management objectives.

Moreover, the state has recently adopted its 2020-2024 State Safety Program with clear commitment to the effective safety oversight of ANSPs (including relevant KPIs and safety targets).

Specific measures both at ANSP and NSA level should be provided.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The 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 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 (the installation of a new ATM system in a new ACC location). The performance plan claims that Cyprus ANSP revised its change management processes to ensure compliance with Commission Implementing Regulation (EU) 2017/373 and consequently to assure effectively manage the risks associated with significant functional system changes necessary to improve the level of services within RP3.

CYPRUS

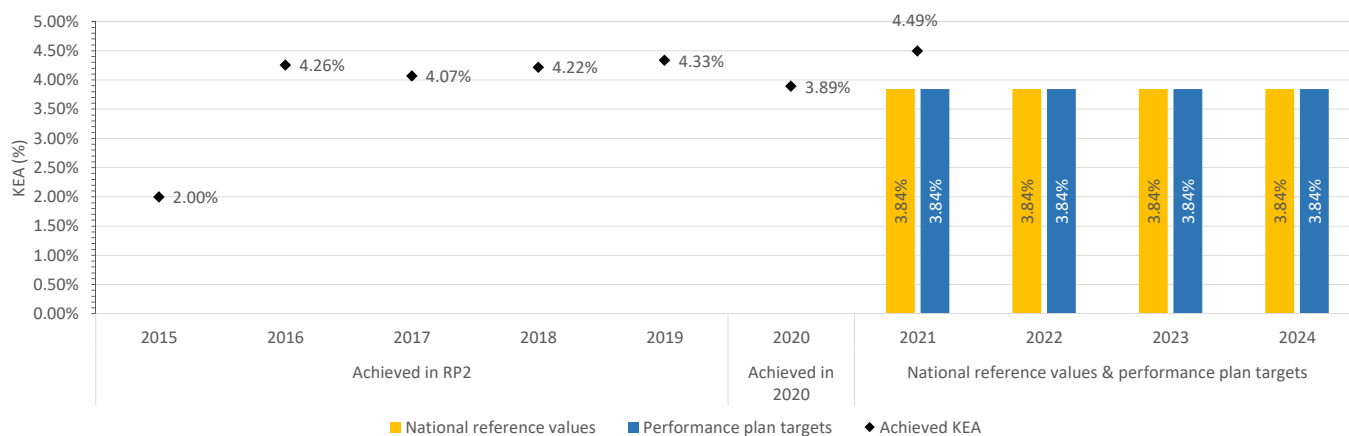
Environment KPA

2.1 Summary of 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
National reference values	4.10%	3.84%	3.84%	3.84%	3.84%
Performance plan targets	4.10%	3.84%	3.84%	3.84%	3.84%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions

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

- Cyprus's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Cyprus did not achieve the 2021 target of 3.84% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Cyprus has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Cyprus should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
According to the LSSIP, Cyprus plans to offer free route airspace (FRA) in 2022.		n/a	Page 54
Major ERNIP Recommended Measures:	4	Reference in PP	Reference in ERNIP
Measure included within performance plan?		n/a	Page 196
NICFRA	✗	n/a	Page 211
PBN transition plan	✗	n/a	Page 127
SPICE – Phase 1	✗	n/a	Page 138
SPICE – Phase 2	✗		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

Cyprus aims to, in cooperation with the Network Manager (NM), constantly revise its route network, in an effort to offer the most environmentally friendly and cost-efficient routings. No reference was made to achieving the ERNIP Part 2 projects or (FRA) implementation plans.

The chart in section 2.1.1 shows that Cyprus achieved a KEA of 3.89% in 2020. In 2021, Cyprus reached a KEA of 4.49% which means it did not achieve the 2021 target of 3.84% in its performance plan.

No significant measures or description of how Cyprus intends to achieve such targets was provided. The performance plan does not contain any analysis of the potential benefits of SPICE (a project to improve RNAV/RNP approaches) or NICFRA (a project to offer airspace users free route airspace between FL205 and FL660) and therefore it is difficult to assess whether Cyprus can offer this performance.

The measures contained in the performance plan do not correspond with the targets and more clarity could have been provided, particularly in terms of FRA implementation to convince the PRB that Cyprus will achieve the targets.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Cyprus plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

CYPRUS

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

National capacity targets are set higher than national reference value for 2022-2024 and are also above the range of the delay forecast.

Capacity plans indicate that Cyprus will have a capacity surplus in 2022 but is expected to face a capacity gap from 2023, which increases to be significant in 2024, without implementing additional measures compared to those described in the latest NOP.

The implementation of the new ATM system may introduce capacity constraints in 2023. The performance plan does not provide detailed mitigation measures to reduce such potential effects.

There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures and the proposed target values.

The delay forecast, capacity profile plans and the capacity enhancement measures indicate that Cyprus should set more ambitious en route capacity targets.

The delay situation in Cyprus is highly sensitive to geopolitical circumstances in and around the Mediterranean region.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✗	✗	✗
<i>Deviation target vs reference value</i>	n/a	+0%	+88%	+167%	+100%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✗	✗	✗

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 2024? **No**

3.1.2 Arrival ATFM Delay

n/a

3.1.3 Incentives

Maximum bonus is set at 0.5%, maximum penalty is 1% of determined costs.

There are no modulations of the pivot values, which are set equal to the proposed national capacity targets, significantly higher than the reference values.

The en route incentive scheme is set up in a way which would trigger maximum bonuses for the ANSP at delays which are significantly higher than the national reference values.

3.1.4 Investments

A capacity shortage is expected in Cyprus during RP3.

There are capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionality AF6, but they do not result in sufficient capacity increase by the end of RP3.

Other investments contribute mainly to resilience.

3.1.5 PRB conclusions

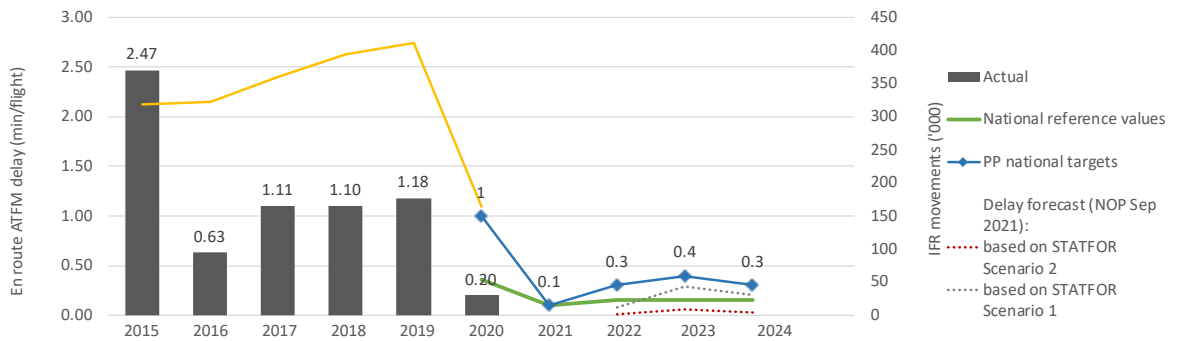
✗

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 2022, 2023 and 2024.
- Capacity plans and capacity enhancement measures indicate that more ambitious targets would be realistic.
- The incentive scheme defined in the draft performance plan allows maximum bonuses to be paid at a delay performance significantly worse than the national reference values.
- 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 address the capacity gap projected in their capacity plans by implementing structural enablers and current plans in a timely manner, as well as by developing additional capacity enhancement measures to align to the reference values.
- Cyprus should revise the incentive scheme so that no bonuses are incurred by the ANSP while delay performance is worse than the national reference values.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight



Traffic variation	+5%	+1.0%	+11.6%	+9.5%	+4.5%	-60.1%				
Actual delay/flight	2.47	0.63	1.11	1.10	1.18	0.20				
National reference values						0.36	0.10	0.16	0.15	0.15
PP national targets						1.00	0.10	0.30	0.40	0.30
Based on STATFOR Scenario 1							-	0.08	0.29	0.20
Based on STATFOR Scenario 2							-	0.01	0.06	0.03

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✗	✗	✗
<i>Deviation target vs reference value</i>	n/a	+0%	+88%	+167%	+100%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✗	✗	✗

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 2024? **No**

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Cyprus experienced capacity constraints related mostly to ATM capacity, staffing issues and ASM, mostly achieving the local capacity targets and positively contributing to the FAB-level targets. ATM capacity and ASM issues were linked in many cases to exogenous factors associated with the geo-political situation in the region. The staffing levels showed worsening trend negatively affecting capacity performance.

The performance plan contains the following capacity enhancement measures.:

- Enhancement of ATSP staffing levels (management + ATCOs) via a continuous recruitment process. There is a difference in numbers between the performance plan and the NOP,
- Implementation of major investments for the upgrade of necessary ATM infrastructure,
- Airspace restructuring with NM assistance,
- Institutional changes (ATSP corporatisation). The performance plan does not provide details on the level of contribution to capacity enhancement.

The NOP provides a list of capacity measures including those proposed by the NM for implementation to cover the capacity gaps. Although the measures listed in the performance plan are generally in line with those of the NOP, there are measures contained in the NOP, which are not described or listed in the performance plan as capacity enhancement measures: improved ATFCM techniques, transition to the new ACC and operational excellence project.

The number of ATCO FTEs is planned to increase by 22 FTEs (a 28% increase compared to 2019) over 2020-2024.

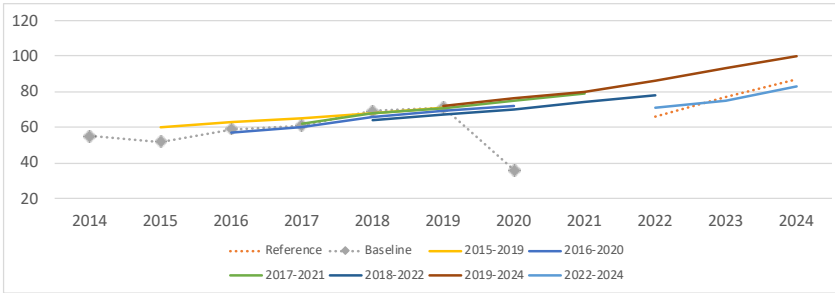
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Nicosia ACC (LCCC)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	8	8	10	10
	ATCOs in OPS to stop working in the OPS room	0	3	5	2	2	3	2
	ATCOs in OPS to be operational at year-end	81	78	73	79	85	92	100
Total - DCAC Cyprus (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	8	8	10	10
	ATCOs in OPS to stop working in the OPS room	0	3	5	2	2	3	2
	ATCOs in OPS to be operational at year-end	81	78	73	79	85	92	100

2024 (end) - 2020 (beg.)	
	+22
	+22

3.2.3 Review of previous and existing capacity profile plans per ACC

Nicosia ACC (LCCC)



- Historical data shows that baseline values have increased by an average 5.5 % over RP2, also including a drop in 2015 and an increase of over 13% in 2016 and 2018. Planned values closely oscillated around the baseline showing effort to adapt operational experience from the previous year in order to achieve local capacity targets except for 2015.

- Although the latest capacity plans show an average annual growth of 8% , Cyprus is expected to experience a capacity gap of -3% in 2023 and -5% in 2024.

- Planned increase in ATCO FTEs correspond to the planned increase in capacity profiles. It is not clear how other capacity enhancement measures will contribute to capacity improvements.

- The performance plan already foresees difficulty to achieve targets during 2023 and 2024 if traffic levels grow according the scenario 1 forecast.

- There is an inconsistency between delay forecasts, proposed targets, planned capacity profiles and capacity enhancement measures.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									66	77	87
Baseline	55	52	59	61	69	71	36				
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
2022-2024									71	75	83
Latest vs Reference									8%	-3%	-5%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events

Review of the planned impact of special events in some years of RP3

Both the performance plan and the NOP, identify the new ATM system and the transition to the new ACC centre as a special event, which may influence capacity provision. The plan does not provide quantitative evaluation of the capacity impact.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The performance plan provides some details regarding the change management related to the relocation of the ACC centre. During the transition, Nicosia ACC will operate in the shadow mode, mostly during the low traffic hours to minimise the required ATCO numbers on shifts. The plan does not justify if the planned ATCO numbers are sufficient during that period and it does not identify any additional mitigation measures.

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

- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? ✔
There are no additional measures included in the performance plan compared to those included in the NOP. The performance plan provides a higher number of ATCO FTEs than the NOP.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? ✘
Measures proposed by the NM may be part of the performance plan, although not all of them are described or listed as capacity enhancement measures.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? ✘
The performance plan does not provide rationale for planning only a subset of the measures proposed by the NM.
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? ✘
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 ATCO FTEs in the performance plan than included in the latest NOP. There is a minor inconsistency in the plan regarding the information of ATCO FTEs as the text provides an increase of 25 FTEs, but the figures indicate only an increase of 22 FTEs over RP3. The figures provided indicate that staffing plans are addressing the capacity gap closure, although it is not clear if these are sufficient to close the gap.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✘
The performance plan makes references to ongoing assessments and activities, referencing use of overtime practices to enhance capacity, which is not a sustainable solution.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
The performance plan does not indicate the limitations of the current ATM system directly, however, it describes the investment in the new ATM system and relocation of the ACC center as one of the main capacity enhancement contributing measures.

3.2.6 PRB Key Points

- National capacity targets are set higher than national reference value for 2022-2024 and are also above the range of the delay forecast.
- Capacity plans indicate that Cyprus will have a capacity surplus in 2022 but is expected to face a capacity gap from 2023, which increases to be significant in 2024, without implementing additional measures compared to those described in the latest NOP.
- The implementation of the new ATM system may introduce capacity constraints in 2023. The performance plan does not provide detailed mitigation measures to reduce such potential effects.
- There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures and the proposed target values.
- The delay forecast, capacity profile plans and the capacity enhancement measures indicate that Cyprus should set more ambitious en route capacity targets.
- The delay situation in Cyprus is highly sensitive to geo-political circumstances in and around the Mediterranean region.

3.3. Arrival ATFM delay per flight - not applicable

Cyprus

3.4 Capacity Incentive schemes

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%	1.000%
	✓	✓

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			0.16	0.15	0.15
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.30	0.40	0.30
Pivot values for RP3			0.30	0.40	0.30

Threshold and pivot value review

The pivot value is fixed for each year of the reference period. The pivot value greatly exceeds the NOP reference value. The threshold is symmetric around the pivot value.

Modulation review

No modulation is applicable.

Review of financial advantages/disadvantages

A maximum bonus of 0.5% of revenue is countered by a maximum penalty of 1% of revenue. The maximum bonus would be payable at a level that greatly exceeds the NOP reference value. The maximum penalty in 2023 and 2024 at a value that is three times the NOP reference value.

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 is set at 0.5%, maximum penalty is 1% of determined costs.
- There are no modulations of the pivot values, which are set equal to the proposed national capacity targets, significantly higher than the reference values.
- The en route incentive scheme is set up in a way which would trigger maximum bonuses for the ANSP at delays which are significantly higher than the national reference values.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	2.4	2.4	4.1	5.3	5.5	19.8
	En route	2.4	2.4	4.1	5.3	5.5	19.8
	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.

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 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	TRM
1	NEW ATM SYSTEM - PHASE 1	A new ATM system, comprising both hardware and software components, to enable the operation of at least 10 ATC sectors at Nicosia ACC. During Phase 1,	5.9	Yes	No	3.0	0.0
2	NEW ATM SYSTEM - PHASE 2	A new ATM system, comprising both hardware and software components, to enable the operation of at least 10 ATC sectors at Nicosia ACC. During Phase 2,	7.0	Yes	Yes	2.5	0.0
Total:						5.5	0.0

Airspace user feedback regarding major investments

The airspace users commented that they do not have sufficient information to assess the investment plans and expressed their concerns that the investments may include costs which may rather belong to the terminal part.

The airspace users also inquired about the inclusion of costs associated with terminal in the performance plan, specifically for the inclusion of ILS replacement. Cyprus noted that the numerical calculations included in the performance plan do not include any costs associated with terminal projects and invited the airspace users to a bilateral meeting to discuss further details of the investment plans.

Review of investments

New major investments represent 28% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 43% of the planned for the same period and the amount underspent was 7.5M€. In terms of depreciation and cost of capital, the airspace users have financed 19.3M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 RP3 (M€)
Other new investments	16.8	16.8	0.2	0.6	1.7	2.3	2.6	7.3
Existing investments			2.1	1.4	1.2	1.1	1.0	6.9

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	DATA (IP) NETWORK	3.2	3.2	0.0	0.2	0.6	0.5	0.5	1.8	These are costs associated with the upgrades needed to remain compliant with the SES interoperability regulations.
2	ESSENTIAL BUILDING WORKS	2.9	2.9	0.0	0.1	0.3	0.3	0.3	1.0	These are costs associated with the installation of appropriate electrical and data networks necessary for the new ACC to commence operations.
3	SURVEILLANCE (RADAR) INFRASTRUCTURE UPGRADES	3.4	3.4	0.0	0.0	0.2	0.6	0.6	1.4	These are costs associated mainly with the replacement of end-of-life systems.

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?



Nicosia ACC is expected to have a capacity surplus of 8% in 2022 but a capacity shortfall is expected for the remainder of RP3 with -3% in 2023 and -5% in 2024.

There are two major investments planned for RP3 in Cyprus, New ATM system phase 1 and New ATM system Phase 2 investments, which are linked to PCP/CP1 ATM Functionality AF6. While the Cyprus performance plan notes that both phases contribute to capacity enhancement, it can be argued that as phase 1 system is installed in back-up facility only with services being provided by the current ATM system, the capacity benefits do not materialise until phase 2 in 2023 when services are being delivered with the new system.

The other (non-major) investments (network upgrades, building works and surveillance end-of-life replacement) contribute mainly to resilience. Links with PCP/CP1 ATM Functionalities are not defined for the other (non-major) investments.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?



The new ATM system phases 1 and 2 will enable operating more ATC sectors and introduce new advanced features such as datalink and trajectory information sharing in line with the European ATM evolution.

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



The new ATM system will not be installed and deployed in time – or does not provide sufficient capabilities – to generate sufficient benefits to avoid capacity shortfalls during the last two years of RP3. It should also be noted that the information provided by Cyprus concerning the new ATM system is somewhat contradictory: in LSSIP Cyprus 2020 it is noted that a replacement of the system is “not planned as system was installed in 2013”.

3.5.4 PRB Key Points



- The actual CAPEX for RP2 was 43% of the planned for the same period and the amount underspent was 7.5M€. The airspace users have financed 19.3M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- A capacity shortage is expected in Cyprus during RP3.
- There are capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionality AF6, but they do not result in sufficient capacity increase by the end of RP3.
- Other investments contribute mainly to resilience.

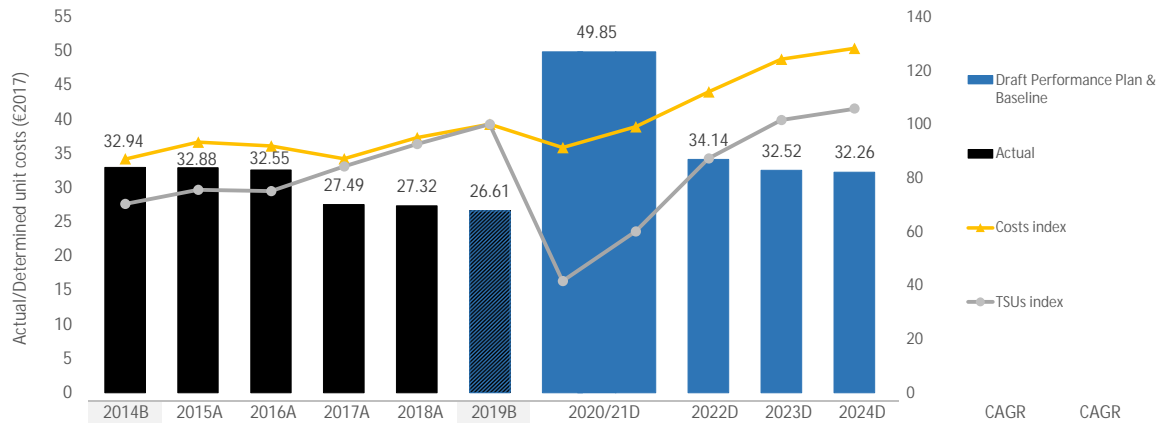
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Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Cyprus - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



Total costs	M€ (nom)	48	51	50	48	52	55	105	62	69	72	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (2017)	48	51	50	48	52	55	104	61	68	70	+7.1%	+3.1%
TSU	'000	1,442	1,548	1,540	1,728	1,897	2,051	2,082	1,789	2,083	2,169	+6.4%	+2.8%
DUC	€ (2017)	32.94	32.88	32.55	27.49	27.32	26.61	49.85	34.14	32.52	32.26	+1.4%	+0.6%
Exchange rate	€:€				1.000								
DUC	€ (2017)	32.94	32.88	32.55	27.49	27.32	26.61	49.85	34.14	32.52	32.26		
Annual change	%		-0.2%	-1.0%	-15.5%	-0.6%	-2.6%	+87%	-31.5%	-4.7%	-0.8%	+4.9%	-0.2%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified?	26.61 €2017	✓
No major issues identified.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	+4.9%	✗
The DUC is planned to increase on average by +4.9% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-0.2%	✗
The DUC is planned to decrease on average by -0.2% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (D) average (27.91 €2017)?	-4.7%	✓
The 2019 DUC level is -4.7% lower 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 Cyprus should not be approved.

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

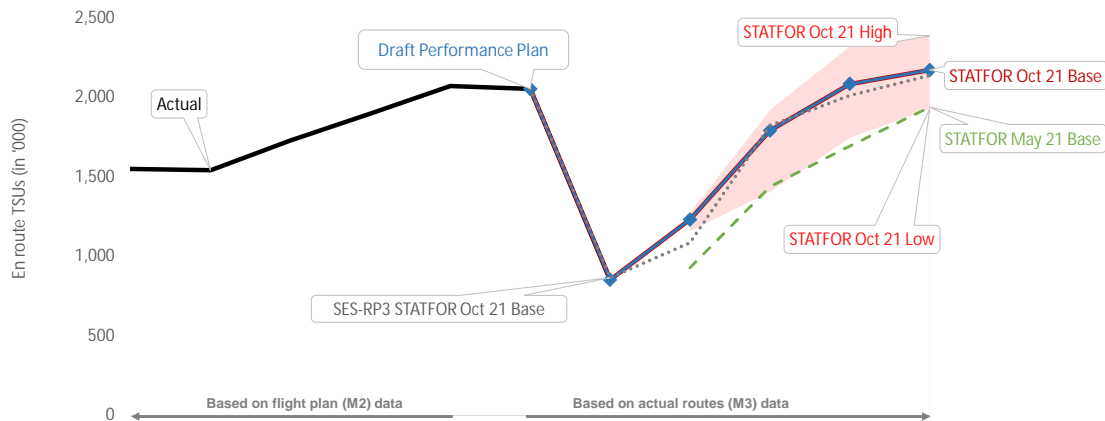
- Cyprus should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.

- Cyprus should consider in the RP3 cost base the 19.3M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.

4.2 Review traffic forecasts and baseline

Cyprus - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	1,548	1,540	1,728	1,897	2,068	2,051	853					
Annual change	%		-0.5%	+12.2%	+9.8%	+9.0%	+8.1%	-58.4%					
STATFOR Oct 21 Base	'000 TSUs								1,230	1,789	2,083	2,169	+5.8%
Annual change	%								+44.3%	+45.5%	+16.4%	+4.2%	
STATFOR May 21 Base	'000 TSUs								926	1,436	1,691	1,935	-5.6%
Annual change	%								+8.6%	+55.1%	+17.8%	+14.4%	
Performance Plan	'000 TSUs					2,051	853	1,230	1,789	2,083	2,169	+5.8%	
Annual change	%					+8.1%	-58.4%	+44.3%	+45.5%	+16.4%	+4.2%		

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	2,051		2014B (PP baseline)	1,442	
2019A (as in the Reporting tables, M2)	2,068		2014A (as in the Reporting tables, M2)	1,454	
2019B/ 2019A	-0.85%	-0.85%	2014B/ 2014A	-0.85%	-0.85%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.85%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.85%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Cyprus is in line with the STATFOR October 2021 base scenario.

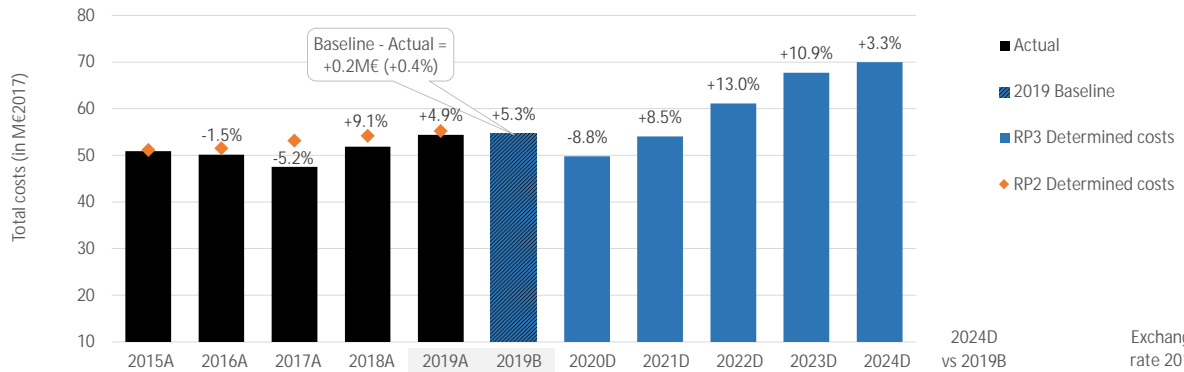
4.2.4 PRB Key Points

- Cyprus en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Cyprus - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	51	50	48	52	55	55	50	55	62	69	72	+31.7%
Annual change	%		-2.2%	-4.8%	+9.6%	+5.1%	+5.5%	-8.7%	+8.9%	+13.6%	+11.8%	+4.2%	
Inflation index	2017 = 100	100.5	99.3	100.0	100.8	101.3	101.3	101.3	101.8	102.6	103.8	105.3	+3.9%
Total costs	M€ (2017)	51	50	48	52	54	55	50	54	61	68	70	+28.2%
Annual change	%		-1.5%	-5.2%	+9.1%	+4.9%	+5.3%	-8.8%	+8.5%	+13.0%	+10.9%	+3.3%	
Total costs	M€ (2017)	51	50	48	52	54.4	54.6	50	54.0	61	68	70	+28.2%

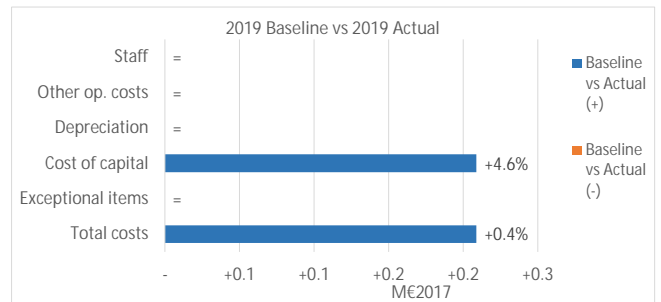
Exchange rate 2017	€:€
	1.00000

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review ✓

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	0.2	+0.4%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Correction on the application of the Cost of Capital methodology	ANSP	Cost of cap.	+0.2
#2 - Correction on the application of the Cost of Capital methodology	MET	Cost of cap.	+0.0
#3 - Correction on the application of the Cost of Capital methodology	NSA/EUROCONTROL	Cost of cap.	+0.0

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- No adjustments were implemented on the 2014 cost baseline, which is in line with the actual 2014 costs.
 - The 2019 cost baseline indicated by Cyprus in the performance plan amounts to 54.6M€2017, +0.4% above the actual 2019 costs.
- The additional +0.2M€2017 included in the 2019 cost baseline reflect the revision of the methodology used for calculating the sum of the average net book value of fixed assets, which was incorrectly applied during RP2. The adjustment affects the computation of the cost of capital for all the entities included in Cyprus en route charging zone.

2014/2019 baseline analysis

Cyprus claims that the additional +0.2M€2017 of cost of capital added to the 2019 cost baseline, reflect a correction to the methodology used in RP2 to compute the average net book value of fixed assets. The total adjustment (+0.2M€2017) amounts to +0.4% of the total 2019 actual costs. The impact is considered marginal.

4.3.3 Review of the RP3 determined costs and incentives



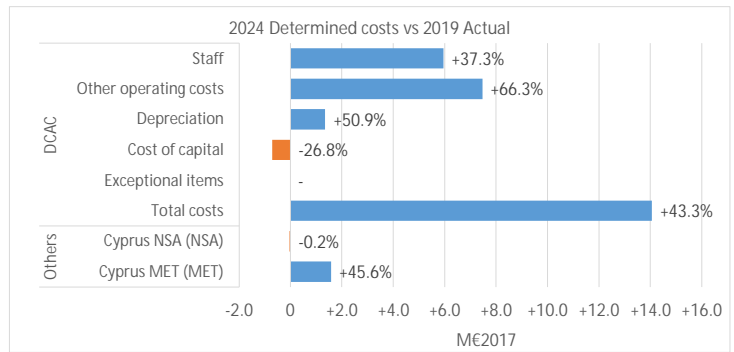
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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 total determined costs are expected to be +28.7% (+15.6M€2017) higher than the 2019 actual costs. The main contributor to this increase is DCAC (which account on average 64% of Cyprus total en route cost base).

DCAC determined costs are expected to increase significantly over RP3 and to reach in 2024 +43.3% (+14.1M€2017) compared to 2019 actual costs. The following trends are noted for DCAC:

- A significant increase in staff costs (+37.3% in 2024 as compared to 2019, or +6.0M€2017), especially over the 2022-2024 period. According to the information provided this increase is explained by the necessity to gradually increase the number of ATCOs, which in 2024 is expected to be +25-30% higher than in 2019 to enable the opening of additional ATC sectors. Additionally, support and managerial staff will be recruited in the years 2022 to 2024 so as to manage essential tasks and functions mandated by the SES regulation. Finally, gross salaries and social security contributions are also expected to increase in RP3 as compared to 2019 levels.
- Other operating costs are expected to increase by +66.3% in 2024 as compared to 2019 actual costs (+7.5M€2017). Beside an anticipated increase in rental, maintenance and travel expenses, higher other operating costs are linked with the preparation for the operation of the new ACC, including additional maintenance costs, new technical investments, and training costs for ATCOs.
- Higher depreciation costs, especially in the last two years of the reference period, resulting from the implementation of the RP3 investment plan.
- Lower cost of capital (-26.8% in 2024 vs. 2019), resulting from the application of a substantially lower WACC.

As far as it concerns the other entities included in Cyprus cost base: the planned NSA/Eurocontrol costs are expected to remain relatively stable over RP3 with respect to the 2019 costs, while MET costs are expected to increase by +1.6M€2017 (+45.6) in 2024 as compared to 2019.

En route service units are forecast to reach 2019 levels in 2023, while en route costs are planned to exceed the 2019 actual level in 2022.

4.3.4 PRB Key Points



- There are adjustments to the 2019 cost baseline. The impact of the adjustments is only marginal.
- Between 2019 and 2024, the total costs for DCAC are planned to increase by +43.3% (or +14.1M€2017).
- Staff and operating costs are expected to increase over the period.
- In RP2, in terms of depreciation and cost of capital, airspace users have financed 19.3M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

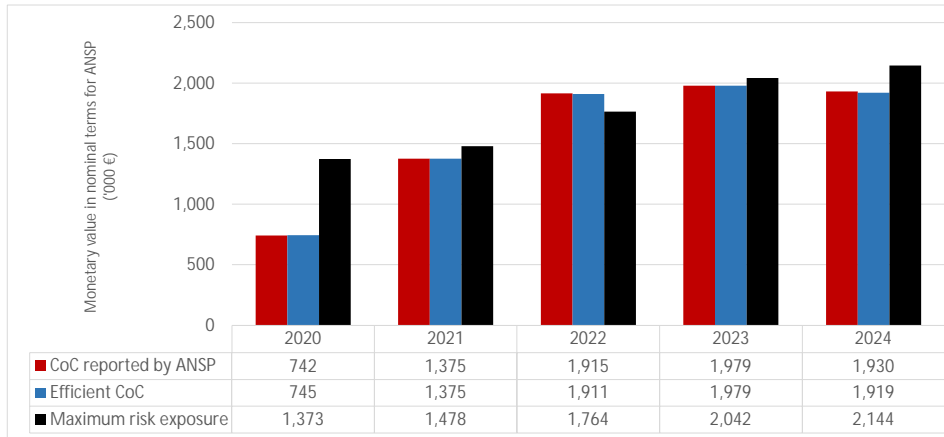
4.3.A Cost of capital

DCAC - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	31,208	33,588	40,098	46,417	48,729
Monetary value of Return on Equity	742	1,375	1,915	1,979	1,930
Ratio RoE/DC (%)	2.4%	4.1%	4.8%	4.3%	4.0%

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	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	4.7%	5.5%	4.8%	5.5%	5.0%	5.7%	5.3%	5.9%	5.7%	6.4%
Interest on debts	0.0%	2.5%	0.0%	3.1%	0.0%	3.4%	0.0%	3.8%	0.0%	4.0%
Capital structure (% debt)	0.0%	25.6%	0.0%	28.8%	0.0%	29.3%	0.0%	29.1%	0.0%	29.1%
WACC	4.7%	4.7%	4.8%	4.8%	5.0%	5.0%	5.3%	5.3%	5.7%	5.7%

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

- DCAC is fully financed through equity, thus no interest on debts is specified.
- The WACC reported in the performance plan has been calculated based on the CAPM and seems in line with the efficient approach. The efficient WACC has been calculated based on option 1.
- The embedded return on equity over RP3 varies from a minimum of 2.4% to a maximum of 4.8%. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	10,836	23,138	31,952	30,097	26,236
Net current assets	4,949	5,504	6,349	7,250	7,622
Adjustments total assets	0	0	0	0	0
Total asset base	15,785	28,643	38,302	37,347	33,858

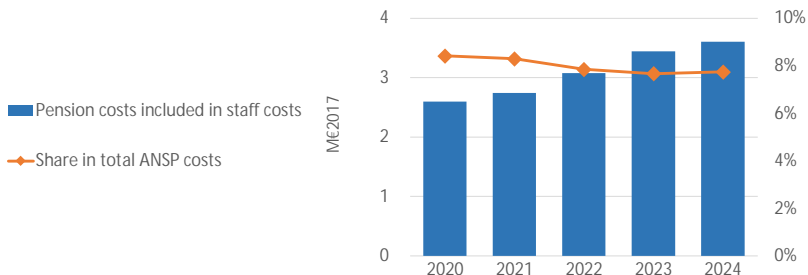
- The fixed asset base will significantly increase over the period, in line with the investments as detailed in section 3.5 of this document.
- Net current assets will increase over RP3 and seem excessive compared to the expected cash flow.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over RP3, due to the increase in both the fixed asset base and the net current assets.

4.3.A.5 PRB Key Points

- Net current assets will increase over RP3 and seem excessive compared to the expected cash flow.
- The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.

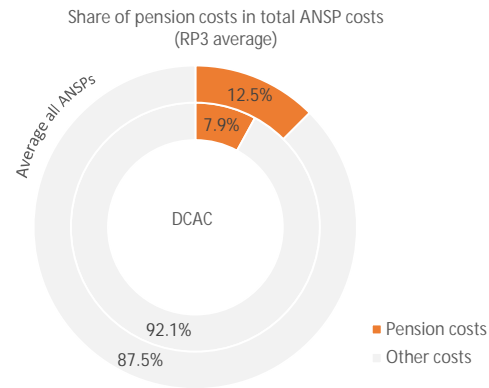
4.3.B Pensions

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	2.6	2.7	3.1	3.4	3.6
Year on year variation	% change		+5.5%	+12.2%	+12.0%	+4.6%
Share in total ANSP costs	%	8.4%	8.3%	7.8%	7.7%	7.7%
Year on year variation	p.p.		-0.1p.p.	-0.4p.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 decrease**



Is the ANSP RP3 average share of pension costs higher or lower than the Union-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 performance plan of 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 Methodology for cost allocation between ER and TRM

4.3.C.1 Cost allocation overview

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

- Cyprus did not mention changing the cost allocation methodology with respect to RP2.
 - 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?

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

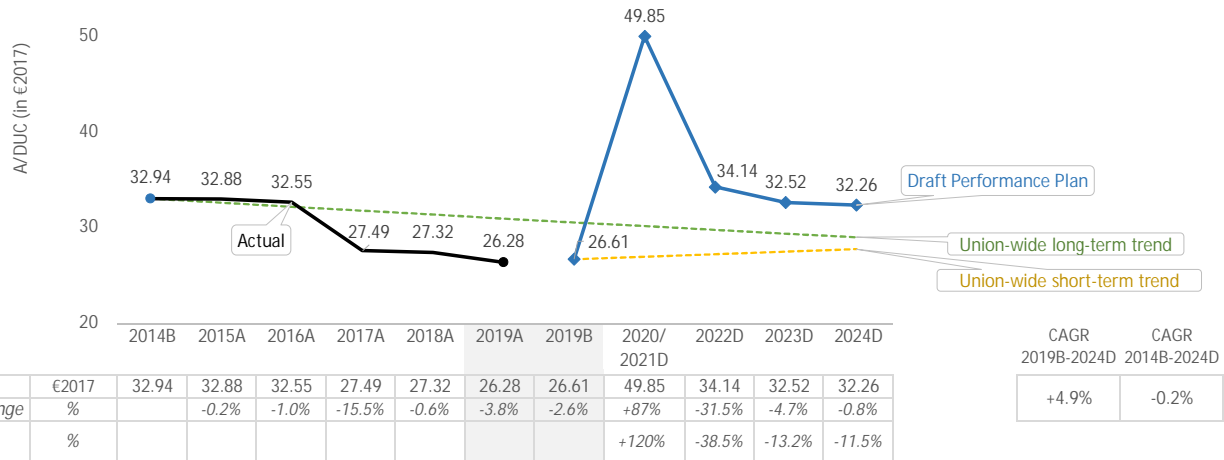


- Cyprus did not mention changing the cost allocation methodology with respect to RP2.
 - No major issues identified.

4.4 Determined unit costs (DUC)

Cyprus - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency ✘

✘ DUC consistency with the Union-wide RP3 DUC trend	Trend (CAGR 2019B-2024)	Performance Plan +4.9%	Union-wide +1.0%	Difference +3.9p.p.
✘ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	-0.2%	-1.3%	+1.1p.p.
✔ DUC level consistency	2019 baseline	Performance Plan 26.61	Average comparator group 27.91	Difference -4.7%

- The DUC is planned to increase on average by +4.9% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -0.2% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -4.7% lower than the average of the comparator 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 ✘

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

4.5 Terminal (not applicable)

Cyprus has not established any terminal charging zone for RP3.

PRB Assessment

CZECH REPUBLIC

Draft Performance Plan

Context and scope

Czech Republic

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 04/02/2022
 Documents no: F5082, F5083, F5084, F5085, F5086, F5087, F5088, F5089, F5090, F5091, F5093

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 2.1%
 % Serv. Units vs SES 2.3%
 % Costs vs SES 2.0%

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

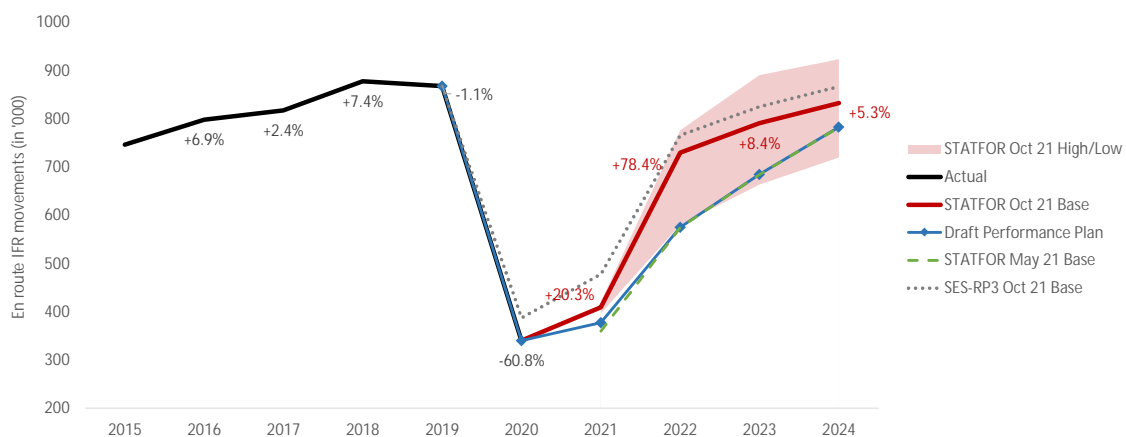
National Supervisory Authority
 NM, CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Czech Republic	n/a	No	No	No	
Terminal (TRM)	Czech Republic - TCZ	1	No	No	No	
Changes in the CZs from RP2		Yes	From 2020 onwards Czech Republic proposed to exclude from the charging zone three regional airports: LKMT, LKTB and LKKV, with traffic below 80,000 IFR movements per year. The Prague Ruzyně airport is the only one covered by the performance plan.			

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

Currency: CZK Exchange rate: 26.31150

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



PRB assessment

Czech Republic - Draft Performance Plan

1. Safety 

Safety PP 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	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 Czech Republic should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The PRB appreciates that ANSP measures are sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment 


Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	2.26%	2.05%	2.05%	2.05%	2.05%

PRB assessment

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

- Czech Republic's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity 

Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.20	0.06	0.11	0.11	0.11
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.37	0.40	0.40	0.40	0.40

PRB assessment

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

- Based on past performance and information provided in the performance plan, more ambitious targets on arrival ATFM delay would be realistic.
- The incentive schemes defined by the performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency 

Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	79.46	59.18	52.51	46.06	+2.4%	-0.1%
Target for determined unit cost (DUC) (€2017) - Terminal	501.57	261.84	239.04	202.20	n/a	-2.6%

PRB assessment

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

- Czech Republic is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Czech Republic is not consistent with the long-term Union-wide DUC trend. However, the deviation (11.9M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Czech Republic is not consistent with the average DUC baseline of the comparator group.

5. PRB recommendations**SAFETY:**

- Czech Republic should retain the high levels of safety achieved in 2020 throughout RP3.

ENVIRONMENT

- Czech Republic should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Czech Republic 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.
- Czech Republic should revise the incentive schemes so that they have a material impact on the revenues.

CZECH REPUBLIC

Safety KPA

1.1 Summary of safety key data and assessment results

Czech Republic

1.1.1 Target for EoSM for ANSPs

The revised 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, were already attained in 2020.

1.1.2 Measures planned to reach the target (if applicable)

Even though CR ANS is already at the target levels for all management objectives, the performance plan provides the list of explicit safety measures assuring the continuous development of safety management system driven by taking part in CANSO/Eurocontrol Standard of Excellence in Safety Management Systems annual self-assessment and follow-up activities at international level, e.g. CANSO.

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 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. Moreover, relevant measures were adopted for monitoring safety performance.

1.1.4 Change Management

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 performance plan should, if applied, be sufficient to control the impact of the changes on safety.

1.1.5 PRB conclusions

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

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The PRB appreciates that ANSP measures are sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- In 2020, Czech Republic attained the safety targets for RP3 and exceeded the targets planned for 2020.
- Czech Republic should retain the high levels of safety achieved in 2020 throughout RP3.

1.2 Targets for EoSM for ANSPs and Measures

Czech Republic

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
ANS CR	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	D	C	D	D	D	D	✓	
	Safety assurance	D	C	C	C	C	C	✓	
	Safety promotion	D	C	C	C	C	C	✓	
	Safety culture	D	C	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. The ANS CR either met or exceeded the RP3 targets in 2020.

The performance plan provides the list of explicit safety measures assuring the continuous development of safety management system ensuring maintaining or exceeding the safety levels.

The measures include:

- Further development of mandatory and voluntary reporting system;
- Establishing the NSA - CR ANS Safety Board;
- Integration Safety KPI goals into the CR ANS business plan;
- Development and support of the fatigue risk management system (FRMS) in ANS CR;
- Further integration of the human factor domain in the safety management system and particular in the Safety Risk Management;
- Alignment of the change management process of assessing the safety of the functional system changes to the Regulation (EU) 2017/373).

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

Czech Republic declares that safety KPA is the key element and has the highest priority and shall not be by any circumstance compromised. Czech Republic fulfils all KPIs without jeopardising safety and fosters developments towards the balanced approach between all KPAs.

Various measures are adopted at national and international levels (FAB CE – NSA CC, Safety Board platform with all ANSPs, EASA and AAIB discussions, etc.) allowing the supervision of safety performance.

1.3.2 Change Management Practices

The CR ANS plans major implementation over RP3 (including implementation of free route airspace, new ATM system (TopSky) and the airspace restructuring and optimisation). All three changes are accompanied with specific change management procedures, enabling the interactions with affected stakeholders. The implementation processes are closely monitored by NSA toward compliance with Commission Implementing Regulation (EU) 2017/373.

CZECH REPUBLIC

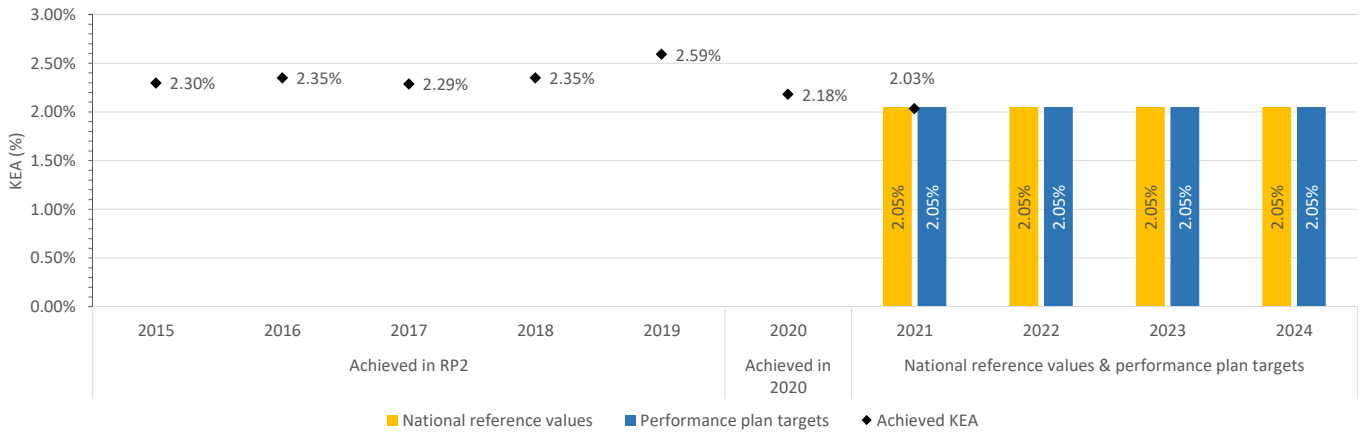
Environment KPA

2.1 Summary of Key Data and Assessment Results

Czech Republic

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

	2020	2021	2022	2023	2024
National reference values	2.26%	2.05%	2.05%	2.05%	2.05%
Performance plan targets	2.26%	2.05%	2.05%	2.05%	2.05%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Czech Republic's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Czech Republic should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Czech Republic

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
Czech Republic offers 24/7 free route airspace (FRA) as of February 2021.		3.2.1(b)	Page 51
Major ERNIP Recommended Measures:	5	Reference in PP	Reference in ERNIP
Measure included within performance plan?		3.2.1(b)	Page 119
ATS routes deletion Praha TMA	✓	3.2.1(b)	Page 119
FRACZECH – Step 4	✓	n/a	Page 169
New ATM system PRAHA ACC	✗	3.2.1(b)	Page 215
New sectorisation PRAHA FIR	✓	n/a	Page 222
Interface re-sectorisation with Poland	✗		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Czech Republic achieved a KEA of 2.18% in 2020. In 2021, Czech Republic reached a KEA of 2.03% which means it achieved the 2021 target of 2.05% in its performance plan.

It is noted that the decision to merge the Czech free route airspace (FRACZECH) with Poland's FRA (POLFRA) and further considerations to work with FABCE to merge FRA is a positive step that will help Czech Republic deliver performance that will achieve the targets.

It is encouraging that Czech Republic now offers 24/7 FRA between FL95 and FL660. It is not ideal that the performance plan did not contain a decision on whether Czech Republic aims to join regional cross-border initiatives, since these would further increase the potential for efficiency improvements. Czech Republic's performance during RP2 did not contribute positively to the FABCE target by a significant margin and it is below the best performers in that FAB.

Other measures that Czech Republic plan to use include new sectorisations to continue the trend of improving airspace user route choices, implementing the Airspace Architecture Study recommendations, and active coordination with the military in the area of airspace management.

The performance plan did not describe the expected benefit in terms of environmental efficiency that the major ATS optimisation project, started in 2020, may yield since capacity was the driving objective. It should have been a consideration for the cost-benefit analysis (CBA) undertaken.

No description or analysis of the potential benefits for the environment KPA by procuring and using a new ATM system, i.e. improved controller workload enabling shorter routes or improved tools that help ATCOs offer direct routes, was provided.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

CZECH REPUBLIC

Capacity KPA

3.1 Summary of capacity key data and assessment results

Czech Republic

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to the national reference values. The target falls within the range of the delay forecast in 2022, and above the range of delay forecast in 2023 and 2024.

Capacity plans indicate that the Czech Republic will have sufficient capacity to meet traffic demand in RP3 if capacity enhancement measures are successfully implemented.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Prague is the only airport included in the performance plan. National targets are set equal to those in RP2, and are significantly higher than average past performance. Performance in Prague was significantly better than that of the group of similar airports in RP2, however, the new targets are considerably worse than those of the group of similar airports.

Based on past performance and the information provided in the performance plan, more ambitious targets on arrival ATFM delay would be realistic.

3.1.3 Incentives

En route:

Czech Republic has chosen not to modulate the pivot which are set equal to the national reference values.

Maximum bonus and penalty is set at 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.

Terminal:

Czech Republic has chosen not to modulate the pivot values which are set equal to the national performance targets.

Maximum bonus and penalty is set at 0.5%.

The dead band around the pivot value may be too small to allow for minor variations in performance without triggering financial incentives.

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

Two investments were also included in the RP2 performance plan. The ANSP will reimburse the airspace users the underspent determined costs related to certain RP2 investments that were delayed. The cost base will be reduced by approximately 3.2M€ over the period.

There is a capacity surplus expected in Czech Republic during RP3.

There are enroute capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities AF1, AF3, AF4, AF5, and AF6. These investments also contribute to resilience, scalability and flexibility.

No critical timing issues are identified.

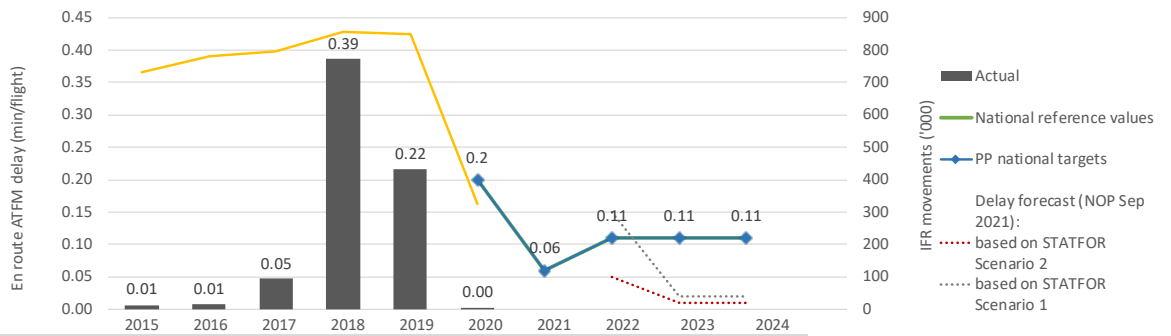
3.1.5 PRB conclusions

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

- Based on past performance and information provided in the performance plan, more ambitious targets on arrival ATFM delay would be realistic.
- The incentive schemes defined by the 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 ✓



Traffic variation	+7%	+6.9%	+2.1%	+7.4%	-0.8%	-61.8%				
Actual delay/flight	0.01	0.01	0.05	0.39	0.22	0.00				
National reference values						0.20	0.06	0.11	0.11	0.11
PP national targets						0.20	0.06	0.11	0.11	0.11
Based on STATFOR Scenario 1							-	0.15	0.02	0.02
Based on STATFOR Scenario 2							-	0.05	0.01	0.01

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, Czech Republic experienced capacity constraints related mainly to ATM capacity, staffing and weather-related issues. Czech Republic missed the capacity targets in 2018 and 2019 despite improved performance.

The main measures planned to enhance capacity are the 'ATS optimisation' restructuring project and the additional measures that are in line with the NOP. The performance plan lists the following measures:

- New ATM system,
- 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.

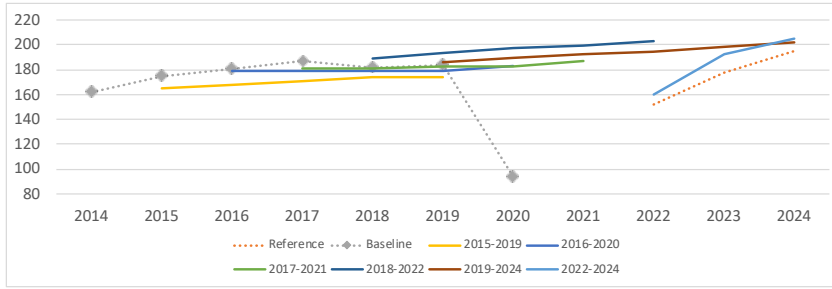
The planned number of ATCO FTEs shows an increase of 38% (44 FTEs) compared to 2019, around half of which has already been realised in 2020. A gradual increase is foreseen for the rest of the period, with the exception of 2023, when a minor decrease is foreseen, in line with capacity profiles.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Prague ACC (LKAA)	Additional ATCOs in OPS to start working in the OPS room	0	21.9	23.9	13	12	0	10	+44
	ATCOs in OPS to stop working in the OPS room	0	2	4	3	4	1	3	
	ATCOs in OPS to be operational at year-end	96	115.9	135.8	145.8	153.8	152.8	159.8	
Total - ANS CR (en route)	Additional ATCOs in OPS to start working in the OPS room	0	21.9	23.9	13	12	0	10	+44
	ATCOs in OPS to stop working in the OPS room	0	2	4	3	4	1	3	
	ATCOs in OPS to be operational at year-end	96	115.9	135.8	145.8	153.8	152.8	159.8	

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Prague ACC (LKAA)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference											
Baseline	162	175	181	187	182	184	94		152	178	195
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
2022-2024									160	192	205
Latest vs Reference									5%	8%	5%

- Historical data shows an average annual growth of 2.6% in baseline values during RP2, reaching the peak in 2017 than followed by a 2.6% drop in 2018. Planned values were lower than the baseline between 2015-2017, and above the baseline in 2018-2019.

- The latest planned capacity profile shows an average annual growth of 13.2% over the period, resulting in values which are significantly higher than the past peak profile of 2017. Planned values are slightly above the reference profile: Prague ACC is expected to have a minor capacity surplus of 5%, 8%, and 5% in 2022, 2023, and 2024, respectively.

- Capacity enhancement measures, the planned number of ATCO FTEs and capacity profiles seem to be in line with the targets.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events ✔

Review of the planned impact of special events in some years of RP3

The NOP identifies three major special events to impact the capacity plans. All of them are associated with implementation of the capacity enhancement measures. They include:

- ATS optimisation project (centralisation of regional APP with ATC and airspace changes),
- Reconstruction of the OPS room and implementation of the new ATM system,
- New sectorisation and training.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The performance plan does not explicitly list the mitigating measures to the foreseen special events, however, these events are considered in the capacity profile plans, the reference values and the delay forecast, and are not expected to generate excess delays.

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

- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? n/a
No capacity gap is foreseen.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? ✔
The capacity enhancement measures are in line with those of the NOP.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? n/a
n/a
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? n/a
No capacity gap is foreseen.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)? ✔
The planned number of ATCO FTEs shows a significant increase compared to 2019 levels and nearly half of the planned increase has been realised already in 2020.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✔
The performance plan contains measures, such as more efficient rostering solutions.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
The performance plan contains the information about the implementation of the new system for Q1/2022, and information is provided on a phased implementation of new functionalities as well.

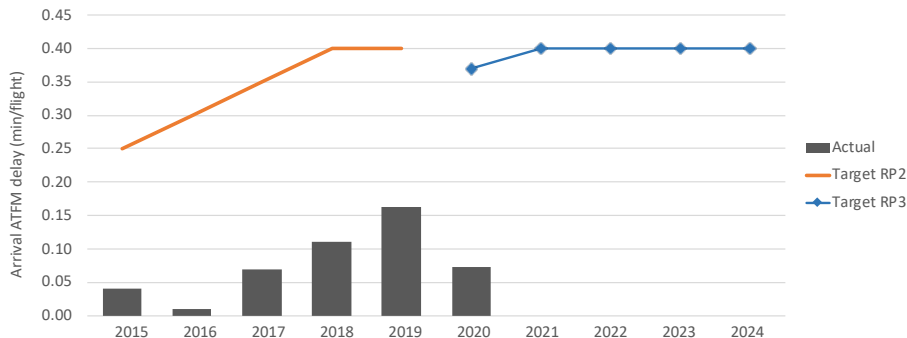
3.2.6 PRB Key Points ✔

- The proposed national capacity targets are set equal to the national reference values. The target falls within the range of the delay forecast in 2022, and above the range of delay forecast in 2023 and 2024.
- Capacity plans indicate that Czech Republic will have sufficient capacity to meet traffic demand in RP3 if capacity enhancement measures are successfully implemented.

3.3. Arrival ATFM delay per flight

Czech Republic

3.3.1 Overview of arrival ATFM delay per flight



National level	Target (RP2/RP3)									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual	0.04	0.01	0.07	0.11	0.16	0.07	-	-	-	-
Prague (LKPR)	0.04	0.02	0.08	0.13	0.18	0.09	0.40	0.40	0.40	0.40

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

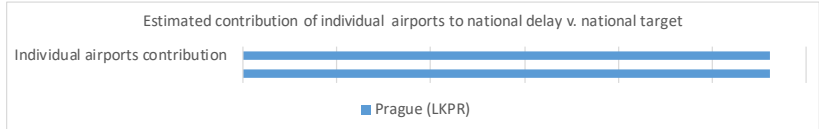
The target set for Prague is 0.40 minutes per arrival for each year of RP3. Past performance is considerably better, with the highest delay observed in 2018 (0.13 minutes per arrival) far from the targets (both old RP2 targets and new RP3 targets). Therefore, these targets do not seem to incentivise to increase or maintain the performance observed in RP2.

Prague is the only airport included in the performance scheme.

Czech Republic experienced high traffic growth rates at the regulated airports during RP2. A local forecast is chosen for the performance plan (based on STATFOR May 2021 scenario 2 forecast) expecting a CAGR in IFR movements of -1.9% in 2019-2024.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Prague (LKPR)	0.40
National Target	0.40



As Prague is the only airport included in the PP, 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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Prague (LKPR)	GROUP II	0.23	0.09	-0.13	0.40	+0.31

* 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

During RP2, the performance at Prague, in comparison with similar airports, was slightly better than the median. However, the targets set for RP3 are significantly higher than the past performance of Prague or similar airports.

3.3.5 PRB Key Points

- Prague is the only airport included in the performance plan. National targets are set equal to those in RP2, and are significantly higher than average past performance.
- Performance in Prague was significantly better than that of the group of similar airports in RP2, however, the new targets are considerably worse than those of the group of similar airports.
- Based on past performance and the information provided in the performance plan, more ambitious targets on arrival ATFM delay would be realistic.

3.4 Capacity Incentive schemes

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?	No
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
NOP reference values			0.11	0.11	0.11
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.11	0.11	0.11
Pivot values for RP3			0.11	0.11	0.11

Threshold and pivot value review

The pivot values are fixed and are equal to the reference values from the NOP (and national targets). There is a deadband of +/-0.01 around the pivot value before penalties or bonuses apply. Full penalties / bonuses apply at +/-0.05 from the pivot value.

Modulation review

No modulation applied.

Review of financial advantages/disadvantages

A maximum bonus / penalty applies: 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±1.0%	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)			±0.200	±0.200	±0.200
Performance Plan targets			0.40	0.40	0.40
Pivot values for RP3			0.40	0.40	0.40

Threshold and pivot value review

The terminal incentive scheme includes a dead band of 1% around the national target (dead band: 0.0396 - 0.0404 minutes per arrival). This 1% dead band seems too small to be able to allow for small variations in performance with no associated bonuses/penalties. The pivot value, not modulated, represents significant worse delays than the observed performance in the past.

Modulation review

Czech Republic has decided to not modulate the pivot values for the terminal incentive scheme.

Review of financial advantages/disadvantages

The terminal incentive scheme is symmetric. The penalty (only 0.5%) together with the extremely 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. In fact, even increasing twofold the past observed delays would result in the maximum bonus (0.5%).

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

⚠

En route:

- Czech Republic has chosen not to modulate the pivot which are set equal to the national reference values.
- Maximum bonus and penalty is set at 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.

Terminal:

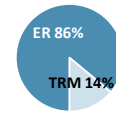
- Czech Republic has chosen not to modulate the pivot values which are set equal to the national performance targets.
- Maximum bonus and penalty is set at 0.5%.
- The dead band around the pivot value may be too small to allow for minor variations in performance without triggering financial incentives.
- 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 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	26.2	26.4	31.8	36.3	35.4	156.1
En route	M€ (nominal)	22.6	23.6	27.1	30.9	30.1	134.3
Terminal	M€ (nominal)	3.6	2.9	4.7	5.4	5.3	21.8

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 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	TRM
1	DPS – Data processing and presentation	Enhancements of legacy FDPS (E2000), implementation of new functionalities required by users, functionalities defined in the legally binding documents (EU regulations) Customization and transition of existing FDPS to the role of backup and support for new ATM system planned to be operational 2022, including supplementary processing that is not part of the new ATM system. More details are provided in Section 2.1 and Annex E of the performance plan.	37.1	Yes	Yes	15.9	2.6
2	DPS – New system	Within the RP3, ANS CR expects a cut-over to a new FDP system. All the payments related to SAT and System Readiness are to be made in that period. Subsequently, the implementation of new functionalities into TopSky - HMI, FDP evolutions, TCT, AMAN, ATN Base 2 integration, modifications triggered by operational requirements are going to be achieved then. More details are provided in Section 2.1 and Annex E of the performance plan.	22.7	Yes	Yes	19.1	3.4
3	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. Additional note: Investment 'Construction works at IATCC ATS room' is a prerequisite for successful implementation of the 'ATS optimisation' project.	5.2	No	No	0.9	0.2
Total:						35.9	6.2

Airspace user feedback regarding major investments

The airspace users expressed their concerns about the reduction in overall CAPEX and requested more details regarding the quantification of the benefits expected from major investments. Czech Republic clarified that if the planned CAPEX is not spent, it will be reimbursed to the airspace users and provided the requested details about investments in an annex to the performance plan.

Review of investments

Investments #1 and #2 were included in the RP2 performance plan and will continue throughout RP3. New major investments represent 27% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 32% higher than the planned for the same period and the amount overspent was 38.9M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total costs related to investments were 18.1M€ lower than determined. Czech Republic noted that the difference between the originally planned determined costs for the delayed investments and 80% of the overtime costs will be reimbursed to airspace users, resulting in approximately 3.2M€ over the period, which were deducted from the cost base.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Construction works at IATCC ATS room	None included	None included	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 RP3 (M€)
Other new investments	60.8	57.2	7.3	5.5	4.2	4.2	4.9	26.2
Existing investments			18.8	20.8	20.0	18.4	11.2	89.3

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? 
- There is a capacity surplus in Czech Republic during RP3, varying between 5% and 8%.
- The main new major investment defined for RP3 in Czech Republic contributing to capacity is the DPS – New system investment which is also linked to PCP/CP1 ATM Functionalities AF1, AF3, AF4, AF5, and AF6. The current ATM system is being transitioned to back-up role under the DPS – Data processing and presentation investment and supports functionalities not available in the new system and can therefore be considered a capacity enabler. These investments also contribute to resilience, scalability and flexibility.
- There are no other (non-major) investments defined for Czech Republic. Annex E to the performance plan does however define additional activities/investments which can contribute to enroute capacity enhancement, such as the Centralization of regional APPs with ‘ATS optimisation’ restructuring project (planned for 2019-2024), and airspace developments (planned for 2019-2024).
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 
- The DPS – New system investment will introduce upgrades to the HMI, FDP evolutions, tools such as TCT, AMAN capabilities, ATN Baseline 2 integration, and various modifications triggered by operational requirements. The DPS – Data processing and presentation investment will introduce new DCB/TCM functions, support to CDM functions at Praha airport and further development of Air-Ground data link functions.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? 
- As Prague ACC has some capacity surplus throughout RP3 capacity related investments are not critical. The new system will be introduced operationally 2021-2024, implying phased deployment of the various capabilities. Based on the evidence provided in the performance plan and Annex E to the plan it can be argued that actions have been taken to ensure capacity availability beyond RP3 as well.

3.5.4 PRB Key Points

- Two investments were also included in the RP2 performance plan.
- The actual CAPEX for RP2 was 32% higher than the planned for the same period and the amount overspent was 38.9M€. Despite overspending on investments, the total costs related to investments were 18.1M€ lower than determined. Czech Republic noted that the difference between the originally planned determined costs for the delayed investments and 80% of the overtime costs will be reimbursed to airspace users, resulting in approximately 3.2M€ over the period, which were deducted from the cost base.
- There is a capacity surplus expected in Czech Republic during RP3.
- There are en route capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities AF1, AF3, AF4, AF5, and AF6. These investments also contribute to resilience, scalability and flexibility.
- No critical timing issues are identified.

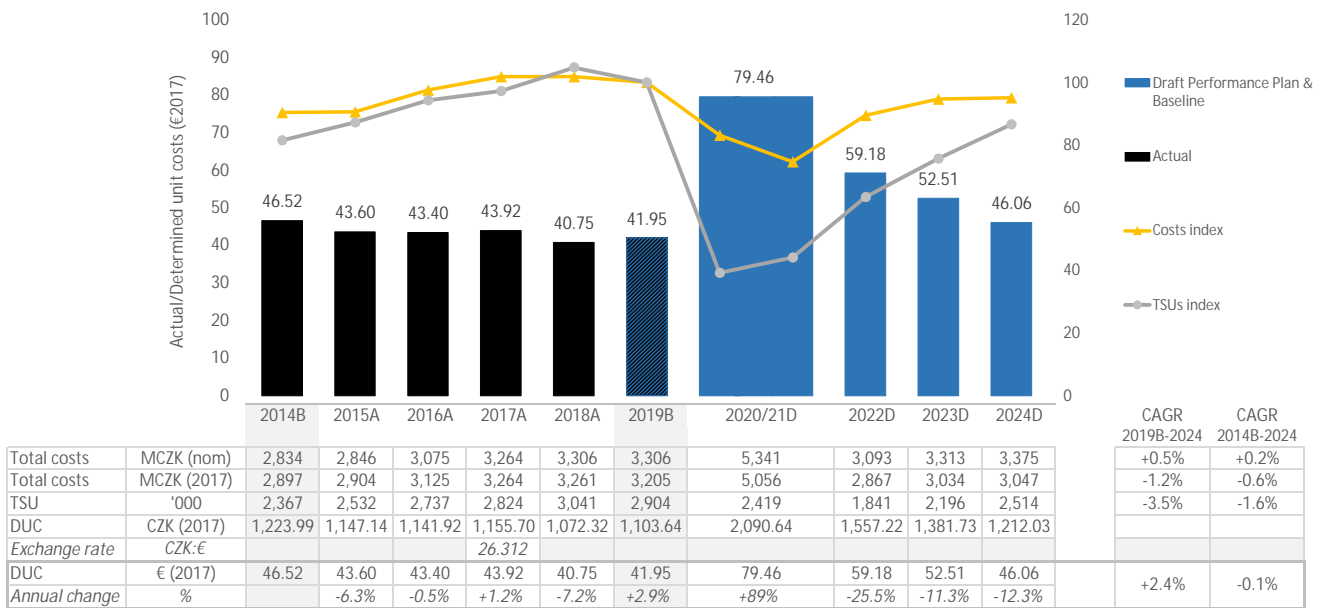
CZECH REPUBLIC

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Czech Republic - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 41.95 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? +2.4% ✗
The DUC is planned to increase on average by +2.4% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%). However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -0.1% ✗
The DUC is planned to decrease on average by -0.1% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%). However, the deviation (11.9M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- c) DUC level (2019 baseline) lower than the average of comparator group (C) average (38.85 €2017)? +8.0% ✗
The 2019 DUC level is +8.0% higher than the average of the comparator group.
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? - ✓
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? - n/a

4.1.4 PRB Conclusions ✓

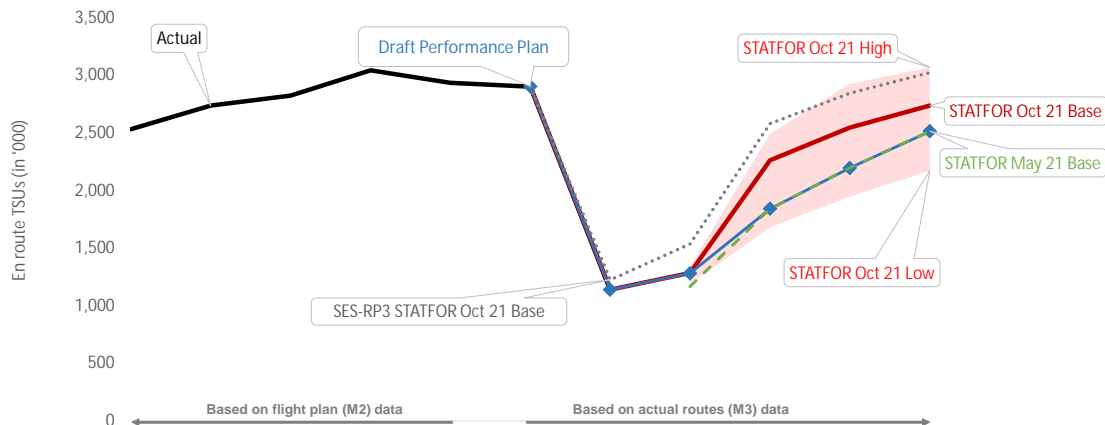
The PRB concludes that the cost-efficiency targets proposed by Czech Republic should be approved.

- Czech Republic is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Czech Republic is not consistent with the long-term Union-wide DUC trend. However, the deviation (11.9M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Czech Republic is not consistent with the average DUC baseline of the comparator group.

4.2 Review traffic forecasts and baseline

Czech Republic - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	2,532	2,737	2,824	3,041	2,936	2,904	1,138					
Annual change	%		+8.1%	+3.2%	+7.7%	-3.5%	-4.5%	-60.8%					
STATFOR Oct 21 Base	'000 TSUs								1,285	2,262	2,545	2,738	-5.7%
Annual change	%								+12.9%	+76.1%	+12.5%	+7.6%	
STATFOR May 21 Base	'000 TSUs								1,165	1,841	2,196	2,514	-13.4%
Annual change	%								+2.3%	+58.0%	+19.3%	+14.5%	
Performance Plan	'000 TSUs						2,904	1,138	1,280	1,841	2,196	2,514	-13.4%
Annual change	%						-4.5%	-60.8%	+12.5%	+43.8%	+19.3%	+14.5%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	2,904		2014B (PP baseline)	2,367	
2019A (as in the Reporting tables, M2)	2,936		2014A (as in the Reporting tables, M2)	2,393	
2019B/ 2019A	-1.11%	-1.11%	2014B/ 2014A	-1.11%	-1.11%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-1.11%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-1.11%). The coefficient slightly decreases the 2014 and 2019 traffic baselines, while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- Czech Republic used STATFOR 2021 May base forecast for 2022-2024. Based on the actual traffic data, recovery of air traffic in Czech airspace, is slightly slower than in NM area. In Annex T of the performance plan, Czech Republic explained that based on the actual observed trend (November 2021) there is a gap of 18.5% between the traffic recovery rate within NM area and within Czech Republic (November 2021). Czech Republic also explained that before the COVID-19 pandemic, the Czech airspace was affected by the additional traffic from congested neighbouring FIRs, which will unlikely materialise in RP3.
- Czech Republic considers the STATFOR October 2021 too optimistic and not realistic, mentioning a potential negative impact on the company's financial stability connected to a default on the loan covenants.
- Further explanation on the choice of traffic forecast is presented in Annex T of the performance plan.
- For 2021, the actual service units have been used.

Review of the PP traffic forecast

The recovery of traffic in Czech Republic is slower than on average in the SES RP3 area. At the end of October, the traffic level for Czech Republic was -59.3% of the 2019 level (cumulative) for comparison for SES RP3 area the traffic level was -50.6% lower than in 2019.

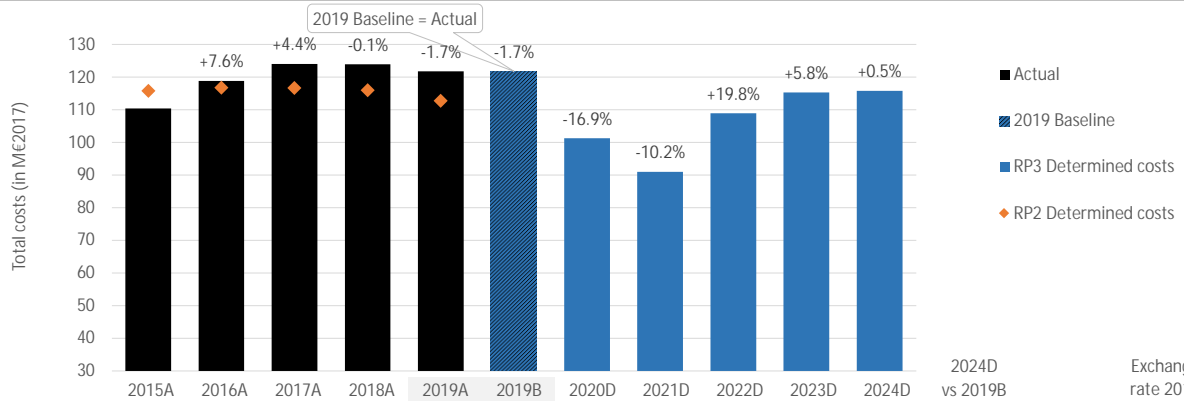
4.2.4 PRB Key Points

- The en route traffic of Czech Republic is based on STATFOR May 2021 for years 2022 to 2024. For 2021, the actual service units have been used.

4.3 Review of determined costs and baseline

Czech Republic - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	MCZK (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	MCZK (nom)	2,846	3,075	3,264	3,306	3,306	3,306	2,801	2,540	3,093	3,313	3,375	+2.1%
Annual change	%		+8.0%	+6.1%	+1.3%	-0.0%	-0.0%	-75.3%	-9.3%	+21.8%	+7.1%	+1.9%	+12.1%
Inflation index	2017 = 100	97.1	97.7	100.0	102.0	104.7	104.7	108.1	110.6	112.8	115.0	117.3	
Total costs	MCZK (2017)	2,904	3,125	3,264	3,261	3,205	3,205	2,664	2,393	2,867	3,034	3,047	-4.9%
Annual change	%		+7.6%	+4.4%	-0.1%	-1.7%	-1.7%	-16.9%	-10.2%	+19.8%	+5.8%	+0.5%	
Total costs	M€ (2017)	110	119	124	124	122	122	101	91	109	115	116	-4.9%

Exchange rate 2017
CZK:€
26.31150

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ⓘ Is inflation in PP in line with IMF (October 2021 forecast)? **Deviation from index < 1p.p. in 2024**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments were applied to the 2014 and 2019 cost baselines.

2014/2019 baseline analysis

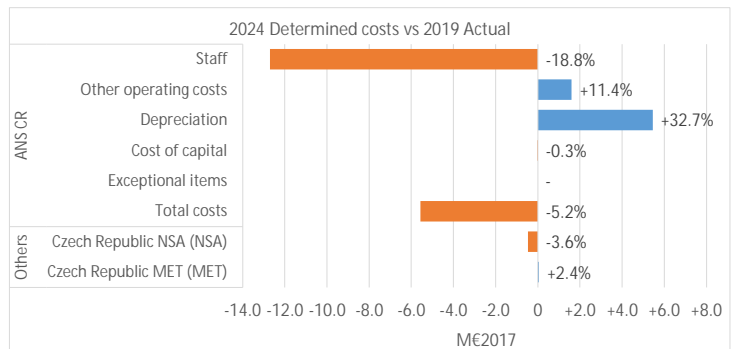
The 2014 and 2019 cost baselines are in line with the 2014 and 2019 actual costs as presented in the en route reporting tables.

4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- ⓘ 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



The total costs of Czech Republic are planned to decrease by -4.9%, or -6.0M€2017, between 2019 actuals and planned 2024.

In 2024, the en route determined ANSP costs of the main ANSP are planned to be lower than the 2019 actual costs (-5.2%, or -5.6M€2017 overall), mainly due to a decrease in staff costs (-18.8%). On the contrary, other operating costs and depreciation costs are planned to increase by +11.4% and +32.7%, respectively.

- The decrease in staff costs is the result of the cost containment measures implemented by ANS CR in response to the COVID-19 pandemic which lead to a permanent reduction of staff (-73 FTEs with the effect starting from 2021 onwards, and -40 FTEs temporarily). Both measures affect non ATCO staff. In addition, the new collective agreement was negotiated, based on which some staff benefits have been postponed or cancelled and the variable parts of salaries were reduced for a limited period of time.

- Other operating costs were also cut in 2020 and 2021, however as explained in the performance plan, postponed compulsory maintenance works are planned to be executed at the end of RP3 which may explain the increase of other operating costs. In RP2, a decrease was observed for other operating costs from 460M€2017 in 2017 to 369M€2017 in 2019.

- The higher depreciation costs are related to the planned major investments implementation, which includes the installation of the new ATM system (TopSky).

The costs for the NSA are planned to decrease (-3.6%). On the other hand, the costs for MET are planned to increase slightly (+2.4%).

En route service units will not reach 2019 levels in RP3, the same is forecasted for en route costs. Based on the forecast applied by Czech Republic (STATFOR 2021 May base forecast), at the end of 2024 the service units are forecast to be -14.4% lower than the 2019 actual traffic (or -13.4% compared to the 2019 traffic baseline), while the en route costs are forecasted to be -5.3% lower.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.

- Between 2019 and 2024, the total costs for ANS CR are planned to decrease by -5.2%.

- The increase in depreciation is related to the implementation of the new ATM system (TopSky).

- Czech Republic presented significant decreases in costs for the entire period, especially in 2020 and 2021 following cost saving efforts in response to the pandemic.

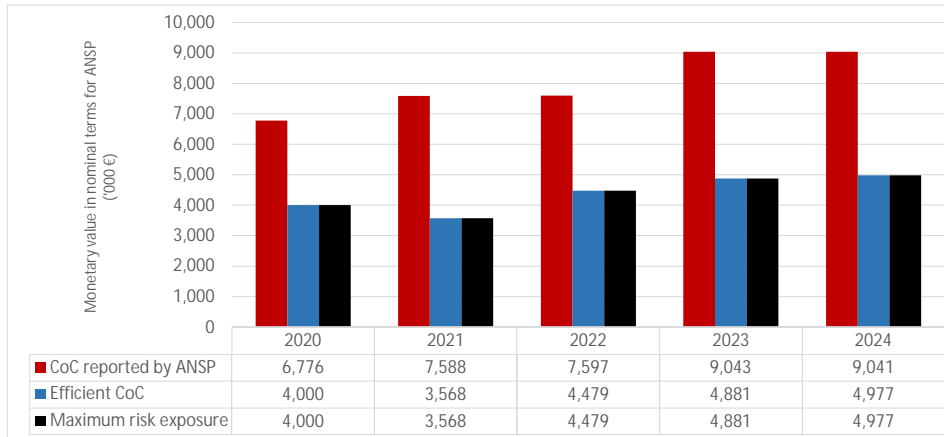
4.3.A Cost of capital

ANS CR - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	90,913	81,085	101,785	110,923	113,119
Monetary value of Return on Equity	6,681	7,292	7,245	8,705	8,765
Ratio RoE/DC (%)	7.3%	9.0%	7.1%	7.8%	7.7%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	2,776	4,020	3,119	4,162	4,064

Total 2020-2024
18,140

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	5.6%	n/a	9.2%	n/a	10.0%	n/a	9.0%	n/a	8.4%	n/a
Interest on debts	0.4%	n/a	0.4%	n/a	0.4%	n/a	0.4%	n/a	0.4%	n/a
Capital structure (% debt)	18.4%	n/a	45.8%	n/a	52.6%	n/a	43.8%	n/a	37.9%	n/a
WACC	4.6%	2.7%	5.2%	2.4%	5.0%	2.9%	5.2%	2.8%	5.4%	3.0%

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 are duly justified and in line with competitive market practices.
- The WACC reported in the performance plan has been calculated based on the CAPM.
- The efficient cost of capital is computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 18.1M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (between 7.1% and 9.0%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	129,382	128,230	134,547	152,379	146,520
Net current assets	17,543	18,530	18,319	20,523	20,903
Adjustments total assets	0	0	0	0	0
Total asset base	146,925	146,760	152,866	172,902	167,424

- The fixed asset base is planned to increase over RP3. This is in line with the increase in investments described in section 3.5 of this document.
- Even though the credit period for en route charges has been prolonged from 65 days to 120 days in 2020 and 2021, the net current assets seem excessive compared to the expected cash flow over RP3.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to increase over RP3, due to increases in both the fixed asset base and the net current assets.

4.3.A.5 PRB Key Points

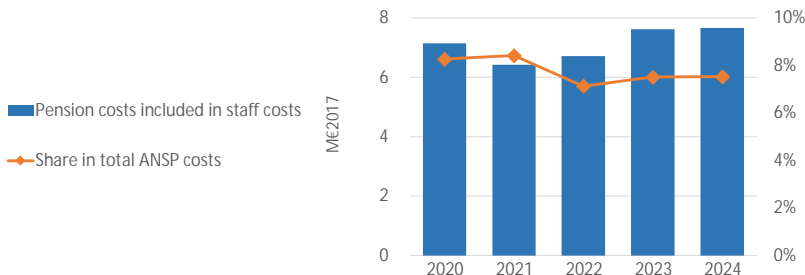


- Over RP3, the reported cost of capital is 18.1M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (between 7.1% to 9.0%).
- The net current assets seem excessive compared to the expected cash flow.
- It is unclear why for terminal the approach on cost of capital is partially different from en route.

4.3.B Pensions

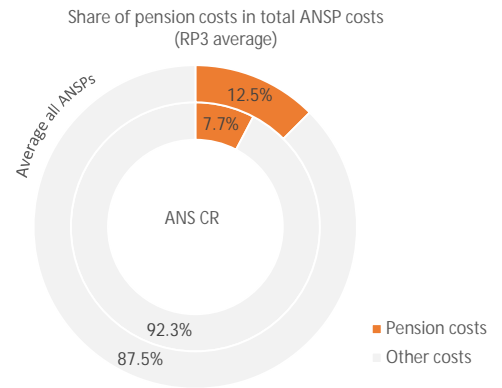
ANS CR - En route

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		-10.1%	+4.5%	+13.6%	+0.6%
Share in total ANSP costs	%	8.3%	8.4%	7.1%	7.5%	7.5%
Year on year variation	p.p.		0.2p.p.	-1.3p.p.	0.4p.p.	0.0p.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 Union-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**

Not applicable. No defined benefit pension scheme.

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

State pension contribution is planned to be at 25% during the whole RP3.

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

Contribution to the defined contribution scheme is based on the signed collective agreement. Starting from 2023, the occupational "defined contributions" rate will amount to 3% of the monthly gross wage.

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

Not applicable. No defined benefit pension scheme.

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, however as mentioned by Czech Republic in Annexes A and B of the performance plan, only mandatory pension costs are reported. The costs of other schemes are reported under general staff costs.

4.3.C Methodology for cost allocation between ER and TRM

4.3.C.1 Cost allocation overview

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

- Czech Republic did not change the cost allocation methodology with respect to RP2.
 - The allocation of costs in 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 above mentioned activity codes that are assigned to each cost item both in budgeting and accounting systems. These codes enable to identify whether a 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

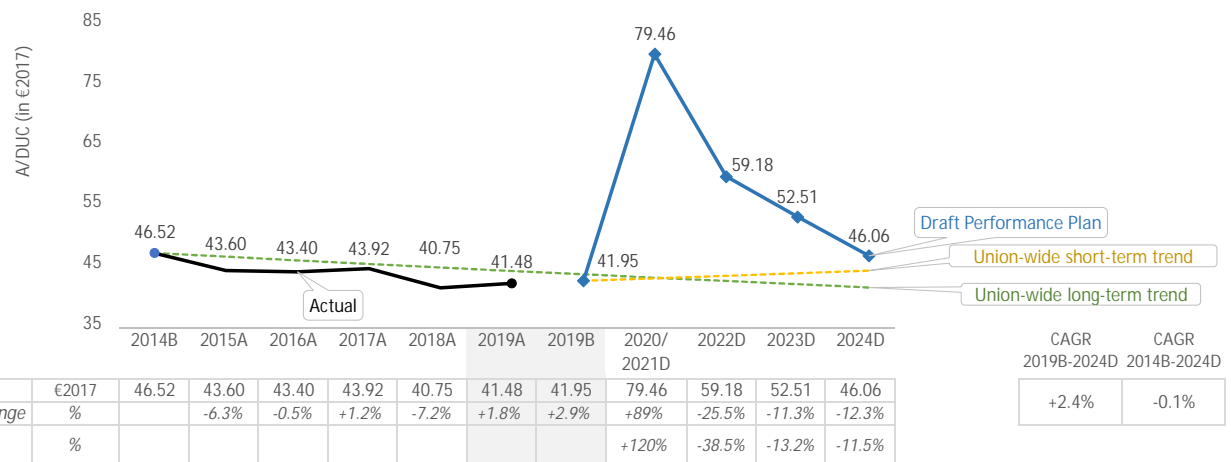
4.3.C.3 PRB Key Points

- Czech Republic did not change the cost allocation methodology with respect to RP2.
 - No major issues identified.

4.4 Determined unit costs (DUC)

Czech Republic - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+2.4%	+1.0%	+1.4p.p.
Trend (CAGR 2014B-2024)	-0.1%	-1.3%	+1.2p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	41.95	38.85	+8.0%

- The DUC is planned to increase on average by +2.4% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -0.1% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +8.0% higher than the average of the comparator group.

- The increase in the number of ATCOs in OPS, as well as the new major investments (1 and 2, see section 3.5 of this document for details) are deemed necessary to achieve the capacity targets. The costs for the new of ATCOs in OPS is estimated at 34.5M€2017, considering an additional 217.5 FTEs (yearly intakes at 1 January) over RP3 and the average staff costs for ATCOs in OPS reported by Czech Republic in the ACE 2019 benchmarking report (158,730€2017/FTE). The determined costs related to major investments 1 and 2 are estimated at 35.0M€2017.

The total determined costs over RP3 for these two items is estimated at 69.5M€2017, which spread as average for the period 2021-2024 equals to 23.2M€2017. As Czech Republic deviates by 6.1M€2017 from the RP3 trend and 11.9M€2017 from the long-term trend, such deviations are considered justified for the achievement of capacity targets.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets



4.4.4 Analysis of the DUC deviation due to restructuring costs

n/a

4.4.5 PRB Key Points

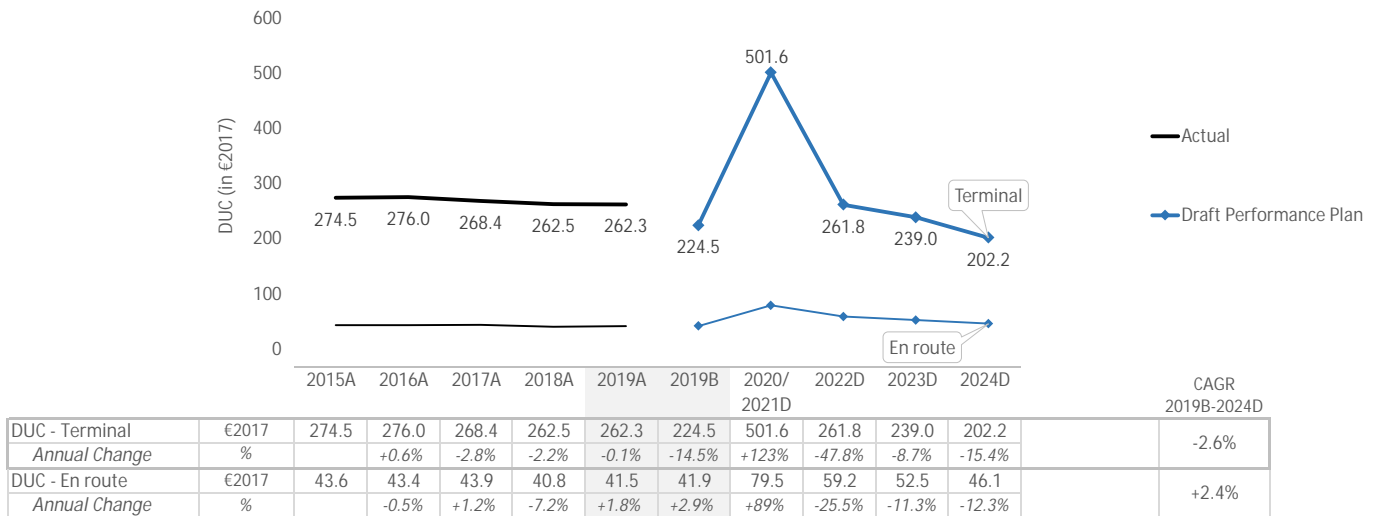


- Czech Republic is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Czech Republic is not consistent with the DUC long-term Union-wide trend. However, the deviation (11.9M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Czech Republic is not consistent with the average DUC baseline of the comparator group.

4.5 Terminal

Czech Republic

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Prague (LKPR)	GROUP II	157.2	234.1	+48.9%	190.4	254.7	+33.7%

* 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 average DUC for Prague (LKPR) airport is planned to be +33.7% higher than median DUC of its respective comparator group of airports over RP3.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	-5.9	-5.9%

2019 Traffic Baseline Adjustments	TCZ1	Yes
-----------------------------------	------	-----

#1 - Change of the terminal scope of the PP
This adjustment applies to 2019 service units with the same justification as above.

Costs

Cost Baseline analysis		Δ ME2017	%
2019B vs 2019A	TCZ1	-5.1	-19.5%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	ME2017
#1 - Change of the terminal scope of the PP	TCZ1	All	All	-5.1

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

Czech Republic changed the scope of the airports covered by the RP3 performance plan. The adjusted 2019 baselines, both traffic and costs, reflect only the values for Prague (LKPR) airport. The adjustments were made for all entities and all cost categories.

2019 baseline analysis

The 2019 baseline is calculated on the basis of 2019 actual figures. The only adjustment made to the 2019 baseline is the exclusion of three regional airports from the RP3 performance plan.

Nevertheless, the 2019 cost baseline is higher than the one from the terminal reporting tables (T1 LKPR, cell J66). The difference of 39,670€2017 (+1.0MCZK2017) increases the baseline DUC by 0.43€2017.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	No
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Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- As for en route, the terminal forecast for 2022-2024 is based on the STATFOR May 2021 base forecast and the actual data has been used for 2021.
- Czech Republic explained in Annex T of the performance plan that the STATFOR October 2021 base forecast seems to be unrealistic in the distribution of traffic growth in RP3 for Prague airport. Czech Republic claimed that the local traffic projection for Prague airport show very similar level of traffic at the end of 2024 as STATFOR October 2021 base forecast, but the distribution of traffic during 2021-2024 is more gradual.
- Further explanations on the choice of traffic forecast is presented in Annex T of the performance plan.

Review of the PP traffic forecast

The traffic level at the end of RP3 forecasted by Czech Republic is very similar to the value of to the STATFOR October 2021 base forecast. However, Czech Republic predicted more gradual distribution of the traffic during the period 2021-2024. The limited number of operations of Czech Airlines may also negatively influence the terminal forecast for Prague airport especially at the beginning of the period.

Determined costs (terminal)

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1 p.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	4.40%
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 (14%) is in line with the share of terminal total costs (13%).
- No cost of capital is charged by ANS CR for 2020-2021 (as in RP2). For 2023 onwards terminal WACC is equivalent to the one of en route.
- The terminal DUC trend in RP3 planned for Czech Republic (-2.6%) is lower than the RP3 trend planned for en route (+2.4%).
- Czech Republic applies local terminal service units for 2022 to 2024. Traffic will almost reach the 2019 levels in 2024 (-2% lower), while forecasted terminal costs will not reach 2019 actual level in RP3.
- In RP3 the total terminal costs are planned to decrease by -4.6% (in nominal terms, for LKPR only). A significant decrease of -22.7% is forecasted for the staff costs. Both other operating costs and depreciation are expected to increase by +19.9% and +14.1%. A significant increase is planned for the cost of capital (from 0.6M€ in 2019 to 38.3M€ in 2024), as a cost of capital starts to be charged as from 2022.
- The share of the terminal pension costs (12%) in total pension costs is slightly lower than the share of the total terminal costs (15%) in total determined costs.
- Czech Republic does not plan to increase terminal unit rate above the current unit rate of 6,800CZK.

4.5.4 PRB Key Points

- The terminal RP3 DUC trend is -2.6%, which is better than the en route RP3 DUC trend of +2.4%.
- The terminal RP3 DUC trend is -2.6%, which is better than the terminal RP2 DUC trend of -1.1%.
- Prague airport had a DUC +48.9% higher than the average of its comparator group in RP2. The difference is expected to be +33.7% over RP3.
- Czech Republic used a local forecast for terminal traffic for years 2022 to 2024. The terminal traffic forecast is not in line with the STATFOR October 2021 base forecast. The actual data has been used for 2021.
- Terminal costs are planned to decrease over the period.

PRB Assessment

DENMARK

Draft Performance Plan

1. Safety



Safety PP 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 EoS safety targets are consistent with the Union-wide performance targets.
- Some measures are described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.21%	1.14%	1.14%	1.14%	1.14%

PRB assessment

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

- Denmark's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.07	0.03	0.06	0.06	0.05
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 proposed by Denmark should be approved.

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

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	125.78	64.47	56.92	52.97	-2.1%	-2.4%
Target for determined unit cost (DUC) (€2017) - Terminal	355.16	163.07	148.24	139.13	n/a	-0.4%

PRB assessment

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

- Denmark is consistent with the RP3 DUC trend in terms of average reduction.
- Denmark is consistent with the long-term Union-wide DUC trend.
- Denmark is not consistent with the average DUC baseline of the comparator group.
- Some elements in the adjustment of the cost baseline should not be included. However, Denmark would achieve the cost-efficiency trends without such adjustments.

5. PRB recommendations

SAFETY

- Denmark should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Denmark should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

COST-EFFICIENCY

- Denmark should review the 2021 WACC and its components.

DENMARK

Safety KPA

1.1 Summary of safety key data and assessment results

Denmark

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 planned to be met towards the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan declares that the ANSP will implement measures derived from Commission Implementing Regulation (EU) 2017/373 and best practices from ICAO and CANSO.

The proposed measures are considered relevant. However, the detailed measures to improve safety risk management, assurance and promotion should be provided considering that the ANSP needs to improve the EoSM level in all management objectives. Specific NSA derived measures should also be provided.

1.1.3 Interdependencies and Trade-offs

The performance plan underlines that safety will always be the priority and that the other KPAs will take into account any safety implications.

1.1.4 Change Management

The change management practices, compliant with Commission Implementing Regulation (EU) 2017/373, are defined and supported by the NSA. Considering the level of details provided in the performance plan, these practices should be sufficient to control impacts on safety.

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.
- Some measures are described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Denmark should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Denmark

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
Naviair	Safety policy and objectives	B	B	C	C	C	C	✓	
	Safety risk management	B	B	B	C	D	D	✓	
	Safety assurance	B	B	B	C	C	C	✓	
	Safety promotion	B	B	B	C	C	C	✓	
	Safety culture	B	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. Naviair starts RP3 with maturity levels that are lower than the RP3 targets. These levels are progressively improving throughout RP3 and meet the RP3 targets only in 2023.

The performance plan declares that the ANSP will implement Commission Implementing Regulation (EU) 2017/373 and ensure the compliance to it. In addition, the performance plan notes that the ANSP will implement best practices from ICAO, CANSO, etc. Specific measures in the area of safety policy and objectives as well as safety culture are planned.

The proposed measures, compliant with the Commission Implementing Regulation (EU) 2017/373, are considered relevant. However, the detailed measures to improve safety risk management, assurance and promotion should be provided considering that ANSP needs to improve the EoSM level in all management objectives. Moreover, the NSA derived measures should be provided.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The 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 performance plan highlights that the biggest risk is the lack of resources, which may lead to capacity shortage in order to ensure safety level.

Moreover, the ANSP financial and personnel resources needed to support safe ATC service provision and are reviewed through the NSA continuous oversight of the ANSP's compliance with the provisions in Commission Implementing Regulation (EU) 1035/2011, specifically the provisions laid down in Annex 1.

1.3.2 Change Management Practices

Naviair has implemented change management procedures as an integrated part of the management system, compliant to the Commission Implementing Regulation (EU) 2017/373. Change management processes, including changes to ATS, CNS, QMS and SMS system and to operational procedures, airspace changes, training and the technical system, are assessed by Danish authority.

DENMARK

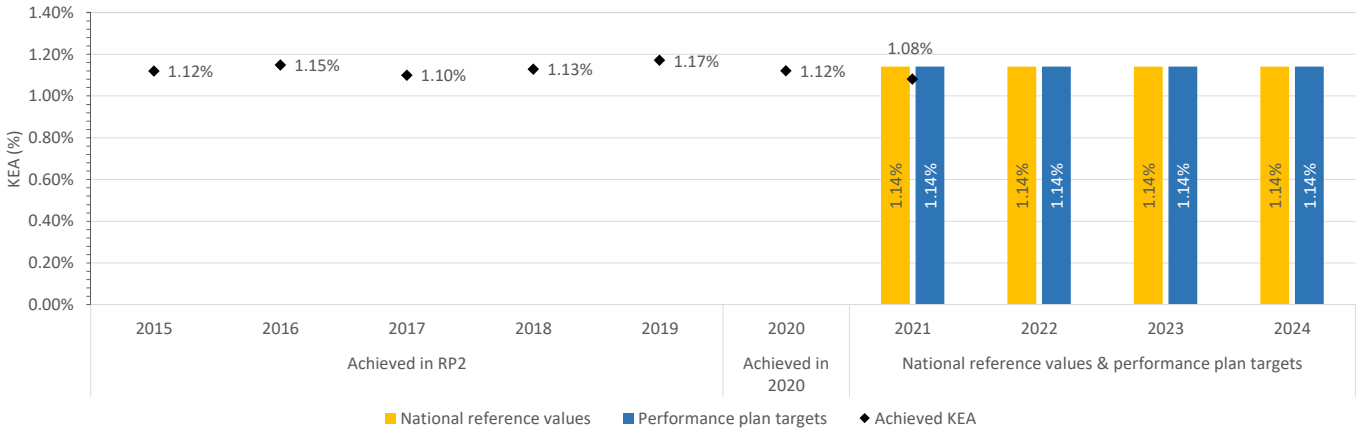
Environment KPA

2.1 Summary of Key Data and Assessment Results

Denmark

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

	2020	2021	2022	2023	2024
National reference values	1.21%	1.14%	1.14%	1.14%	1.14%
Performance plan targets	1.21%	1.14%	1.14%	1.14%	1.14%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Denmark’s horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Denmark should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Denmark

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
Denmark implemented free route airspace (FRA) within the Copenhagen flight information region (FIR) in November 2011.			3.2.1(c)	Page 39
Major ERNIP Recommended Measures:		3	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(c)	Page 205
Copenhagen SIDs/STARs re-design		✓	n/a	Page 203
FAB DK-SE - Baltic FAB Cross-border FRA		✗	n/a	Page 221
FRA vertical limits improvement		✗		
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Denmark achieved a KEA of 1.12% in 2020. In 2021, Denmark reached a KEA of 1.08% which means it achieved the 2021 target of 1.14% in its performance plan.

In terms of the measures recommended by the Network Manager (NM), Denmark plans to offer performance based navigation (PBN) and re-design SIDs/STARs as part of this, but it did not commit to offering a cross-border free route airspace (CB FRA) with BALTIC FAB or lower the available limit of its FRA from FL285 to FL095. As part of the continuous review of its route network during RP3, which Denmark has committed to, it is important that the projects recommended in the ERNIP are implemented.

Since Denmark operates several temporary reserved areas (TRAs) and temporary segregated areas (TSAs) that can be activated 24 hours a day, Naviair discusses the tactical use of military areas with the military in order to minimise the impact on civil routes. However, strategic involvement of the ANSP may also be beneficial when determining the efficient utilisation of the airspace with the military.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Denmark plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

DENMARK

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to the national reference values, are above the range of the delay forecast during 2022-2024. The capacity plans indicate that Denmark will have sufficient capacity to meet traffic demand.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Copenhagen Kastrup is the only airport included in the performance plan. The national targets is set lower than in RP2, representing an improvement to an already challenging target. Historical performance on average has been even better than the RP3 targets. The performance at Copenhagen Kastrup is expected to be significantly better than that of the group of similar airports.

3.1.3 Incentives

En route:

Denmark has chosen not to modulate the pivot values, which are set equal to national reference values.

Maximum bonus is set at 0.4% and penalty is set at 0.5%. The combination of the dead band and the pivot values results in a penalty only scheme in 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:

Denmark has chosen not to modulate the pivot values. The indicated pivot values are higher than the outstanding average past performance in RP2.

Maximum bonus is set at 0.4%, maximum penalty is set at 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

There is a capacity surplus in Denmark during RP3.

One major projects possibly contributing to en route capacity is planned for RP3 deployment and is linked to PCP/CP1 ATM functionalities AF1, AF2, AF3 and AF5.

Other investments related to back-up ATM system, communications, navigation and surveillance infrastructure contribute to resilience, scalability, and flexibility.

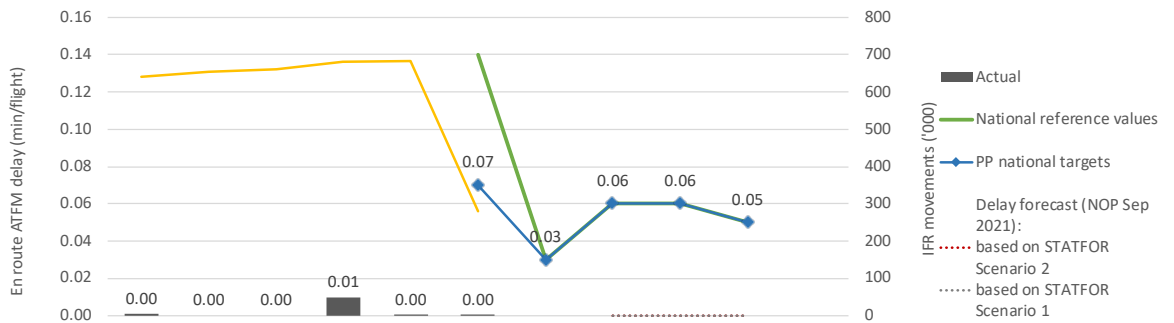
3.1.5 PRB conclusions

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

- The incentive schemes defined in the 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



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Traffic variation	+2%	+1.8%	+1.1%	+3.3%	+0.1%	-59.0%				
Actual delay/flight	0.00	0.00	0.00	0.01	0.00	0.00				
National reference values						0.14	0.03	0.06	0.06	0.05
PP national targets						0.07	0.03	0.06	0.06	0.05
Based on STATFOR Scenario 1							-	0.00	0	0.00
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Denmark experienced no capacity gaps, registering zero or near-to-zero delays. No constraints have been identified except for equipment and weather issues experienced in 2018, still generating minor delays.

The performance plan contains capacity enhancement measures which are in line with the current NOP. The performance plan actually references the measures in the NOP only without detailed description. The measures include:

- Optimising the use of FRA when military areas are active,
- Improved ATFCM techniques,
- Continuous improvements on the ATS route network and FRA sectorisation,
- Appropriate level of staffing,
- Minor updates of ATM system,
- Sector configurations adapted to traffic demand.

ATCO numbers decreased in 2021 (by 11.5%) to the levels that will be maintained with light variation until 2024.

ATCO Planning (FTEs)

	2018A	2019A	2020A	2021P	2022P	2023P	2024P
Copenhagen ACC (EKDK)	Additional ATCOs in OPS to start working in the OPS room	0	6	0	4	5	5
	ATCOs in OPS to stop working in the OPS room	0	9.65765	0	17	1	5
	ATCOs in OPS to be operational at year-end	116.658	113	113	100	104	104
Total - NAVIAIR (en route)	Additional ATCOs in OPS to start working in the OPS room	0	6	0	4	5	5
	ATCOs in OPS to stop working in the OPS room	0	9.65765	0	17	1	5
	ATCOs in OPS to be operational at year-end	116.658	113	113	100	104	104

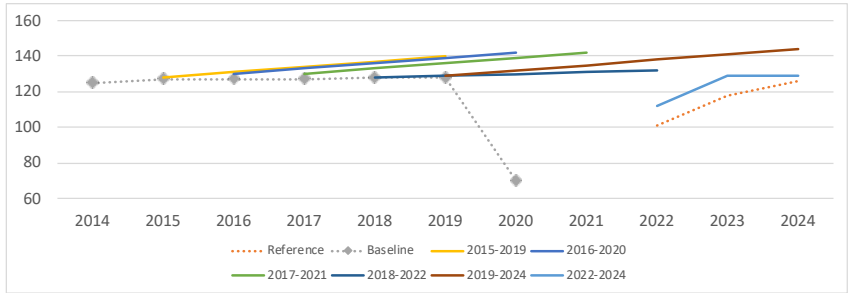
2024 (end) - 2020 (beg.)

-14

-14

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Copenhagen ACC (EKDK)



- Historical data shows an almost flat profile of baseline values over RP2. Planned values were slightly above the baseline values in all years of RP2.

- The latest planned capacity profile shows an average annual growth of 7.3%, resulting in a slightly higher value than 2019 in 2024. The latest planned values are well above the reference profile: Copenhagen ACC is expected to have a capacity surplus of 11% in 2022, 9% in 2023 and 2% in 2024.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									101	118	126
Baseline	125	127	127	127	128	128	70				
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
2022-2024									112	129	129
Latest vs Reference									11%	9%	2%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

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

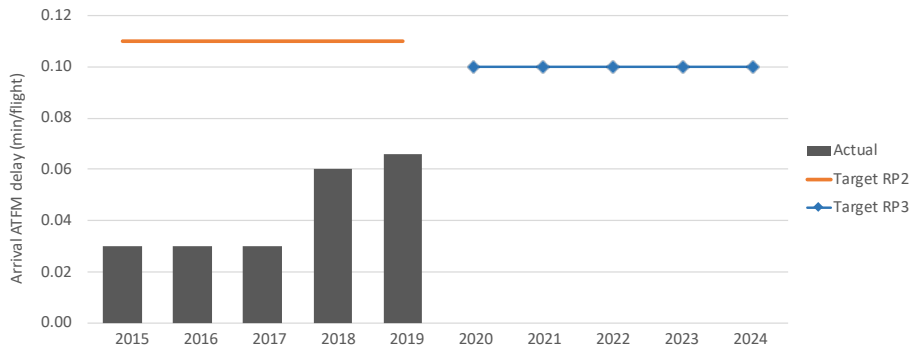
3.2.6 PRB Key Points ✔

- The proposed national capacity targets are set equal to the national reference values and are above the range of the delay forecast during 2022-2024.

- Capacity plans indicate that Denmark will have sufficient capacity to meet traffic demand.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



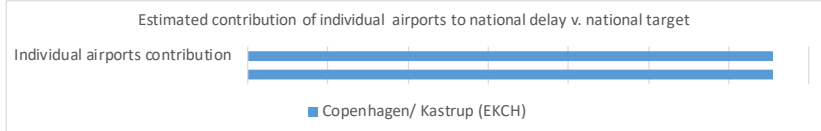
National level	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Actual	0.11	0.03	0.03	0.03	0.06	0.07	0.00	-	-	-
Copenhagen/ Kastrup (EKCH)	0.10	0.03	0.03	0.03	0.06	0.07	0.00	0.10	0.10	0.10	0.10

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. In fact, this new target (0.10 minutes per arrival, also the target for Copenhagen airport), sits only 0.03 minutes above the performance of 2019, that was an outstanding performance. The STATFOR October 2021 base forecast is chosen for the performance plan, expecting a CAGR in IFR movements of -0.3% in 2019-2024. The national target demonstrates Denmark's compromise 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 (2021-2024) 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 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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Copenhagen/ Kastrup (EKCH)	GROUP I	0.65	0.04	-0.61	0.10	-0.55

* 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

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

- Copenhagen Kastrup is the only airport included in the performance plan. The national targets are set lower than in RP2, representing an improvement to an already challenging target. Historical performance on average has been even better than the RP3 targets.
- The performance at Copenhagen Kastrup is expected to be significantly better than that of the group of similar airports.

3.4 Capacity Incentive schemes

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	0.400%	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			0.06	0.06	0.05
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.06	0.06	0.05
Pivot values for RP3			0.06	0.06	0.05

Threshold and pivot value review

The pivot value is fixed at the national reference value, there is a deadband of +/-0.05 before penalties or bonuses apply. In 2024, the combination of NOP reference value and deadband means that no bonus can apply.

Modulation review

No modulation applied.

Review of financial advantages/disadvantages

A maximum bonus of 0.4% DC can be achieved in 2022 and 2023, no bonus possible in 2024. The maximum penalty for each year is 0.5% DC, and is triggered in full at 0.05 above pivot value.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.05 min	0.400%	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
Performance Plan targets			0.10	0.10	0.10
Pivot values for RP3			0.10	0.10	0.10

Threshold and pivot value review

The Danish terminal incentive scheme has opted for the widest possible dead band (±50%) in order to avoid to the extent possible unit rate adjustments. The pivot value, not modulated, is higher than observed past performance, which was outstanding for an airport in that group.

Modulation review

Denmark has decided not to modulate the pivot values for the terminal incentive scheme.

Review of financial advantages/disadvantages

The scheme considers lower bonuses (0.40%) than penalties (0.50%). Given the pivot values and past performance, and despite the wide dead band, the scheme has high probabilities of resulting in the maximum bonus (as a result of maintaining the excellent performance).

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

⚠

En route:

- Denmark has chosen not to modulate the pivot values, which are set equal to national reference values.
- Maximum bonus is set at 0.4% and penalty is set at 0.5%. The combination of the dead band and the pivot values results in a penalty only scheme in 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:

- Denmark has chosen not to modulate the pivot values. The indicated pivot values are higher than the outstanding average past performance in RP2.
- Maximum bonus is set at 0.4%, maximum penalty is set at 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 Investments

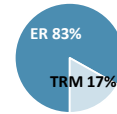
Denmark - NAVIAIR

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	21.4	20.7	20.2	20.5	20.4	103.3
	En route	17.6	17.2	16.8	17.1	17.1	85.8
	Terminal	3.8	3.6	3.4	3.3	3.4	17.4

* 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 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	TRM
1	COOPANS build 3.x extension	COOPANS TopSky is the ATM system operated in Copenhagen ATCC with connected ATS units.	4.4	Yes	Yes	10.9	0.6
2	Back-up ATM	The backup ATM system is intended for use when the main ATM system (COOPANS) is Out of Service - either planned or unplanned. More details are provided in section 2.1 of the performance plan.	0.7	No	No	0.4	0.0
Total:						11.3	0.6

Airspace user feedback regarding major investments

The airspace users made several remarks with respect to investments:

- Questioned whether COOPANS also benefits airports not included in the performance and charging scheme and why is the investment depreciated from 2020 given the 2024 entry into operation date. Denmark clarified that the investment only covers the parts under the performance and charging scheme and that the depreciation is due to previous builds of COOPANS.
- Requested more precise business cases and cost-benefit analyses. Denmark notes that further explanations and justifications were provided.
- Questioned the difference in investments with respect to the previous performance plan. Denmark explained that CAPEX was scaled back and the new investments strategy is to keep existing equipments functional while also adding new functionalities, which are required by EU law.

Review of investments

New major investments represent 11.5% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 97% of the planned for the same period and the amount underspent was 1.4M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total actual costs related to investments were 15.1M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Back-up ATM	Network, Local	Safety, Environment, Capacity, Cost-efficiency	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.

Additional information

In order to achieve these objectives, the backup ATM system needs to support new functional requirements like e.g. Mode S, ADS-B.

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 RP3 (M€)
Other new investments	4.7	3.9	0.6	1.9	2.6	3.5	3.6	12.2
Existing investments			19.1	17.0	15.4	14.3	13.3	79.2

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	VoIP BRS incl. BU-WAN extension	2.1	1.8	0.0	0.0	0.2	0.3	0.3	0.7	New VoIP Backup Radio System (End of Life, PCP)
2	Radar Esbjerg	3.6	1.4	0.0	0.2	0.2	0.2	0.2	0.8	New Mode S radar (End og Life + Borealis FRA)
3	Radar Roskilde	4.6	0.0	0.4	0.4	0.3	0.3	0.3	1.8	New combined Mode S and primary radar (End of Life)
4	VOR replacements (phase 1)	4.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	Replacement of 2 C-VOR's (End of Life) with D-VOR
5	DME replacements (phase 1)	2.8	0.8	0.0	0.0	0.0	0.0	0.0	0.1	1-to-1 replacement of 4 DME's (End of Life)
6	NAIS	1.5	1.5	0.0	0.0	0.1	0.1	0.1	0.3	Replacement of Info05 system (End of Life)
7	TWR window replacement	2.0	2.0	0.0	0.0	0.0	0.0	0.1	0.2	1-1 replacement in CPH TWR cap (End of Life)
8	TWR facade renovation	1.0	1.0	0.0	0.0	0.0	0.1	0.1	0.3	New coating to prevent corrosion (Life Extension)
9	Physical security	0.9	0.9	0.0	0.0	0.0	0.1	0.1	0.2	Increase physical security level in Navair HQ and CPH TWR
10	DME Keep Alive	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	Replacement of KAS & BEL DME's (short term Life Extension of remaining existing DME's by using replaced KAS/BEL HW as spares)

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?



Copenhagen ACC is expected to have a 11% capacity surplus in 2022 but this is expected to be reduced to 2% in 2024.

COOPANS build 3.x extension investment may yield some en route capacity benefits although these are not explicitly identified in the performance plan. The investment is linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3, and AF5 and can be expected to contribute to scalability and flexibility of the ATM system.

The other major investment concern Back-up ATM system implementation, separate from the main COOPANS system. This investment contributes mainly to resilience.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?



The COOPANS build 3.x extension investment PCP/CP1 ATM Functionality AF3 linked capabilities may include en route capacity enhancing features but the performance plan does not detail the features and capabilities associated with AF3 compliance introduced by the investment.

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



The capacity surplus expected in Denmark will be reduced during RP3 and approaches zero by the end of the reference period. The COOPANS build 3.x extension investment is planned to be operationally deployed mid-2024 and may contribute to maintaining a positive capacity outlook beyond RP3. Therefore, from timing perspective, the investment is aligned with the expected demand and capacity evolution, however details concerning the capacity enhancing measures are missing from the investment description.

3.5.4 PRB Key Points



- The actual CAPEX for RP2 was 97% of the planned for the same period and the amount underspent was 1.4M€. Despite overspending on investments, the total actual costs related to investments were 15.1M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.
- There is a capacity surplus in Denmark during RP3.
- One major project possibly contributing to en route capacity is planned for RP3 deployment and is linked to PCP/CP1 ATM functionalities AF1, AF2, AF3 and AF5.
- Other investments related to back-up ATM system, communications, navigation and surveillance infrastructure contribute to resilience, scalability and flexibility.

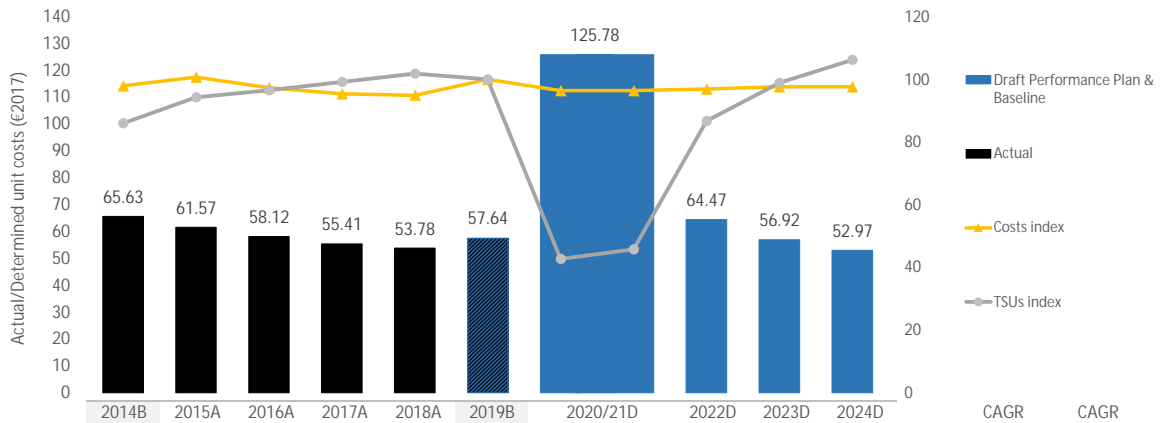
DENMARK

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Denmark - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020/21D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MDKK (nom)	699	720	695	686	687	727	1,410	718	730	738	+0.4%	+0.2%
Total costs	MDKK (2017)	705	725	701	686	684	720	1,388	698	703	703	-0.6%	-0.3%
TSU	'000	1,445	1,583	1,621	1,666	1,709	1,679	1,484	1,455	1,661	1,784	+1.5%	+0.7%
DUC	DKK (2017)	488.05	457.88	432.24	412.10	399.95	428.65	935.43	479.43	423.28	393.90		
Exchange rate	DKK:€				7.437								
DUC	€ (2017)	65.63	61.57	58.12	55.41	53.78	57.64	125.78	64.47	56.92	52.97		
Annual change	%		-6.2%	-5.6%	-4.7%	-2.9%	+7.2%	+118%	-48.7%	-11.7%	-6.9%	-2.1%	-2.4%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified?	57.64 €2017	!
Some elements included in the adjustment of the cost baseline should not be considered. However, Denmark would achieve the cost-efficiency trends without such adjustments.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	-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 (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-2.4%	✓
The DUC is planned to decrease on average by -2.4% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (B) average (45.04 €2017)?	+28.0%	✗
The 2019 DUC level is +28.0% 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

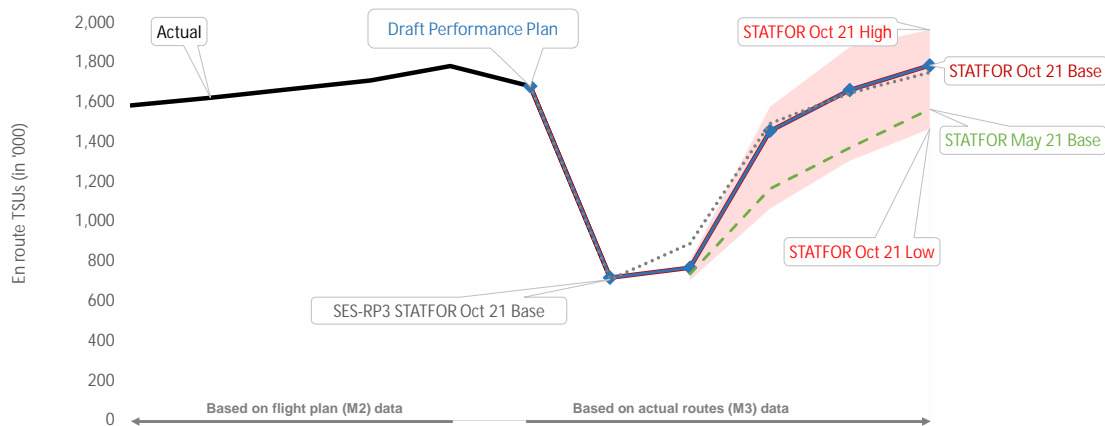
The PRB concludes that the cost-efficiency targets proposed by Denmark should be approved.

- Denmark is consistent with the RP3 DUC trend in terms of average reduction.
- Denmark is consistent with the long-term Union-wide DUC trend.
- Denmark is not consistent with the average DUC baseline of the comparator group.
- Some elements in the adjustment of the cost baseline should not be included. However, Denmark would achieve the cost-efficiency trends without such adjustments.
- Denmark should review the 2021 WACC and its components.

4.2 Review traffic forecasts and baseline

Denmark - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	1,583	1,621	1,666	1,709	1,781	1,679	717					
Annual change	%		+2.4%	+2.7%	+2.6%	+4.2%	-1.8%	-57.3%					
STATFOR Oct 21 Base	'000 TSUs								767	1,455	1,661	1,784	+6.3%
Annual change	%								+7.0%	+89.7%	+14.1%	+7.4%	
STATFOR May 21 Base	'000 TSUs								735	1,164	1,369	1,563	-6.9%
Annual change	%								+2.6%	+58.3%	+17.6%	+14.2%	
Performance Plan	'000 TSUs						1,679	717	767	1,455	1,661	1,784	+6.3%
Annual change	%						-1.8%	-57.3%	+7.0%	+89.7%	+14.1%	+7.4%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	1,679		2014B (PP baseline)	1,445	
2019A (as in the Reporting tables, M2)	1,781		2014A (as in the Reporting tables, M2)	1,532	
2019B/ 2019A	-5.70%	-5.70%	2014B/ 2014A	-5.70%	-5.70%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-5.70%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-5.70%). The coefficient decreases 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Denmark is in line with the STATFOR October 2021 base scenario.

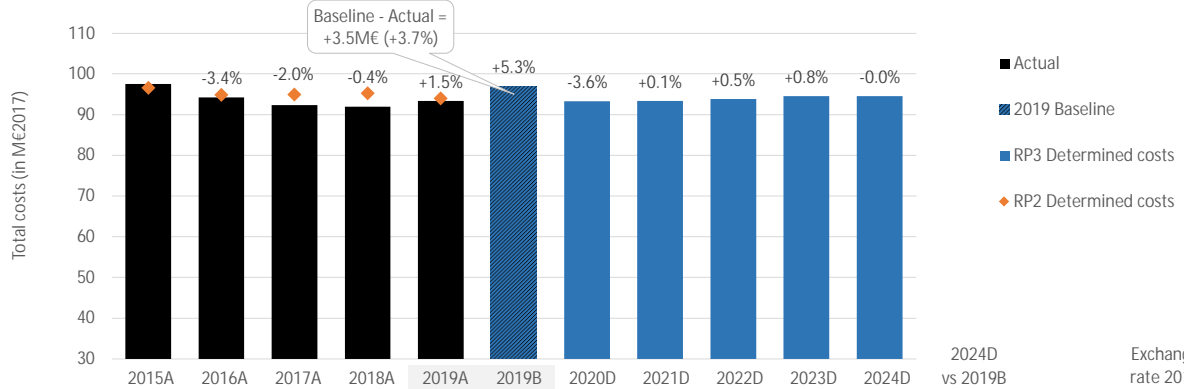
4.2.4 PRB Key Points

- Denmark en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Denmark - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	MDKK (nom)	720	695	686	687	701	727	702	708	718	730	738	+1.6%
Annual change	%	-	-3.4%	-1.3%	+0.1%	+2.0%	+5.8%	-3.4%	+0.8%	+1.4%	+1.8%	+1.1%	+5.9%
Inflation index	2017 = 100	98.9	98.9	100.0	100.7	101.4	101.4	101.7	102.8	104.2	105.7	107.4	-2.4%
Total costs	MDKK (2017)	725	701	686	684	694	720	694	694	698	703	703	-2.4%
Annual change	%	-	-3.4%	-2.0%	-0.4%	+1.5%	+5.3%	-3.6%	+0.1%	+0.5%	+0.8%	-0.0%	-2.4%
Total costs	M€ (2017)	97	94	92	92	93	97	93	93	94	95	94	-2.4%

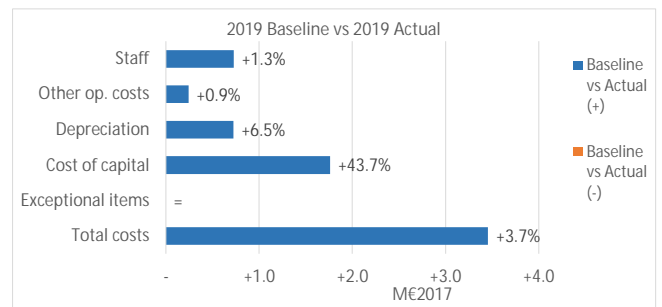
Exchange rate 2017
DKK:€
7.43692

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	3.5	+3.7%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Netted out funding #1	ANSP	Staff	+0.7
#2 - Netted out funding #2	ANSP	Other ops.	+0.2
#3 - Netted out funding #3	ANSP	Depreciation	+0.7
#4 - Revised cost of capital methodology	ANSP	Cost of cap.	+1.8

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

There is no adjustment proposed to the 2014 cost baseline.

There are two main adjustments proposed for the 2019 cost baseline for a total of +3.5M€2017 for en route:

- The discontinuation of the netting-off of determined costs with (anticipated) EU funds reported to be +12.7MDKK (+1.7M€2017) for en route. For more details see Annex F1 of the performance plan.
- The new methodology to compute the cost of capital reported to correspond to an adjustment of +13.1MDKK (+1.8M€2017) for en route. For more details see Annexes F2 to F4 of the performance plan and separate specific analysis in section 4.3.A of this document.

2014/2019 baseline analysis

The 2019 cost baseline is 96.8M€2017, which is +3.5M€2017 (or +3.7%) higher than the 2019 actual costs. Denmark explains that the difference is due to some corrective adjustments to NAVIAIR costs in 2019 to have a consistent baseline as a number of changes are implemented with effect from RP3, namely:

- The discontinuation of the netting-off of determined costs with (anticipated) EU funds reported to increase costs by +12.7MDKK (+1.7M€2017) spread over staff costs, other operating costs, and depreciation costs, which indeed would correct a structural issue during RP2. For more details see Annex F1 of the performance plan. This adjustment seems justified.
- The cost of capital (including revised return on equity, interest rate, equity base/capital structure, asset base and allocation between en route/terminal) reported to increase costs by +13.1MDKK (+1.8M€2017). This is reported to include a combined effect of a lower rate of return on equity with 5.0% in RP3 (6.67% in RP2), applied to a much larger equity based on "full equity instead of only contributed capital"; an allocation of assets to en route (70%) / terminal CPH (20%) and other (10%) instead of based on turnover and no financial income from placement of excess liquidity expected in RP3. For more details see Annexes F2 to F4 of the performance plan and separate specific analysis in 4.3.A of this document. This adjustment is not clear, and is therefore not considered in the baseline, further justifications should be provided in the future. However Denmark would achieve the cost-efficiency trends without such adjustments.

4.3.3 Review of the RP3 determined costs and incentives

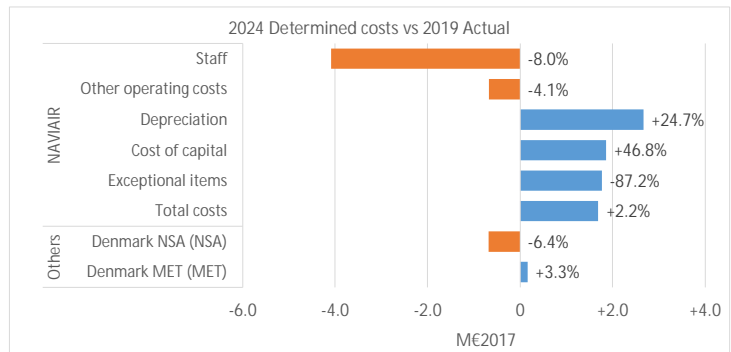
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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)	0.40%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



The 2024 total determined costs of Denmark are planned to be -2.4% below the 2019 baseline level (or -2.3M€2017), which is +1.2M€2017 above the 2019 total actual cost level (or +1.3%).

For Naviair, the main ANSP, the total 2024 determined costs are +1.7M€2017 (or +2.2%) higher than the 2019 actual costs. The cost difference related to the main ANSP between 2019 and 2024 is explained by:

- Lower staff costs (-8.0%, or -4.1M€2017) and other operating costs (-4.1%, or -0.7M€2017);
- Higher depreciation costs (+23.7%, or +2.7M€2017) and cost of capital (+46.8%, or +1.9 M€2017);
- Negative exceptional items costs (-1.8M€2017).

The key drivers reported for Naviair determined costs in the consultation material (ANNEX C refers) were the following:

- Staff costs reduced by voluntary resignations (full effect 2022) and no rehiring of vacant positions – company total of 90 FTE;
- Increases in staff costs due to training of operational staff (e.g. new ATCOs) in the end of RP3;
- Optimisation of procurement and effective administration offsets increased costs for training of operational staff;
- Depreciation: increase during RP3 due to finished projects late RP2 and early RP3;
- Cost of capital: reduced by change in interest on subordinated loan to market conform level (from 9.0% to 4.5%);
- Exceptional items reflect management decision to meet target on cost reductions with further initiatives on cost-containment.

Denmark reports that the negative costs in exceptional items reflects the necessary cost reduction beyond the initiatives implemented by NAVIAIR to meet the requirement and ultimately the costs for the airspace users. NAVIAIR will not charge the users in 2020 more than 97% of the baseline (2019 level). The final decision on where and how to implement the remaining cost reductions has not yet been decided. The airspace users will however not be charged with total determined costs for RP3 above the required cost reduction (ref decision from the Appeal Committee).

For other entities: the NSA level of costs in 2024 is lower (-6.4%, or -0.7M€2017) than in 2019 while the level of costs is slightly higher for the MET provider (+3.3%, or +0.2M€2017).

Total en route service units are forecasted to reach the 2019 level by 2024 (idem for the baseline) while en route costs are planned to reach the 2019 level in 2022 (not over RP3 when considering the 2019 baseline costs).

4.3.4 PRB Key Points

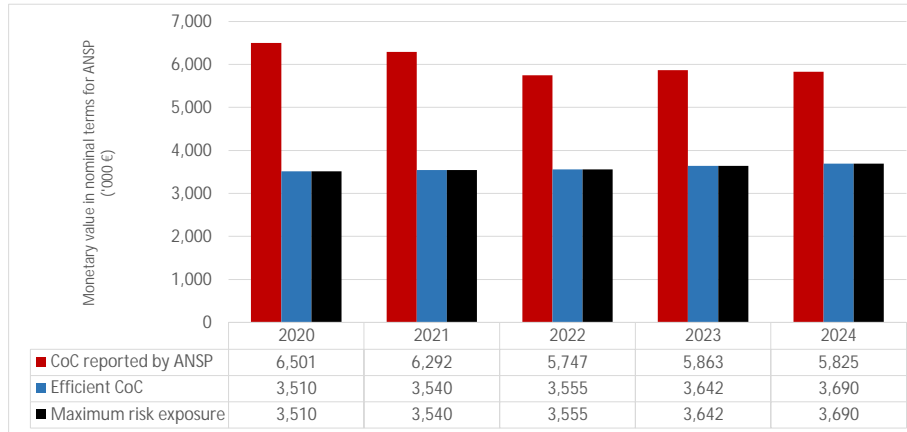
- Denmark proposes two main adjustments to the baseline. The discontinuation of the netting-off of determined costs included in the baseline value seems justified. The second adjustment is not clear, and is therefore not considered in the baseline, further justifications should be provided in the future.
- The 2024 total determined costs are planned to be -2.4% below the 2019 baseline level (or -2.3M€2017), which is +1.2M€2017 above the 2019 total actual cost level.

4.3.A Cost of capital

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	79,771	80,445	80,785	82,765	83,867
Monetary value of Return on Equity	5,954	15,316	4,005	4,087	4,113
Ratio RoE/DC (%)	7.5%	19.0%	5.0%	4.9%	4.9%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	2,991	2,753	2,193	2,221	2,135

Total 2020-2024	12,292
-----------------	--------

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	9.0%	n/a	5.3%	n/a	1.9%	n/a	1.8%	n/a	1.9%	n/a
Capital structure (% debt)	4.9%	n/a	-126.9%	n/a	53.7%	n/a	54.4%	n/a	51.8%	n/a
WACC	5.2%	2.8%	4.7%	2.6%	3.3%	2.1%	3.3%	2.0%	3.4%	2.2%

Is the interest on debts in line with the market? **No**

- NAVIAIR holds a loan with the Danish State at 9% interest rate since 2010, considerably higher than the competitive market practices. NAVIAIR recommends to consider this interest rate as not directly comparable with market rates but rather with return on equity, and explained that the interest rate on this loan is expected to decrease to 4.5% as of 2022. Being a loan, it is not clear why it should be considered as return on equity.
- The reported capital structure in the performance plan of 226.93% financing through equity in 2021 is unclear. The reported WACC might not reflect the real value because of the capital structure.
- The efficient cost of capital has been computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 12.3M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 4.9% and 19.0%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	112,114	108,401	109,494	109,632	105,746
Net current assets	12,422	30,930	67,323	73,261	68,861
Adjustments total assets	613	-4,342	-3,789	-3,789	-3,789
Total asset base	125,149	134,988	173,029	179,105	170,819

- The fixed asset base is planned to slightly decrease over RP3, in line with the investments described in section 3.5 of this document.
- The net current assets will drastically increase over RP3. Moreover, they seem excessive compared to the expected cash flow over RP3. Provisions for regulatory over and under recoveries are included in the net current assets, the justification is only provided for 2020.
- The adjustments to the RAB include investments and deferred taxes. However, the justification is only provided for the adjustments of 2020.
- The total asset base is planned to increase over RP3, due to the increase in net current assets.

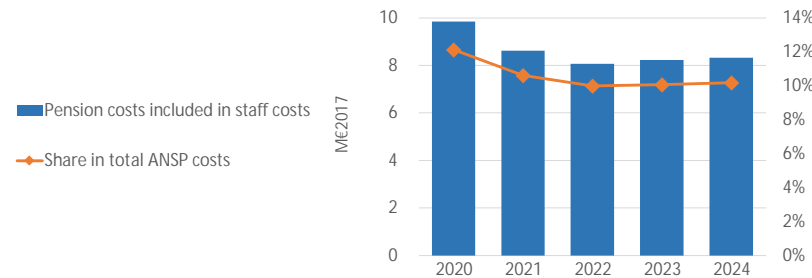
4.3.A.5 PRB Key Points



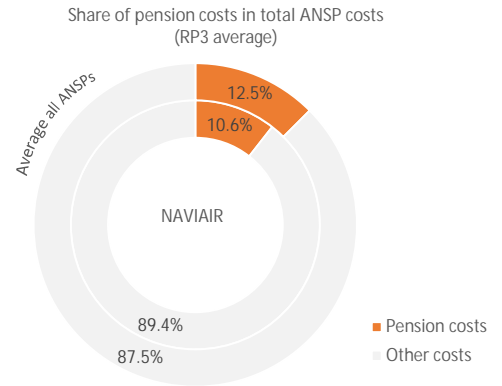
- Over RP3, the reported cost of capital is 12.3M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 4.9% and 19.0%).
- The reported capital structure of 226.93% financing through equity in 2021 is unclear. The reported WACC might not reflect the real value because of the capital structure.
- The net current assets seem excessive compared to the expected cash flow over RP3.

4.3.B Pensions

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		9.8	8.6	8.1	8.2	8.3
Year on year variation	% change		-12.5%	-6.4%	+2.0%	+1.1%
Share in total ANSP costs	%	12.1%	10.6%	10.0%	10.1%	10.2%
Year on year variation	p.p.		-1.5p.p.	-0.6p.p.	0.1p.p.	0.1p.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 Union-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? **unclear**

No detailed information is available. Denmark reports that for NAVIAIR "The percentages for pensions are different amongst groups of employees. The determined pension costs are based on an average of 17 per cent of the staff costs that are eligible for pension" (see en route reporting tables/additional information 1F). Denmark does not provide a breakdown of Naviair pension cost per scheme in their RP3 performance plan and reports that Naviair's pension costs are a mix of government defined benefit schemes, defined contribution schemes and for many employees a combination of the two. For all schemes applies that the schemes are either completely defined by central government or by collective agreements with the central government. For that reason it is considered most appropriate to describe the situation all together under "State pension schemes" (see section 3.4.3 of the performance plan).

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

No detailed information is available. See above.

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

No detailed information is available. See above.

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. Naviair also focuses on continuously training new air traffic controllers so that we can ensure future needs for air traffic controllers for the benefit of our customers." (see section 3.4.3 of the performance plan). Furthermore: "Defined benefit scheme comprises approximately 64% of Naviair's employees, ie. part of their pension is covered by defined benefit, while the rest is defined contribution. 36% of employees only have a defined contribution scheme" and that "The breakdown of the two types of pension varies according to the group (ATCO's, ATCO assistants, Technicians, Academics etc.). For ATCOs, the distribution is approx. 50%/50% between the two types of pensions, while for the other employees approx. 65-67% of salary covered by defined benefit scheme."

4.3.B.4 PRB Key Points

- The proportion of pension costs is below the Union-wide average.
- NAVIAIR does not provide enough information for a comprehensive analysis.

4.3.C Methodology for cost allocation between ER and TRM

4.3.C.1 Cost allocation overview

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

- Denmark did not mention changing the cost allocation methodology with respect to RP2.
 - For the ANSP, the allocation of costs is based on time recordings. 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.
 - For MET and NSA, the allocation of costs is based on time recordings.

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

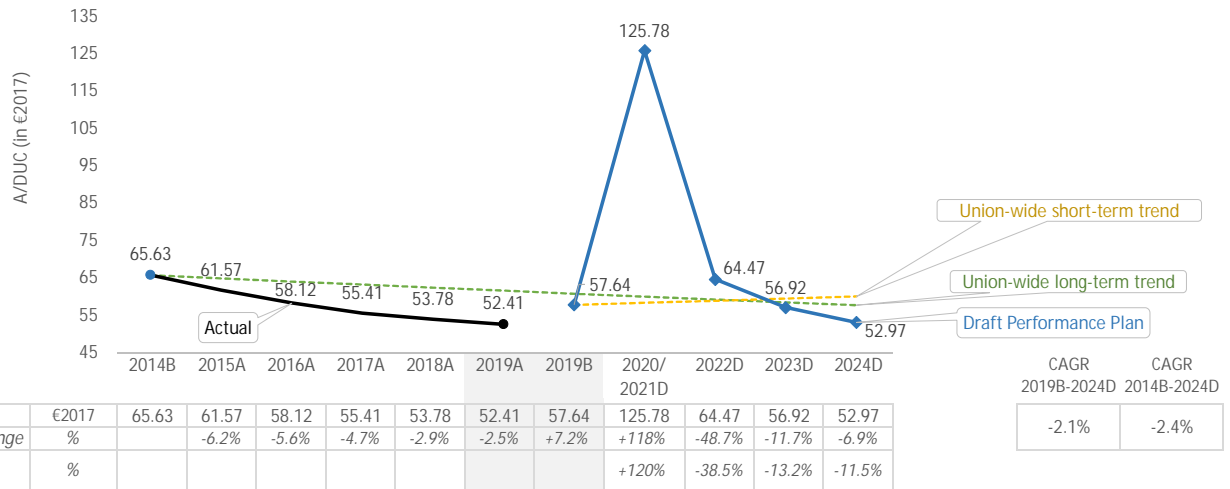
4.3.C.3 PRB Key Points ✔

- Denmark did not mention changing the cost allocation methodology with respect to RP2.
 - No major issues identified.

4.4 Determined unit costs (DUC)

Denmark - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

✓ DUC consistency with the Union-wide RP3 DUC trend	Trend (CAGR 2019B-2024)	Performance Plan -2.1%	Union-wide +1.0%	Difference -3.1p.p.
✓ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	Performance Plan -2.4%	Union-wide -1.3%	Difference -1.1p.p.
✗ DUC level consistency	2019 baseline	Performance Plan 57.64	Average comparator group 45.04	Difference +28.0%

- Denmark adjusted the cost baseline, however some elements should not be included in the adjustments (4.3 of this document). Despite this, Denmark would achieve the DUC trends also not including such adjustments.
- The DUC is planned to decrease on average by -2.1% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -2.4% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +28.0% higher than the average of the comparator 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

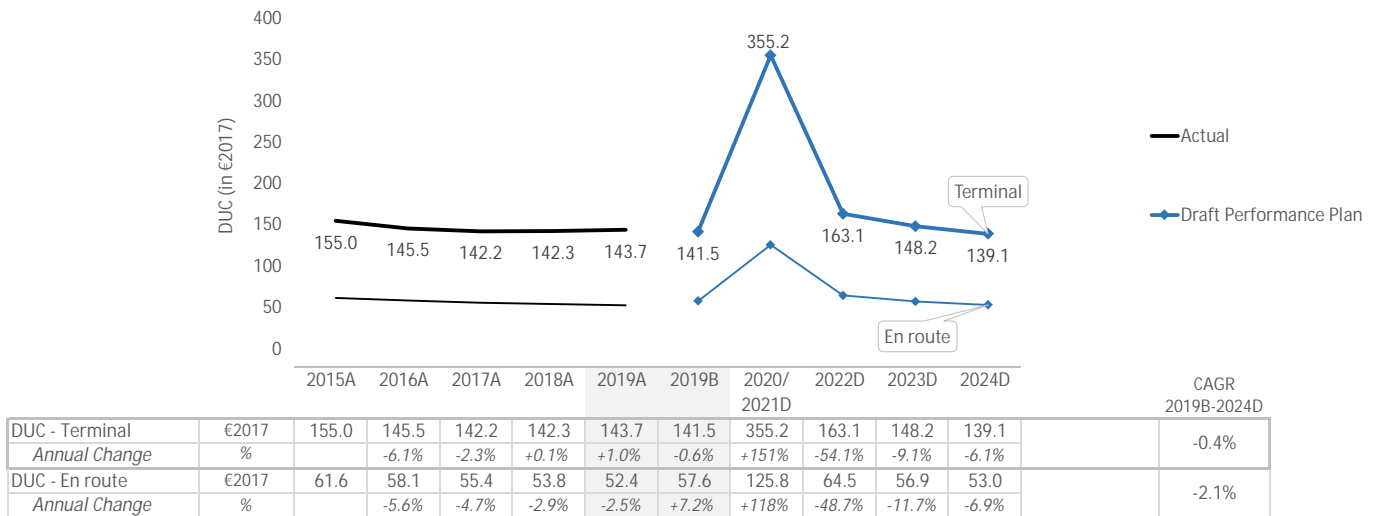
✓

- Denmark is consistent with the RP3 DUC trend in terms of average reduction.
 - Denmark is consistent with the DUC long-term Union-wide trend.
 - Denmark is not consistent with the average DUC baseline of the comparator group.
- Some elements included in the adjustment of the cost baseline should not be considered. However, the impact is minimal and not impacting the trend assessments.

4.5 Terminal

Denmark

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Copenhagen/ Kastrup (EKCH)	GROUP I	139.3	146.3	+5.0%	171.6	197.4	+15.0%

* 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 only airport in the terminal charging zone, Copenhagen/Kastrup (EKCH) is part of the Group I airports (more than 225,000 IFR mvts). Copenhagen/Kastrup (EKCH) average DUC (197.4€2017) is planned to be +15.0% above the median DUC of the comparators over RP3 (171.6€2017).

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
2019 Traffic Baseline Adjustments	TCZ1	No	

Costs

Cost Baseline analysis		Δ M€2017	%
2019B vs 2019A	TCZ1	-0.4	-1.6%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	M€2017
#1 - Netted out funding #1	TCZ1	ANSP	Staff	+0.1
#2 - Netted out funding #1	TCZ1	ANSP	Other ops.	+0.0
#3 - Netted out funding #1	TCZ1	ANSP	Depreciation	+0.1
#4 - Revised cost of capital	TCZ1	ANSP	Cost of cap.	-0.7

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

There is no adjustment to the 2019 traffic baseline.

There are two main adjustments proposed for the 2019 cost baseline for a total of -2.9MDKK or -0.4M€2017 for terminal ANS:

- The discontinuation of the netting-off of determined costs with (anticipated) EU funds reported to be +2.0MDKK or +0.3M€2017 (for more details see Annex F1 of the performance plan).

- The new methodology to compute the cost of capital reported to correspond to an adjustment of -4.9 MDKK or -0.7M€2017 (for more details see Annexes F2 to F4 of the performance plan and separate specific analysis in 4.3.A of this document).

2019 baseline analysis

The 2019 cost baseline is 24.4M€2017, which is -0.4M€2017 (or -2.6%) lower than the 2019 actual costs (24.8M€2017). Denmark explains that the difference is due to some corrective adjustments to NAVIAIR costs in 2019 to have a consistent baseline as a number of changes are implemented with effect from RP3, namely:

- The discontinuation of the netting-off of determined costs with (anticipated) EU funds reported to be +2.0MDKK (+0.3M€2017) spread over staff costs, other operating costs, and depreciation costs, which indeed would correct a structural issue during RP2 (for more details see Annex F1 of the performance plan).
 - The new methodology to compute the cost of capital reported to correspond to an adjustment of -4.9MDKK (-0.7M€2017). This is reported to include a combined effect of lower rate of return on equity, applied to a much larger equity based on "full equity instead of only contributed capital"; an allocation of assets to en route (70%) / terminal CPH (20%) and other (10%) instead of based on turnover and no financial income from placement of excess liquidity expected in RP3 (for more details see Annexes F2 to F4 of the performance plan and separate specific analysis 4.3.A of this document).
- It is noted that the discontinuation of the netting-off of determined costs with (anticipated) EU funds for terminal (+0.3M€2017) corresponds to a positive amount just like for en route (+1.7M€2017) whereas the adjustment to the cost of capital for terminal (-0.7M€2017) has an opposite sign than for en route (+1.8M€2017). This asymmetric adjustment induces a reallocation of costs between en route and terminal ANS.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Denmark is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

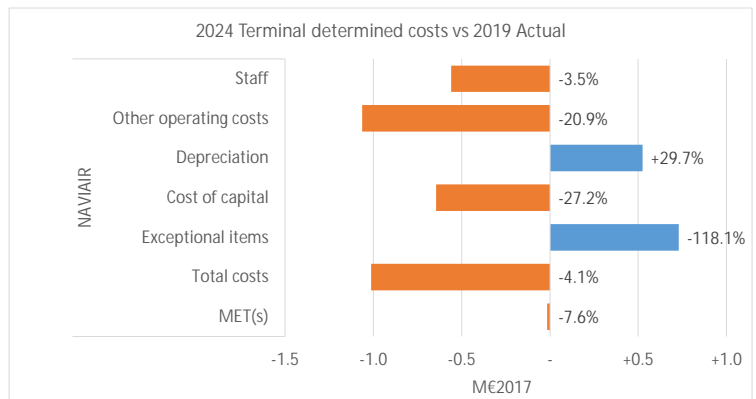
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

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	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.40%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (17%) is lower than the share of terminal total costs (22%).
- The terminal WACC is 0.12- 0.17 p.p. higher than the en route WACC for all years of RP3 and decreasing over time.
- The share of terminal pension costs in total pensions costs (24%) is comparable to the share of terminal costs in total determined costs (22%).
- Total costs in 2024 are planned to be -2.6% (or -1.0M€2017) below the 2019 actual level.
- For NAVIAIR the cost differences between 2019 and 2024 (-4.1%, or -1.0M€2017) relate to lower staff costs (-3.5%, or -0.7M€2017), other operating costs (-20.9%, or -1.1M€2017), and cost of capital (-27.2%, or -0.5M€2017).
- The terminal service units and the costs are not forecasted to reach the 2019 level over RP3.

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 -2.1%.
- The terminal RP3 DUC trend is -0.4%, which is worse than the terminal RP2 DUC trend of -1.9%.
- Copenhagen/Kastrup, the only airport included in the scope of the performance plan, had an average DUC +5.0% higher than the average of its comparator group over RP2. The difference is expected to be +15.0% over RP3.
- Denmark used the STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs of NAVIAIR are planned to decrease over the period, mainly due to lower staff costs and other operating costs.

PRB Assessment

ESTONIA

Draft Performance Plan

Context and scope

Estonia

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 10/02/2022
 Documents no: F5124, F5123, F4843, F5125, F4844, F4848, F4845, F4846

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 0.6%
 % Serv. Units vs SES 0.7%
 % Costs vs SES 0.4%

Scope

FAB: NEFAB

ANSPs: EANS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 Ministry of Interior
 Estonian Civil Aviation Administration
 Estonian Aviation Academy
 Ministry of Economic Affairs and Communications

ATS,AIS, CNS

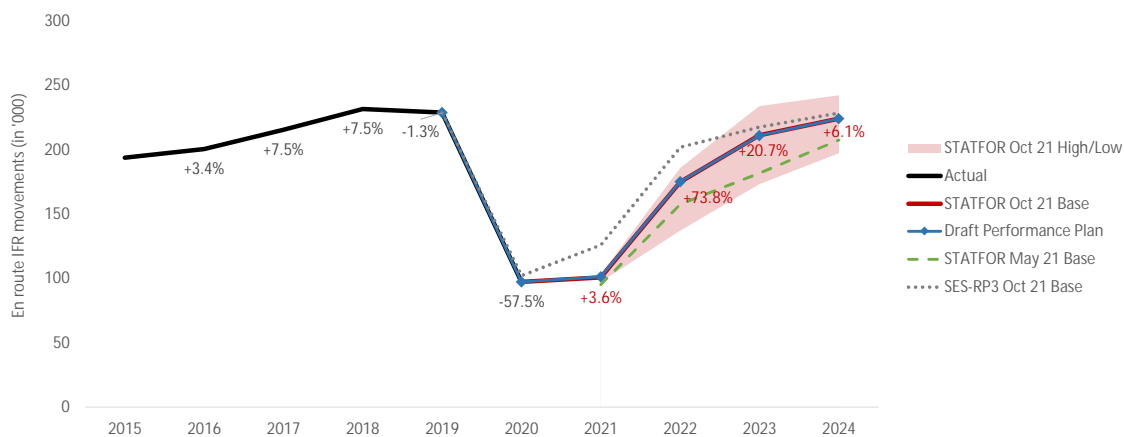
International organisation supporting European aviation
 SAR
 NSA
 Training Organisation
 -

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Estonia	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
EANS	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 Estonia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.33%	1.22%	1.22%	1.22%	1.22%

PRB assessment

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

- Estonia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Estonia did not achieve the 2021 target of 1.22% in its performance plan. For this reason and due to missing measures to achieve the RP3 targets, Estonia has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.05	0.01	0.03	0.03	0.03
National target for <u>terminal</u> 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.

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- The information provided by the performance plan is contradictory as regards the range of the dead band in the en route incentive scheme.
- The incentive schemes defined in the performance plan do not have a material impact on the revenue at risk.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	60.19	34.80	30.57	29.97	-1.7%	+2.0%
Target for determined unit cost (DUC) (€2017) - Terminal	270.66	129.77	125.37	122.71	n/a	-3.6%

PRB assessment

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

- Estonia is consistent with the RP3 DUC trend in terms of average reduction.
- Estonia is not consistent with the long-term Union-wide DUC trend. However, the deviation from the long-term Union-wide trend is considered justified by the restructuring costs.
- Estonia is not consistent with the average DUC baseline of the comparator group.

5. PRB recommendations**SAFETY**

- Estonia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Estonia should ensure it implements all relevant project outlined in the June 2021 ERNIP.

CAPACITY

- Estonia should revise the incentive schemes so that they have a material impact on the revenues, and resolve any contradictions as regards the range of the dead band in the en route capacity incentive scheme.

COST-EFFICIENCY

- Estonia should detail any change in the cost allocation methodology.

ESTONIA

Safety KPA

1.1 Summary of safety key data and assessment results

Estonia

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 RP3 Union-wide safety targets, were already met in 2020.

1.1.2 Measures planned to reach the target (if applicable)

The EANS that has already attained the EoSM target levels, plans to follow the Eurocontrol CANSO Standard of Excellence in Safety Management Systems (SoE in SMS) to continuously improve their safety performance.

1.1.3 Interdependencies and Trade-offs

The performance plan describes that the impact of changes to the ATM functional system on interdependencies and trade-offs is captured by standard safety assessment process. Long-term resource planning, including the safety related activities ensures that there is no adverse effect on safety.

1.1.4 Change Management

The 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 sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Estonia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Estonia

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
EANS	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	D	C	D	D	D	D	✓	
	Safety assurance	D	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	D	C	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. The EANS either met or exceeded the RP3 targets in 2020.

Even though the EANS has already attained the EoSM levels, 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 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The changes to EANS existing functional systems that will have safety implications are mainly related to the FINEST cross-border service provision programme, that is planned to be implemented within the RP3 timeframe. These required changes are subject to normal safety assessments and mitigated as any other ATM functional changes. However, the long-term resource planning, including the safety related activities, i.e. training, ensures that no adverse trade-offs with safety are foreseen during the reference period.

1.3.2 Change Management Practices

The 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

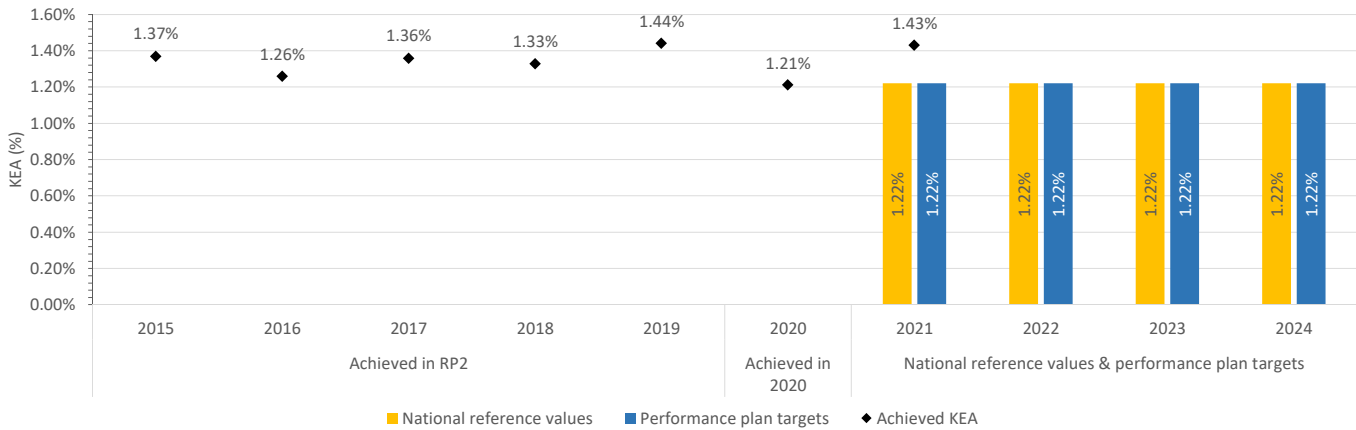
Environment KPA

2.1 Summary of Key Data and Assessment Results

Estonia

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

	2020	2021	2022	2023	2024
National reference values	1.33%	1.22%	1.22%	1.22%	1.22%
Performance plan targets	1.33%	1.22%	1.22%	1.22%	1.22%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

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

- Estonia’s horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Estonia did not achieve the 2021 target of 1.22% in its performance plan. For this reason and due to missing measures to achieve the RP3 targets, Estonia has been added to the PRB’s watchlist for further scrutiny during the annual monitoring process.
- Estonia should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Estonia

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
Free route airspace (FRA) is offered between FL95 and FL660. NEFAB FRA was implemented on 12 November 2015.		3.2.1(c)	Page 44
Major ERNIP Recommended Measures:	3	Reference in PP	Reference in ERNIP
Measure included within performance plan?		Implemented	Page 14
PBN transition plan	✓	n/a	Page 145
FINEST - preparation phase	✗	n/a	Page 180
FINEST - Cross-border sectorisation	✗		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Estonia achieved a KEA of 1.21% in 2020. In 2021, Estonia reached a KEA of 1.43% which means it did not achieve the 2021 target of 1.22% in its performance plan.

Estonia did not comment on the Finland/Estonia free route airspace (FINEST) project within the performance plan, although the PRB understands from the stakeholder consultations that preparation is underway, although the first phase is expected to have no operational impact. The PRB would have liked to see an analysis concerning the estimated impact on environmental performance.

Estonia did not provide further reasoning about the deterioration of their horizontal flight efficiency.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Estonia plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

ESTONIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Estonia proposes national targets which are equal to the national reference values, and are above the range of the delay forecast during 2022-2024. Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Estonia included two airports in the performance plan. National targets are set at zero minutes per arrival, in line with past performance and RP2 targets. The performance of both included airports are in line with that of the group of similar airports.

3.1.3 Incentives

En route:

Estonia has chosen not to modulate pivot values, which are set equal to the reference values.

There are no bonuses possible, and the maximum penalty is set at 0.5%.

The information provided by the performance plan is contradictory as regards the range of the 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.

Terminal:

Estonia has chosen to modulate the pivot values to 0.1 minutes per arrival as the national target is 0 minutes per arrival.

There are no bonuses possible and the maximum penalty is set at 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

No new investments targeting en route capacity or linked to PCP/CP1 ATM Functionalities are planned for implementation during RP3.

Other new and existing investments contribute to capacity, resilience, flexibility, and scalability.

3.1.5 PRB conclusions

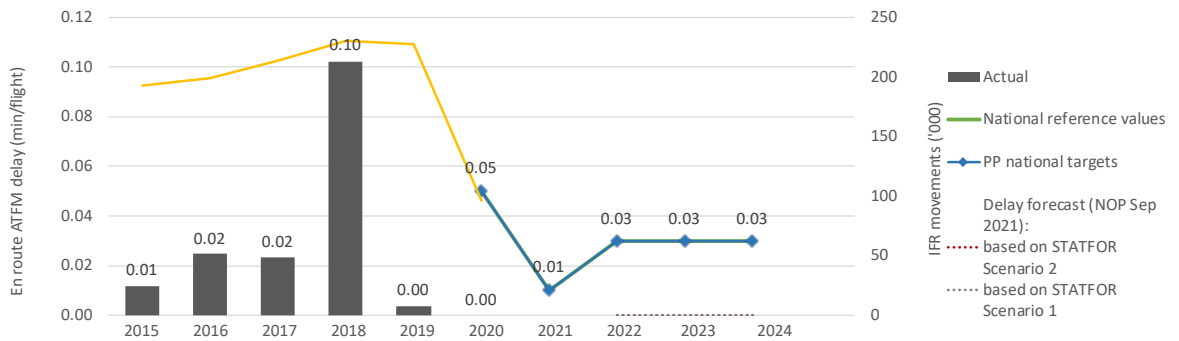
The PRB concludes that the capacity targets proposed by Estonia should be approved.

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- The information provided by the performance plan is contradictory as regards the range of the dead band in the en route incentive scheme.
- The incentive schemes defined in the performance plan do not have a material impact on the revenue at risk.

- Estonia should revise the incentive schemes so that they have a material impact on the revenues, and resolve any contradictions as regards the range of the dead band in the en route capacity incentive scheme.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+1%	+3.1%	+7.4%	+7.6%	-1.3%	-57.7%				
Actual delay/flight	0.01	0.02	0.02	0.10	0.00	0.00				
National reference values						0.05	0.01	0.03	0.03	0.03
PP national targets						0.05	0.01	0.03	0.03	0.03
Based on STATFOR Scenario 1							-	0.00	0	0.00
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, Estonia experienced capacity constraints related mostly to ATM capacity and weather, registering only minor delays, with exception of a peak in 2018, due to ATM capacity, weather impact and equipment issues, but always meeting the targets.

The plan contains generic references to the capacity enhancement measures, which are all in line with the current version of NOP. The measures are part of the FINEST program, and are covering:

- Airspace modification, sectors reassessment, adaptation of the sector opening times, dynamic cross-border sectorisation,
- ATFCM modifications, technological upgrade of the ATM system with common FDP between Estonia and Finland,
- VCS update,
- Capacity sharing with Finland,
- Common ATCO planning and rostering.

The planned number of ATCO FTEs show a 10% reduction compared to 2019. Following a drop in 2020, a minor increase is planned in 2022, but not reaching 2019 levels.

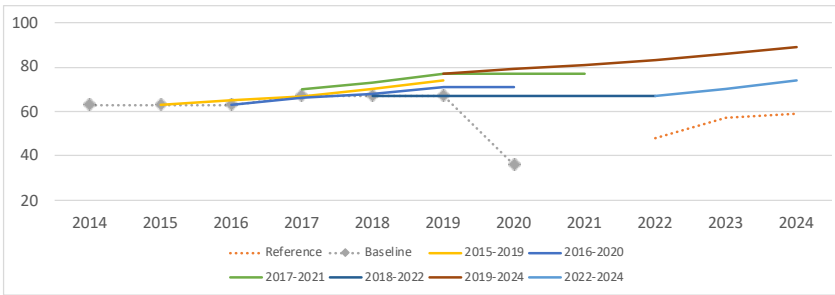
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Tallinn ACC (EETT)	Additional ATCOs in OPS to start working in the OPS room	0	5	3	2	4	2	2
	ATCOs in OPS to stop working in the OPS room	0	6	10	0	2	2	2
	ATCOs in OPS to be operational at year-end	31	30	23	25	27	27	27
Total - EANS (en route)	Additional ATCOs in OPS to start working in the OPS room	0	5	3	2	4	2	2
	ATCOs in OPS to stop working in the OPS room	0	6	10	0	2	2	2
	ATCOs in OPS to be operational at year-end	31	30	23	25	27	27	27

2024 (end) - 2020 (beg.)	
	-3
	-3

3.2.3 Review of previous and existing capacity profile plans per ACC 🔍

Tallinn ACC (EETT)



- Historical data shows 6.3% increase of baseline values in 2017, and no other changes during RP2. Plans to increase capacity profiles have not been realised in other years in RP2.

- Latest planned capacity profiles show and average annual growth of 5.1%, which results in a major surplus of 40% in 2022, 23% in 2023 and 25% in 2024.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									48	57	59
Baseline	63	63	63	67	67	67	36				
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
2022-2024									67	70	74
Latest vs Reference									40%	23%	25%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

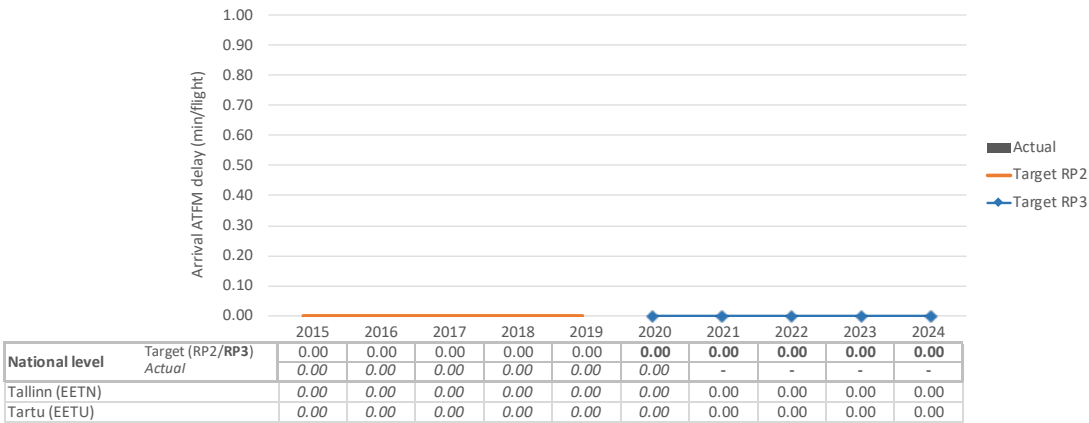
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- Estonia proposes national targets which are equal to the national reference values, and are above the range of the delay forecast during 2022-2024.
- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

3.3. Arrival ATFM delay per flight

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, Tallin and Tartu in its performance plan for RP3. These airports did not register any delays during RP2, and the target for RP3 reflects that past performance with a 0.0 minutes per arrival delay target.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Tallinn (EETN)	0.00
Tartu (EETU)	0.00
National Target	0.00

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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Tallinn (EETN)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00
Tartu (EETU)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00

* 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 Estonian airports, with zero delays, is in line with the performance at similar airport in the previous reference period.

3.3.5 PRB Key Points

- Estonia included two airports in the performance plan. National targets are set at zero minutes per arrival, in line with past performance and RP2 targets.
- The performance of both included airports are in line with that of the group of similar airports.

3.4 Capacity Incentive schemes

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			0.03	0.03	0.03
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.03	0.03	0.03
Pivot values for RP3			0.01	0.01	0.01

Threshold and pivot value review

The information provided is contradictory. According to the table (5.2.1.1), the pivot value is fixed at 0.01 minutes per flight and a deadband of +0.05 minutes means that no penalties will apply until delays are 0.06 minutes per flight. However the rationale (5.2.1.2) explains that penalties will apply at +0.01 minutes above target (0.03) i.e. 0.04 minutes per flight.

Modulation review

The rationale states that the pivot value will be modulated according to the annual update of the NOP, but it does not clarify if the pivot value will be the updated NOP reference value itself or will be a modified version of the NOP reference value.

Review of financial advantages/disadvantages

No bonus is permitted in this incentive scheme. A maximum penalty of 0.5% of determined costs is possible, although it is unclear at which level of delay it will be triggered.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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
Performance Plan targets			0.00	0.00	0.00
Pivot values for RP3			0.10	0.10	0.10

Threshold and pivot value review

As the target is zero delays, there is no dead band per se, but the performance plan included 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 - 0.10 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:

- Estonia has chosen not to modulate pivot values, which are set equal to the reference values.
- There are no bonuses possible, and the maximum penalty is set at 0.5%.
- The information provided by the performance plan is contradictory as regards the range of the 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.

Terminal:

- Estonia has chosen to modulate the pivot values to 0.1 minutes per arrival as the national target is 0 minutes per arrival.
- There are no bonuses possible and the maximum penalty is set at 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 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	6.4	5.9	4.8	5.1	5.4	27.6
	En route	5.6	5.2	4.2	4.5	4.8	24.4
	Terminal	0.8	0.7	0.6	0.6	0.6	3.3

* 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 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	TRM
Total:						0.0	0.0

Airspace user feedback regarding major investments

The airspace users did not make any remarks regarding the investment plan of Estonia.

Review of investments

Estonia did not plan any new major investments for RP3. The actual CAPEX for RP2 was 61% higher than the planned for the same period and the amount overspent was 8.8M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total actual costs related to investments were 1M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 RP3 (M€)
Other new investments	24.0	24.0	0.0	0.1	0.9	2.9	3.6	7.5
Existing investments			6.4	5.8	3.9	2.2	1.8	20.1

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	ATM	8.9	8.9	0.0	0.1	0.8	2.1	2.4	5.3	n/a
2	AIS	4.1	4.1	0.0	0.0	0.0	0.5	0.5	1.0	n/a
3	ATM RTWR	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	n/a
4	COM	2.5	2.5	0.0	0.0	0.1	0.2	0.2	0.5	n/a
5	SUR	2.4	2.4	0.0	0.0	0.0	0.0	0.1	0.2	n/a
6	SUPPORT	2.2	2.2	0.0	0.0	0.1	0.1	0.1	0.3	n/a
7	NAV	1.1	1.1	0.0	0.0	0.0	0.0	0.2	0.3	n/a

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?

Estonia has a significant (23% – 40%) capacity surplus during RP3.

No new major investments are planned for RP3, and no investments are linked to PCP/CP1 ATM Functionalities.

The main other (non-major) investment contributing to capacity is the FINEST investment. Other investments to VCS upgrade, surveillance systems upgrade and SWIM investments which can contribute to resilience, flexibility, and scalability.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

While the FINEST investment does not qualify as a major investment it should be highlighted as a cross-border initiative between Estonia and Finland enabling dynamic cross-border sectorisation and unlocking additional capacity (3% increase according to LSSIP Estonia 2019).

FINEST is fully aligned with the European ATM evolution and will contribute to resilience, flexibility and scalability.

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

As there is no shortage of capacity in Estonia it can be argued that the timing of FINEST (planned operational April 2022) and other investments are non-critical vis-à-vis capacity and no issues are identified.

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 61% higher than the planned for the same period. Despite overspending on investments, the total actual costs related to investments were 1M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.
- No new investments targeting en route capacity or linked to PCP/CP1 ATM Functionalities are planned for implementation during RP3.
- Other new and existing investments contribute to capacity, resilience, flexibility, and scalability.

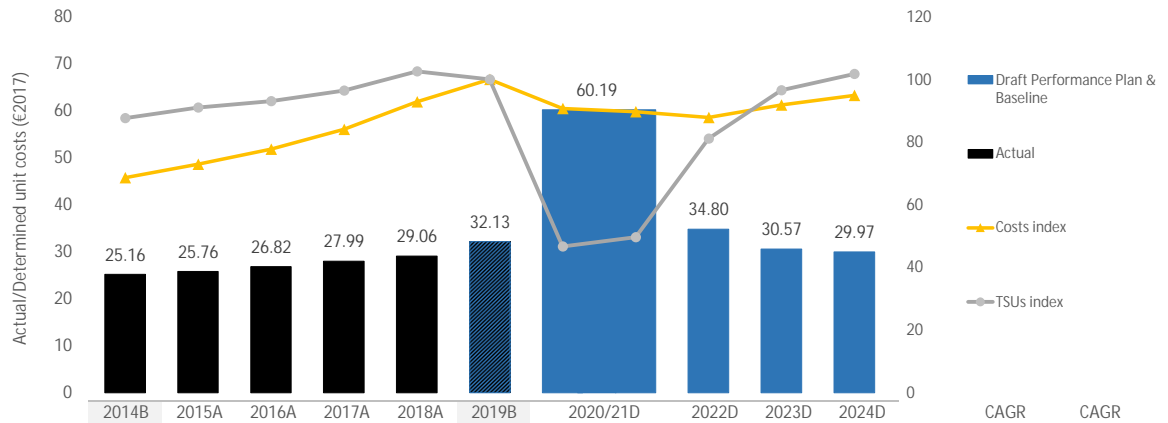
ESTONIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Estonia - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020/21D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	19	20	22	24	27	30	54	27	28	30	-0.1%	-0.1%
Total costs	M€ (2017)	20	21	22	24	27	29	52	25	26	27	-1.3%	-0.6%
TSU	'000	786	816	834	865	920	897	863	727	865	912	+0.4%	+0.2%
DUC	€ (2017)	25.16	25.76	26.82	27.99	29.06	32.13	60.19	34.80	30.57	29.97		
Exchange rate	€:€				1.000								
DUC	€ (2017)	25.16	25.76	26.82	27.99	29.06	32.13	60.19	34.80	30.57	29.97		
Annual change	%		+2.4%	+4.1%	+4.4%	+3.8%	+10.5%	+87%	-42.2%	-12.2%	-2.0%	-1.7%	+2.0%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	32.13 €2017	✓
No major issues identified.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	-1.7%	✓
The DUC is planned to decrease on average by -1.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	+2.0%	✗
The DUC is planned to increase on average by +2.0% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%). However, the deviation from the long-term Union-wide trend is considered justified by restructuring costs.		
c) DUC level (2019 baseline) lower than the average of comparator group (D) average (26.81 €2017)?	+19.8%	✗
The 2019 DUC level is +19.8% 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?	-	✓
The FINEST project can be considered for the deviation due to restructuring costs. The project delivers a net financial benefit to airspace users.		

4.1.4 PRB Conclusions

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

- Estonia is consistent with the RP3 DUC trend in terms of average reduction.
- Estonia is not consistent with the long-term Union-wide DUC trend. However, the deviation from the long-term Union-wide trend is considered justified by the restructuring costs.
- Estonia is not consistent with the average DUC baseline of the comparator group.
- Estonia should detail any change in the cost allocation methodology.

4.2 Review traffic forecasts and baseline

Estonia - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	816	834	865	920	901	897	419					
Annual change	%		+2.3%	+3.6%	+6.4%	-2.1%	-2.5%	-53.3%					
STATFOR Oct 21 Base	'000 TSUs								445	727	865	912	+1.7%
Annual change	%								+6.2%	+63.5%	+19.0%	+5.4%	
STATFOR May 21 Base	'000 TSUs								416	619	697	792	-11.7%
Annual change	%								-0.6%	+48.7%	+12.6%	+13.5%	
Performance Plan	'000 TSUs						897	419	445	727	865	912	+1.7%
Annual change	%						-2.5%	-53.3%	+6.2%	+63.5%	+19.0%	+5.4%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	897		2014B (PP baseline)	786	
2019A (as in the Reporting tables, M2)	901		2014A (as in the Reporting tables, M2)	790	
2019B/ 2019A	-0.47%	-0.47%	2014B/ 2014A	-0.47%	-0.47%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.47%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.47%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Estonia is in line with the STATFOR October 2021 base scenario.

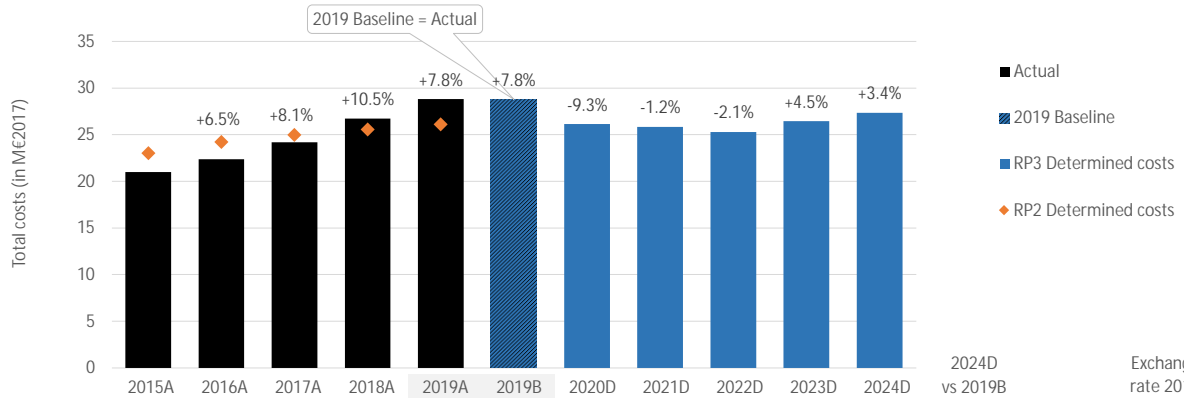
4.2.4 PRB Key Points

- Estonia en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Estonia - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	ME (nom)	20	22	24	27	30	30	27	27	27	28	30	2024D vs 2019B
Total costs	ME (nom)	20	22	24	27	30	30	27	27	27	28	30	-0.6%
Annual change	%		+7.0%	+10.5%	+12.6%	+9.3%	+9.3%	-9.5%	-0.2%	-0.4%	+5.8%	+4.5%	+8.6%
Inflation index	2017 = 100	95.7	96.4	100.0	103.4	105.8	105.8	105.8	107.7	110.4	112.7	114.8	
Total costs	ME (2017)	21	22	24	27	29	29	26	26	25	26	27	-5.1%
Annual change	%		+6.5%	+8.1%	+10.5%	+7.8%	+7.8%	-9.3%	-1.2%	-2.1%	+4.5%	+3.4%	
Total costs	ME (2017)	21	22	24	27	29	29	26	26	25	26	27	-5.1%

Exchange rate 2017	€:€	1.00000
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✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ ME2017	%
2014B vs 2014A	1.0	+5.1%
2019B vs 2019A	0.0	+0%

2014 Baseline Adjustments	Entity Type	Nature	ME2017
#1 - EUROCONTROL costs	NSA/EUROCONTROL	Other ops.	+1.0

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2014 cost baseline has been adjusted to take account of Eurocontrol costs, as Estonia started to incur Eurocontrol costs only as of 2015. The amounts added to the 2014 cost baseline correspond to the actual Eurocontrol 2015 costs for Estonia.

2014/2019 baseline analysis

The 2014 cost baseline adjustment relating to Eurocontrol costs is justified. The calculated adjustment (1.0ME2017) is equal to the actual Eurocontrol 2015 costs for Estonia. The 2019 cost baseline is in line with 2019 actual costs as presented in the en route reporting tables.

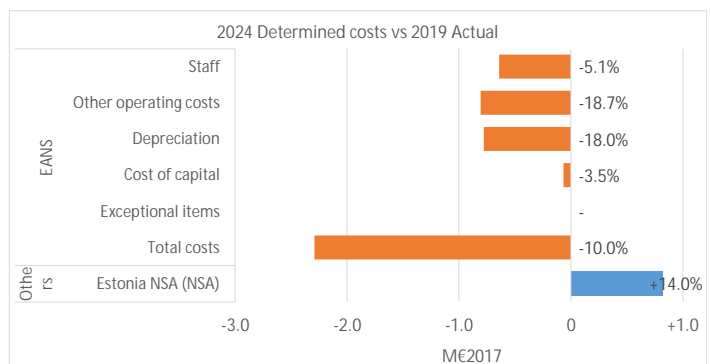
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	ME2017	%
2020 determined vs actual	-0.0	-0.0%

- 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 of Estonia are planned to reduce by -1.0% annually, resulting in an overall decrease of -5.1%, or -1.5M€2017, over the period. Cost reductions are foreseen for the main ANSP, EANS (-10.0%, or -2.3M€2017 over the period), while the costs are planned to increase for the Estonian NSA (+14.0%, or +0.8M€2017).

For EANS, the planned decrease in costs is driven by reductions in all cost categories, with major reductions foreseen in:

- Staff costs (-5.1%, or -0.6M€2017), primarily reflecting the sustained effects of the considerable cost-cutting measures implemented by EANS in 2020 and 2021, which resulted in a reduction in staff numbers by -21% (-44 FTEs). While an intake of additional staff is foreseen between 2021 and 2024, the total staff numbers (in FTEs) for EANS are planned to remain below 2019 levels by the end of RP3.
- Other operating costs (-18.7%, or -0.8M€2017), resulting from significant savings in travel and training expenditures achieved in 2020, which are planned to positively affect the level of operating costs throughout RP3.
- Depreciation costs (-18.0%, or -0.8M€2017), reflecting postponement of investments planned for 2020 and 2021. See section 3.5 of this document for more information.

For the NSA, the increase in costs (+14.0%) is mostly driven by an increase in staff costs (+34.3%, or +0.4M€2017), which, according to the information provided in Annex A to the performance plan, reflects increases in personnel and salary levels within the NSA.

En route service units are forecasted to reach 2019 traffic levels in 2024, while en route costs are planned to remain -5.1% below the 2019 actual cost levels throughout RP3.

4.3.4 PRB Key Points



- There are no adjustments to the 2019 cost baseline, while the adjustment relating to Eurocontrol costs made to the 2014 baseline is justified.
- Between 2019 and 2024, the total costs for EANS are planned to decrease by -10.0% (or -2.3M€2017).
- All cost categories of the EANS are planned to decrease, while NSA costs are planned to increase due to increases in personnel and salary levels.
- Estonia presented significant decreases in costs for the entire period following cost saving efforts in response to the pandemic.

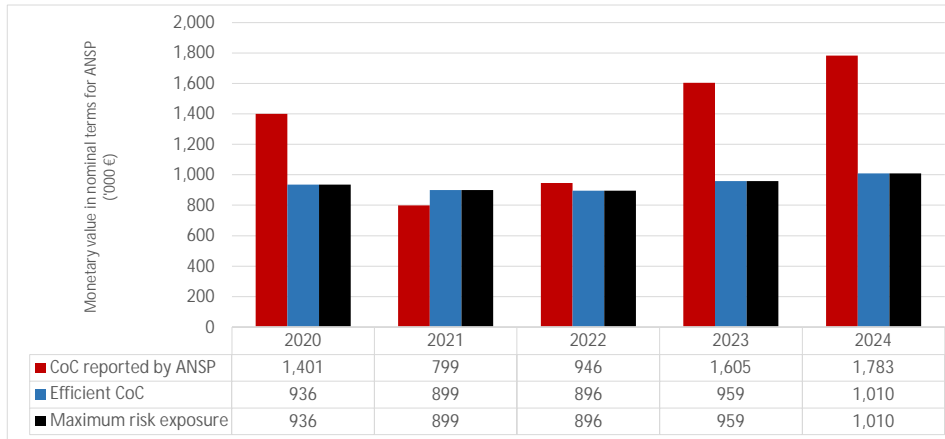
4.3.A Cost of capital

EANS - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	21,284	20,433	20,360	21,792	22,944
Monetary value of Return on Equity	1,257	452	708	1,491	1,687
Ratio RoE/DC (%)	5.9%	2.2%	3.5%	6.8%	7.4%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	464	-100	51	646	774

Total 2020-2024	1,835
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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	7.3%	n/a	7.3%	n/a	7.3%	n/a	7.3%	n/a	7.3%	n/a
Interest on debts	1.3%	n/a	1.7%	n/a	1.4%	n/a	1.4%	n/a	1.4%	n/a
Capital structure (% debt)	38.7%	n/a	77.1%	n/a	63.8%	n/a	28.7%	n/a	23.4%	n/a
WACC	5.0%	3.3%	3.0%	3.3%	3.5%	3.3%	5.6%	3.3%	5.9%	3.3%

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 are duly justified and in line with competitive market practices.
- In the WACC reported in the performance plan, the Estonian Ministry of Finance requires a return on equity of 7.3% after tax (same as for the 2019 performance plan), thus the reported WACC has been calculated based on this requirement. This results in a higher reported WACC than the efficient WACC for all years of RP3, except 2021.
- The efficient cost of capital has been computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 1.8M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is partially not commensurate to the total determined costs over RP3 (ranging between 2.2% and 7.4%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	19,410	18,672	18,504	19,799	20,849
Net current assets	8,675	8,346	8,271	8,850	9,319
Adjustments total assets	0	0	0	0	0
Total asset base	28,085	27,018	26,775	28,649	30,168

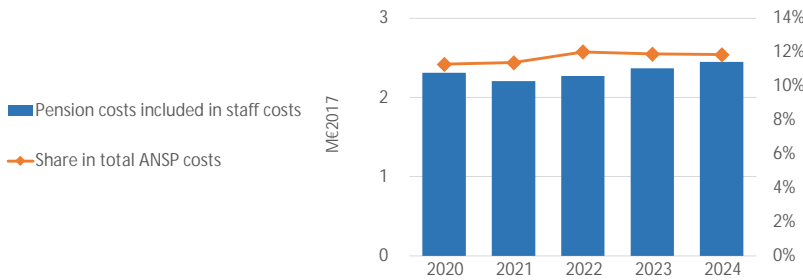
- The fixed asset base is planned to slightly increase over RP3. This is not in line with the decrease observed in the investments described in section 3.5 of this document.
- The net current assets seem excessive compared to the expected cash flow over RP3.
- The RAB does not include adjustments to the total asset base.
- Total asset base slightly increases over the period, due to an increase in both the fixed asset base and the net current assets.

4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is 1.8M€ above the efficient cost of capital. Moreover, the monetary value of the RoE is partially not commensurate to the total determined costs over RP3 (ranging between 2.2% and 7.4% over RP3).
- 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. This results in a higher reported WACC than the efficient WACC for all years of RP3, except 2021.
- The net current assets seem excessive compared to the expected cash flow over RP3.

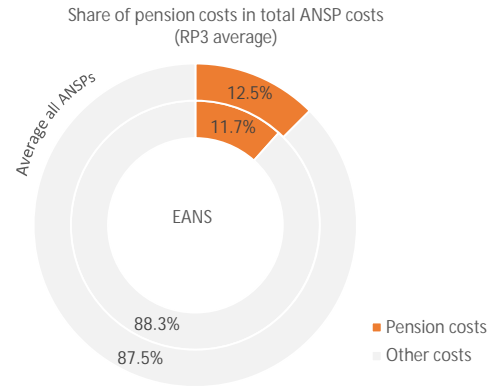
4.3.B Pensions

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		2.3	2.2	2.3	2.4	2.4
Year on year variation	% change		-4.6%	+3.0%	+4.3%	+3.5%
Share in total ANSP costs	%	11.3%	11.4%	12.0%	11.9%	11.9%
Year on year variation	p.p.		0.1p.p.	0.6p.p.	-0.1p.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 Union-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 scheme.

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

The contribution rate is expected to remain unchanged.

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

The contribution rate is expected to remain unchanged.

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

No defined benefit scheme.

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".
- Estonia did not provide any information on actions taken to manage cost-risk associated with occupational defined contribution pension scheme.

4.3.B.4 PRB Key Points



- No major issues identified.

4.3.C Methodology for cost allocation between ER and TRM

4.3.C.1 Cost allocation overview

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

- Estonia did not mention changing the cost allocation methodology with respect to RP2.
 - Estonia allocates the costs using the Activity Based Costing (ABC) methodology. Costs are distributed to different cost centres, structured in the following groups: ATM, communication, navigation, surveillance, MET, AIS, SAR, and administration.
 - ACC costs are allocated to en route services, TWR costs are allocated to terminal cost base, and APP costs are allocated according to the distance related to close distance around the airport to terminal cost base and the rest to en route cost base. Costs of common (i.e. administration, AIS etc.) services are allocated to both en route and terminal services, in a proportional way based on ABC methodology.

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

Yes

If not, what are the issues identified?

Criteria are clearly explained, however information provided is conflicting.

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

n/a

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

Partially

If, not what are the identified issues?

Despite mentioning that there are no changes in the cost allocation methodology, Estonia mentioned that an increase in terminal costs is caused by cost allocation variation.

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

No

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

The allocation variation had no impact on the baseline. Estonia mentioned that an increase of 0.1M€ in terminal staff costs in 2020 is due to cost allocation changes.

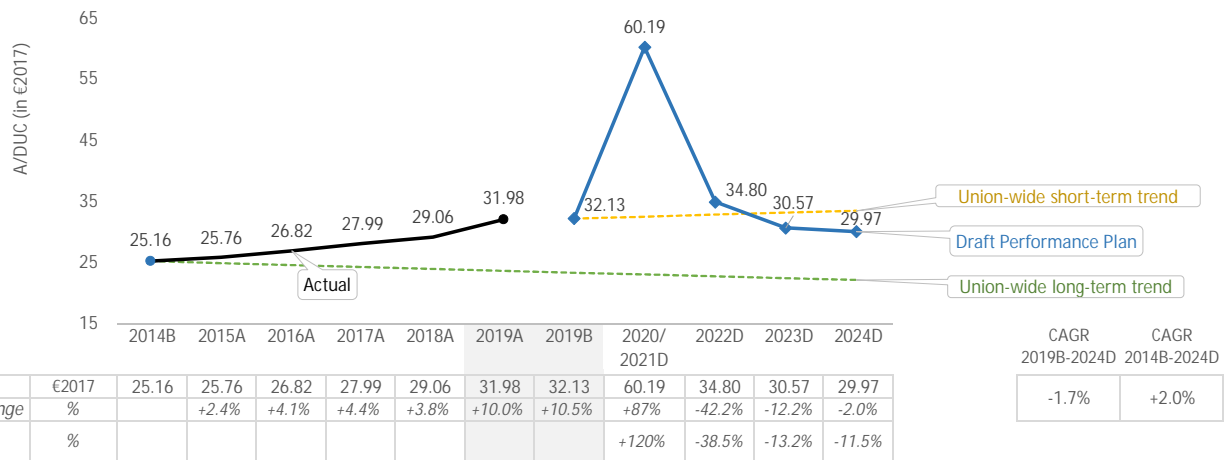
4.3.C.3 PRB Key Points !

- Estonia did not mention changing the cost allocation methodology with respect to RP2, however Estonia attributes 0.1M€ increase in terminal staff costs due to cost allocation changes.

4.4 Determined unit costs (DUC)

Estonia - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-1.7%	+1.0%	-2.7p.p.
Trend (CAGR 2014B-2024)	+2.0%	-1.3%	+3.3p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	32.13	26.81	+19.8%

- The DUC is planned to decrease on average by -1.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +2.0% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%). However, the deviation (6.9M€2017) from the long-term Union-wide trend is considered justified due to restructuring costs.
- The 2019 DUC level is +19.8% higher than the average of the comparator group.

- Estonia presents details for a deviation due to restructuring costs. The FINEST project can be considered for the deviation due to restructuring costs. The project delivers a net financial benefit to airspace users.

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): vs RP3 criteria -3.2 vs RP2+RP3 criteria +6.9

Restructuring costs planned for RP3 (in M€2017)

	2020P	2021P	2020/2021D	2022P	2023P	2024P	Σ 2020-2024	PP deviation
Staff	0.3	0.4	0.7	0.6	0.2	0.1	1.6	0.5
of which, pension costs	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.1
Other operating costs	0.0	0.1	0.1	0.2	0.1	0.1	0.4	0.1
Depreciation	0.0	1.7	1.7	1.9	0.6	0.6	4.9	1.6
Cost of capital	0.1	0.1	0.3	0.2	0.2	0.1	0.7	0.2
Exceptional items	-	-	-	-	-	-	-	-
Total restructuring costs	0.4	2.3	2.7	2.9	1.0	1.0	7.6	2.5

Summary of restructuring measures presented in the PP

The FINEST co-operation project is initiated between EANS and Fintraffic ANS to provide dynamic cross-border service provision in common airspace at F95+. In 2019 the FINEST programme started with its organisational structure, working arrangements and the planning abilities.

Due to travel restrictions in 2020 and 2021 because of COVID-19 and complex discussions with different stakeholders (State bodies, military, labour unions, etc) the implementation date of the FINEST project has been deferred to the end of 2022.

At the beginning of 2022 radical changes in Estonian airspace were done to perform the dynamic sector configurations cross-border.

We expect the delivery of the programme to happen during 2022 within two stages:

- technical change where the last set of different technical systems, interfaces and processes (e.g. one unified ATM system, voicecom system, ATCO infosystem, control and monitoring system, ticketing etc);

- operational change with the harmonised procedures and working methods in place and reflected in the harmonised documentation and the conversion training for ATCOs in Q4 2022. During this change the FINEST Air Traffic Flow Management Position will entry into force, which will enable the use of the dynamic cross-border sector configuration.

All in all, cross-border en route service provision should be implemented by the end of 2022. Airspace users should benefit from the cross-border initiative the latest in RP4 when expected flight activity will be back at 2019 level and above.

The main cost measures involved in the restructuring can be summarised as:

- 1) Staff costs includes ATCOs lay-off (mostly in 2020) and staff cost related to the implementation of the project.
- 2) Other operating costs are mainly training costs and also travelling cost related to trainings in Finland.
- 3) Depreciation costs include the depreciation costs of new software and systems for the FINEST project and in 2021 and 2022 the write-down of previous software version.
- 4) Cost of capital related to the project estimated WACC of 5%.

Analysis

The FINEST project is the largest and most advanced cross-border programme which allows for a shift in the provision of EANS and Fintraffic ANS service. The costs presented by Estonia can be considered as related to the restructuring programme. The evidence presented by Estonia shows that the FINEST project generates a net financial benefit for airspace users. It is important to note that the CBA as presented by Estonia may underestimate the benefits for airspace users since it has been produced until 2026 (i.e. middle of RP4) and does not include the monetised benefits for the capacity and environment KPAs. Moreover, the demonstrated calculation focuses on local benefits only, whereas the FINEST project represents an important milestone in the implementation of the future ATM architecture and the associated operational model as put forward by the Airspace Architecture Study. The implementation of the FINEST project can be seen as a pilot project in realising the Single European Airspace System, providing the entire European ATM network with important lessons learnt and best practices, thus catalysing the transition towards the new architecture defined in measure 3 of the Airspace Architecture Study which Estonia is implementing ahead of the schedule outlined in the study. Therefore, the network level benefits associated with this project are expected to be even greater than the local benefits. Despite the deviation can only be partially considered due to restructuring costs, it is advised to consider the criteria as consistent.

Can it be considered that the deviation is <u>exclusively</u> due to restructuring costs?	Partially
Is it demonstrated that measures will deliver a net financial benefit to airspace users at the latest in RP4?	Yes

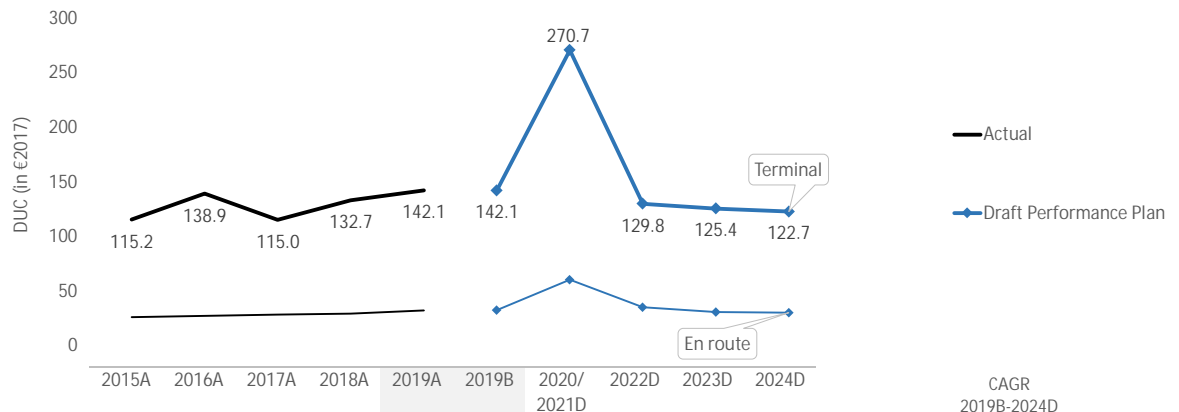
4.4.5 PRB Key Points

- Estonia is consistent with the RP3 DUC trend in terms of average reduction.
- Estonia is not consistent with the DUC long-term Union-wide trend. However, the deviation from the long-term Union-wide trend is considered justified by the restructuring costs.
- Estonia is not consistent with the average DUC baseline of the comparator group.
- The FINEST project can be considered for the deviation due to restructuring costs. The project delivers a net financial benefit to airspace users.

4.5 Terminal

Estonia

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal		115.2	138.9	115.0	132.7	142.1	142.1	270.7	129.8	125.4	122.7	-3.6%
Annual Change	%		+20.6%	-17.2%	+15.4%	+7.0%	+7.0%	+91%	-52.1%	-3.4%	-2.1%	
DUC - En route		25.8	26.8	28.0	29.1	32.0	32.1	60.2	34.8	30.6	30.0	-1.7%
Annual Change	%		+4.1%	+4.4%	+3.8%	+10.0%	+10.5%	+87%	-42.2%	-12.2%	-2.0%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Tallinn (EETN)	GROUP IV	669.6	105.7	-84.2%	970.5	125.7	-87.0%
Tartu (EETU)	GROUP IV	669.6	1640.4	+145.0%	970.5	3487.7	+259.4%

* 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 average DUCs for Tallinn and Tartu airports are planned to be respectively -87.0% below and +259.4% above the median DUCs of their respective comparator groups over RP3.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

n/a

2019 baseline analysis

Both the 2019 baseline traffic and costs are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Estonia is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

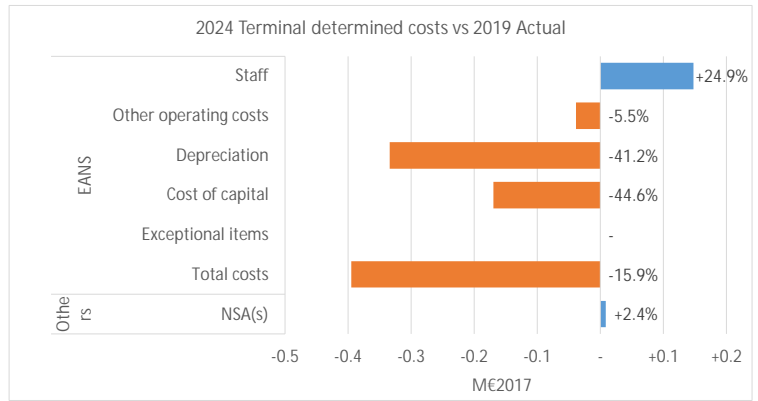
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

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	4.40%
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 (12%) is higher than the share of terminal total costs (8%).
- The WACC and its parameters are different from the ones applied for en route. No justification has been provided.
- The terminal ANS costs are planned to decrease by -2.9% p.a., -11.6% overall. This is driven by planned cost reductions for the main ANSP – EANS in other operating costs (-5.5%), depreciation costs (-41.2%, or -0.3M€2017), and the cost of capital (-44.6%, or -0.2M€2017), which more than compensate the planned growth in staff costs (+24.9%, or +0.1M€2017).
- The drivers for the variation in terminal costs are in line with those detailed for en route in section 4.3 of this document, with the exception of terminal staff costs, which, differently from en route, are expected to increase between 2019 and 2024. According to the information provided in Annex B to the performance plan, the increase in terminal staff costs is explained by cost allocation variations in 2020 and general upwards trend of employment costs in Eastern Europe.

4.5.4 PRB Key Points ✓

- The terminal RP3 DUC trend is -3.6%, which is better than the en route RP3 DUC trend of -1.7%.
- The terminal RP3 DUC trend is -3.6%, which is better than the terminal RP2 DUC trend of +5.4%.
- Tallinn, the main airport, had a DUC -84.2% lower than the median of its comparator group over RP2. The difference is expected to be -87.0% over RP3.
- Estonia used the STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs are planned to decrease by 2.9% p.a., -11.6% overall.

PRB Assessment

FABEC

Draft Performance Plan

Context and scope

FABEC

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
Updated: 17/11/2021
Documents no: F4750, F4751, F4752

Relative weight compared to the SES area (2019):

% Flight-hours v. SES 38.4%
% Serv. Units v. SES 36.4%
% Costs v. SES 46.7%

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
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 Services
Luxembourg Civil Aviation Authority
NSA The Netherlands
Federal Office for Civil Aviation (FOCA), Safety Division Infrastructure
Eurocontrol

Competent authority
Competent authority
Competent authority
Competent authority
Competent authority
Competent authority
NM/CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges
En route (ER)	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 (TRM)	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				
Explanations: See Belgium, Luxembourg, and Switzerland.					

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%	2.75%	2.75%	2.75%	2.75%

PRB assessment

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

- FABEC's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that FABEC did not achieve the 2021 target of 2.75% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced in the performance plan to achieve RP3 targets, FABEC has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity ✔

Capacity PP targets

	2020	2021	2022	2023	2024
FAB target for en route ATFM delay per flight (min)	3.45	0.27	0.37	0.37	0.37

PRB assessment

The PRB concludes that the capacity targets proposed by FABEC Member States should be approved.

- En route capacity targets are below the range of the delay forecast in 2023 and 2024, thus the capacity targets may not be achieved without additional measures compared to those included in the NOP to achieve the targets.
- The incentive scheme defined on the FAB level may negate the effects of the local incentive schemes.

4. Cost-efficiency See States' conclusions

5. PRB recommendations

ENVIRONMENT

- FABEC should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- FABEC Member States should consider introducing additional capacity enhancement measures and ensure that all capacity enhancement measures which are included in the performance plan and the NOP are properly implemented.
- FABEC Member States should revise the FAB level incentive scheme so that it has a material impact on the revenues.

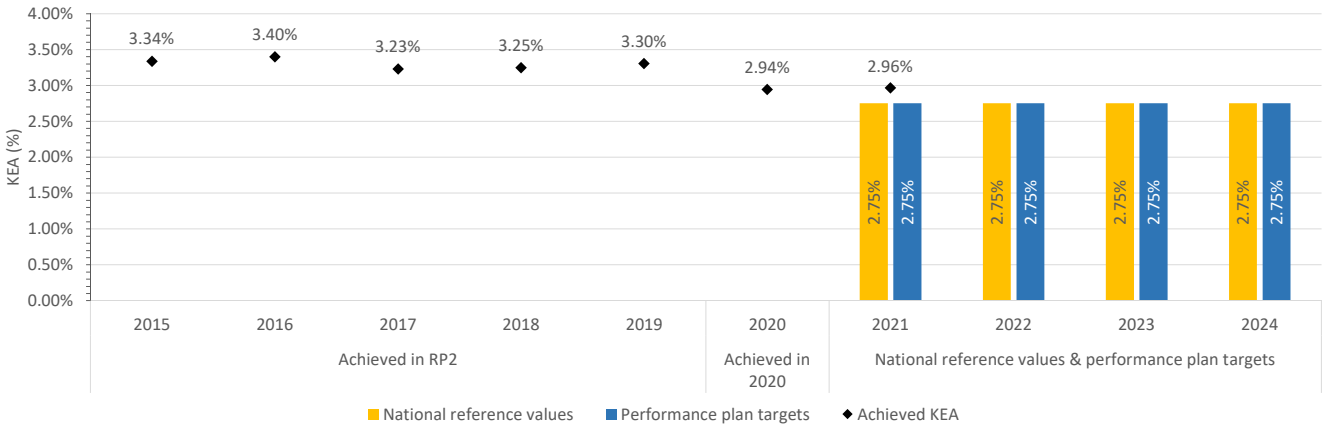
FABEC

Environment KPA

2.1 Summary of Key Data and Assessment Results

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

	2020	2021	2022	2023	2024
National reference values	0.00%	2.75%	2.75%	2.75%	2.75%
Performance plan targets	3.25%	2.75%	2.75%	2.75%	2.75%
Comparison of draft performance targets with reference values	n/a	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

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

- FABEC’s horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that FABEC did not achieve the 2021 target of 2.75% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced in the performance plan to achieve RP3 targets, FABEC has been added to the PRB’s watchlist for further scrutiny during the annual monitoring process.
- FABEC should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

FABEC

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		Reference in PP	Reference in LSSIP
<p>Belgium-Luxembourg operates an ATS route network in lower airspace (GND - FL195) and upper airspace lower than FL245. Above FL245, MUAC offer free route airspace (FRA) in the Brussels flight information region (FIR).</p> <p>France operates an ATS route network in lower and upper airspace. It does not plan for a full FRA until 2025.</p> <p>With effect from 1st March 2018 DFS implemented Free Route Airspace above FL245 within the part of Germany that is controlled by DFS and lies within the vertical limits described below, i.e. within the Area of Responsibility (AoR) of Karlsruhe UAC (EDUU) and the respective parts of the AoRs of Bremen ACC (EDWW) and München ACC (EDMM). FRA Cells EDMM East, EDMM South and EDWW East will remain available during night (2230-0400 UTC) only.</p> <p>No FRA airspace has been identified in the Amsterdam flight information region (FIR) below FL245 since it is not required by the PCP. MUAC control upper airspace above FL245 where 24-hour FRA has been available since December 2019.</p> <p>A Free Route Airspace (FRA) project that will allow airspace users to plan and fly direct routes, is in progress and should become effective in 2022. An ATS route network is still in place in lower airspace (GND to FL195) and upper airspace (FL195 to FL660).</p> <p>Therefore, FABEC as a whole is still working towards implementing FRA and plans to do so by the end of RP3.</p>	✔	3.2.1(c)	See member states

Major ERNIP Recommended Measures:		Reference in PP	Reference in ERNIP
Measure included within performance plan?			
N/A - see member states projects			

FUA Implementation according to latest LSSIP	Implementation
1	✔
2	✔
3	✔

The chart in section 2.1.1 shows that FABEC achieved a KEA of 2.94% in 2020. In 2021, FABEC reached a KEA of 2.96% which means it did not achieve the 2021 target of 2.75% in its performance plan.

In its FAB-level explanation of the targets, FABEC claims that although it plans to achieve the RP3 targets, the interdependency between the environment and capacity KPAs means that if the traffic evolution is volatile and creates capacity issues, the environment targets may not be achieved. However, it is worth noting that in 2021 FABEC achieved the capacity reference values but not the environment reference values. Thus, whilst interdependency does exist, it is not the only factor affecting FABEC’s achievement of the environment targets.

FABEC suggested that the environment KPI does not measure its efforts to improve noise pollution around airports, vertical flight efficiency, or its work to avoid the creation of contrails. The performance scheme enables plans to include optional performance indicators such as those highlighted by FABEC in their plan. However, the FABEC performance plan did not propose any such optional indicators.

In terms of the specific measures planned by FABEC, it referred the PRB to the planned projects within the June 2021 ERNIP.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does FABEC plan for an environmental incentive scheme?	✘
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

FABEC

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

FABEC proposes capacity targets, which are set equal to the FAB level reference values. The target value falls within the range of the delay forecast in 2022 and below the range of the delay forecast in 2023 and 2024.

FABEC commits to all measures included in the NOP and also considers additional measures to ensure adequate capacity. Based on the delay forecast, such additional measures may be required to achieve the capacity targets, especially in 2023 and even more so in 2024.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	⚠	⚠

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

3.1.3 Incentives

En route:

Used as a filter to determine if local incentive schemes will result in penalties or bonuses.

The FAB target is modulated according to the CRSTMP attributed ATFM delay codes only. The pivot value is modulated by the RP2 average ratio for CRSTMP delays compared to total delays, which FABEC report as 67%.

If the delays exceed the pivot value and dead band, then no ANSP can earn a bonus and ANSPs failing to achieve their local targets will be liable for penalties. If the delays are less than the pivot value, minus the dead band, then no ANSP should incur a penalty and any ANSP exceeding their local target can earn a bonus.

The financial impact of the bonus or penalty is determined by the local incentive scheme.

3.1.4 Investments

3.1.5 PRB conclusions

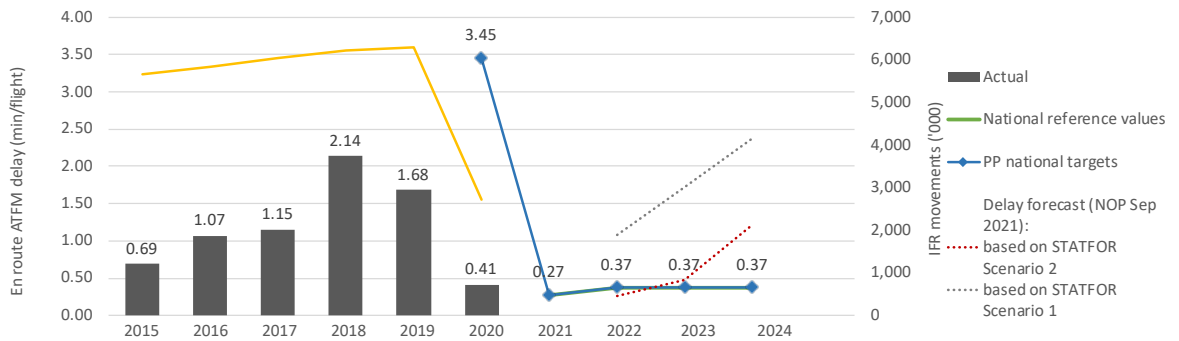


The PRB concludes that the capacity targets proposed by FABEC Member States should be approved.

- En route capacity targets are below the range of the delay forecast in 2023 and 2024, thus the capacity targets may not be achieved without additional measures compared to those included in the NOP to achieve the targets.
- The incentive scheme defined on the FAB level may negate the effects of the local incentive schemes.
- FABEC Member States should consider introducing additional capacity enhancement measures and ensure that all capacity enhancement measures which are included in the performance plan and the NOP are properly implemented.
- FABEC Member States should revise the FAB level incentive scheme so that it has a material impact on the revenues.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✔



Traffic variation	+2%	+3.2%	+3.4%	+3.1%	+1.0%	-56.8%				
Actual delay/flight	0.69	1.07	1.15	2.14	1.68	0.41				
National reference values						n/a				
PP national targets						3.45	0.27	0.37	0.37	0.37
Based on STATFOR Scenario 1							-	1.08	1.72	2.38
Based on STATFOR Scenario 2							-	0.26	0.47	1.22

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
Deviation target vs reference value	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✔	⚠	⚠

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✔

Assessment of capacity enhancement measures and review against NOP

The FABEC performance plan claims that all FAB level and local capacity enhancement measures, capacity profile calculations and other relevant aspects are fully in line with the latest edition of the NOP.

The following capacity enhancement measure is listed in the performance plan, as FAB level initiative, covering an array of projects:

- FABEC/NM Airspace Design Coordination Group (ADCG) with the final goal to define a Target Plan for implementation of a FABEC Optimised Airspace Structure, an optimum FABEC sectorisation, FRA cross-border operations and ATS route structure below FRA, in order to optimise all FABEC measures, make them consistent at network level and deliver the highest possible benefits of operations.

The FABEC performance plan also claims, that FABEC Member States and ANSPs have considered additional assumptions and measures compared to those included in the NOP, when setting their capacity targets.

3.2.3	Review of previous and existing capacity profile plans per ACC	n/a
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See FABEC Member States' factbooks

3.2.4	Review of capacity enhancement measures related to mitigating higher delays due to significant / special events	n/a
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3.2.5	Review of the measures to increase capacity and address capacity gaps	✓
--------------	--	---

- | | | |
|----|--|-----|
| a) | Performance plan contains additional measures compared to the NOP in order to close the capacity gap?
The performance plan claims that such additional measures have been considered and planned, and might also be activated if necessary. | ✓ |
| b) | Measures proposed by the NM to enhance capacity are planned and described in the performance plan?
The performance plan explicitly commits to all measures in the NOP, and also explicitly declares consistency with the NOP and the ERNIP. | ✓ |
| c) | The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described?
n/a | n/a |
| d) | The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap?
There is no reference in the performance plan to specific measures proposed by the NSA. | ✗ |
| e) | Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)?
The planned number of ATCO FTEs are analysed in the individual FABEC member factbooks. | n/a |
| f) | The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity?
The performance plan refers to further measures related to the flexible use of operational personnel. Details are also analysed in the individual FABEC factbooks. | ✓ |
| g) | The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome?
Investments and ATM system upgrades are assessed in the individual FABEC factbooks. | n/a |

3.2.6	PRB Key Points	✓
--------------	-----------------------	---

- FABEC proposes capacity targets, which are set equal to the FAB level reference values. The target value falls within the range of the delay forecast in 2022, and below the range of the delay forecast in 2023 and 2024.
- FABEC commits to all measures included in the NOP and also considers additional measures to ensure adequate capacity. Based on the delay forecast, such additional measures may be required to achieve the capacity targets, especially in 2023 and even more so in 2024.

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±23.0%	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			0.37	0.37	0.37
Alert threshold (Δ Ref. value in fraction of min)			±0.059	±0.059	±0.059
Performance Plan targets			0.37	0.37	0.37
Pivot values for RP3			0.25	0.25	0.25

Threshold and pivot value review

The pivot value is modulated. There is also a dead band of +/-23% around the modulated pivot value before penalties or bonuses are applied. If delays exceed the dead band (0.306 minutes per flight), no bonuses can be earned and individual ANSPs that do not achieve local performance targets will incur penalties. If delays are less than the deadband (0.192 minutes per flight), no penalties will be incurred and individual ANSPs that do better than local performance targets can earn a bonus.

Modulation review

The pivot value is modulated according to the average FAB-wide ratio for CRSTMP delays causes compared to all delays for the entire RP2 (2014-2019). FABEC reports this as being 67%, which is applied to the FAB targets for each year. Only ATFM delays attributed to CRSTMP are included in the scope of the incentive scheme.

Review of financial advantages/disadvantages

There is no direct financial impact associated with the FAB incentive scheme, it is a filter to determine if local incentive schemes will result in penalties or bonuses.

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:

- Used as a filter to determine if local incentive schemes will result in penalties or bonuses.
- The FAB target is modulated according to the CRSTMP attributed ATFM delay codes only. The pivot value is modulated by the RP2 average ratio for CRSTMP delays compared to total delays, which FABEC report as 67%.
- If the delays exceed the pivot value and dead band, then no ANSP can earn a bonus and ANSPs failing to achieve their local targets will be liable for penalties. If the delays are less than the pivot value, minus the dead band, then no ANSP shall incur a penalty and any ANSP exceeding their local target can earn a bonus.
- The financial impact of the bonus or penalty is determined by the local incentive scheme.

PRB Assessment

BELGIUM

Draft Performance Plan

Context and scope

Belgium

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4750, F4751, F4681, F4727, F4679, F4680, F4733, F4752

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 2.1%
 % Serv. Units vs SES 2.1%
 % Costs vs SES 3.3%

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)
 Eurocontrol

ATM, MET
 ATM

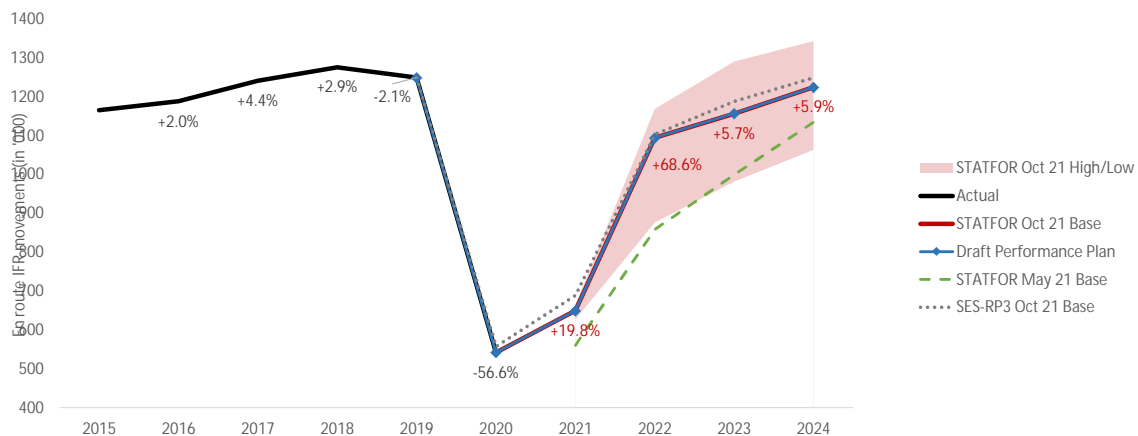
Competent authority
 NM/CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Belgium-Luxembourg	n/a	No	No	No	
Terminal (TRM)	Belgium EBBR	1	No	No	Yes	
Changes in the CZs from RP2		Yes	In RP3 there is only one terminal CZ (five in RP2) covering EBBR airport. As detailed in Annex M of the performance plan, air navigation services at Brussels airports are 75% financed by airspace users and 25% by the authorities, as it was the case in RP2. Detailed explanations about key costs allocation are provided in section 4.3.C of this document.			

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

Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP targets

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

PRB assessment

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

- The EoS safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	-	3.10%	3.05%	3.00%	3.00%

PRB assessment

The PRB concludes that the environment targets proposed by FABEC for Belgium-Luxembourg should be approved.

- Belgium-Luxembourg's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Belgium-Luxembourg did not achieve the 2021 target of 3.10% in its performance plan. For this reason, Belgium-Luxembourg has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.64	0.07	0.12	0.13	0.12
National target for terminal and airport ANS ATFM arrival delay per flight (min)	1.82	1.08	1.08	1.08	1.08

PRB assessment

The PRB concludes that the capacity breakdown values proposed by Belgium should be approved.

- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed breakdown values.
- The incentive schemes defined in the draft performance plan for Belgium do not have a material impact on the revenue at risk.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	189.52	113.26	108.51	103.82	+5.7%	+4.0%
Target for determined unit cost (DUC) (€2017) - Terminal	398.33	270.44	252.79	249.82	n/a	+6.3%

PRB assessment

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

- Belgium-Luxembourg is not consistent with the RP3 DUC trend in terms of average reduction.
- Belgium-Luxembourg is not consistent with the long-term Union-wide DUC trend.
- Belgium-Luxembourg is not consistent with the average DUC baseline of the comparator group.
- Belgium-Luxembourg presents justifications for a possible deviation to achieve capacity targets. However, even if considering the request as appropriate, the deviation cannot be considered exclusively for the purpose of achieving capacity targets.

5. PRB recommendations

CAPACITY

- Belgium-Luxembourg should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.
- Belgium should revise the incentive schemes so that they have a material impact on the revenues.
- 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-Luxembourg should significantly revise downwards the RP3 cost base.
- Belgium-Luxembourg should adjust the cost baseline, and further clarify the 10M€2017 difference between en route and terminal cost allocation adjustments.
- Belgium-Luxembourg should consider in the RP3 cost base the 20.6M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- 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-LUXEMBOURG

Safety KPA

1.1 Summary of safety key data and assessment results

Belgium

1.1.1 Target for EoS_M for ANSPs

The EoS_M targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. The EoS_M targets levels are planned to be progressively attained towards the end of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes the measures established at ANSP, CAA and FABEC level. Considering the current safety levels, the measures are considered relevant to improve and further ensure the required safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the FABEC approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

The change management practices are defined and supported by the NSA. Considering the level of details provided in the performance plan, these practices, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient to control impacts on safety.

1.1.5 PRB conclusions

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

- The EoS_M safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

1.2 Targets for EoSM for ANSPs and Measures

Belgium

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
skeyes	Safety policy and objectives	B	B	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	D	✓	
	Safety assurance	B	B	B	B	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	B	B	C	C	C	C	✓	

The 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 towards the end of RP3. Belgium has to improve four out of five management objectives over RP3.

The performance plan describes the specific measures applied at the level of the ANSP, the CAA and the FABEC authorities.

At ANSP level, the measures are planned to be implemented in the following areas:

- Safety culture assessment and promotion;
- Improvement of the integration of contractors into the SMS;
- Yearly rehearsal and update of all emergency procedures;
- Improvements in safety management area to addresses ANSP's key risks;
- Management of performance deviations and deficiencies from its operational risk baseline;
- Continuous improvement of the SMS through yearly conduct of internal SMS audits.

At the level of the competent authority, the measures derived from compliance with Commission Implementing Regulation (EU) 2017/373, applicable to EoSM improvements are regularly reviewed and verified.

Furthermore, FABEC authorities established a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to review the FABEC ANSPs' performance and to jointly determine if specific actions are necessary. Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach for all seven FABEC ANSPs.

Considering the current safety levels, the measures are considered relevant to improve and further ensure the required safety levels over RP3.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan states that changes will be required to achieve targets for other KPAs and that improvements under the safety KPA may affect other KPAs. The performance plan underlines that safety remains the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The impact of changes to the ATM functional system, including changes to the system needed to improve other KPAs, is assessed by the ANSPs through safety procedures compliant with Commission Implementing Regulation (EU) 2017/373, which ensures that safety levels are not compromised. Changes are also presented for approval by the Competent Authority to ensure that there are no unacceptable safety implications.

FABEC ANSPs have defined additional (K)PIs to monitor their performance (on all KPAs) in addition to those specified by Commission Implementing Regulation (EU) 2019/317. Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (safety, security, quality, environment). Indicators, issues and possible trade-offs are discussed, explained and addressed by board members under the leadership of the ANSPs' management. The approach provides confidence that the changes introduced to reach targets on other KPAs will not deteriorate safety levels.

1.3.2 Change Management Practices

The performance plan describes a dedicated change management procedure aiming at minimising the negative impact on network performance during the implementation of SAS3 Program. The procedure, based on internal safety and risk assessment, is submitted for the approval the Belgian Supervisory Authority. Considering the level of details provided in the performance plan, the procedure, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient to control impacts on safety.

BELGIUM-LUXEMBOURG

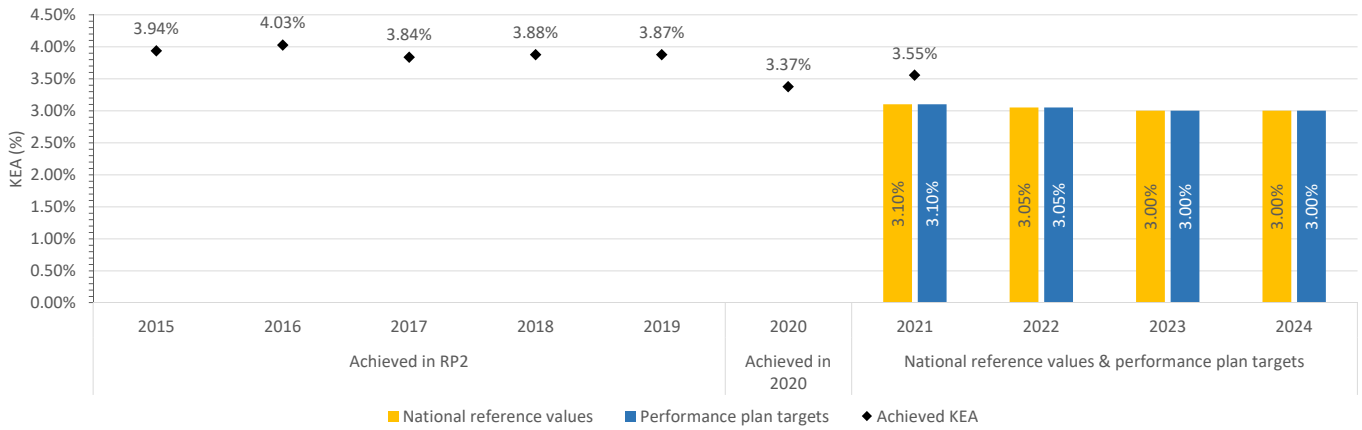
Environment KPA

2.1 Summary of Key Data and Assessment Results

Belgium-Luxembourg

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

	2020	2021	2022	2023	2024
National reference values	7.09%	3.10%	3.05%	3.00%	3.00%
Performance plan targets	0.00%	3.10%	3.05%	3.00%	3.00%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by FABEC for Belgium-Luxembourg should be approved.

- Belgium-Luxembourg's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Belgium-Luxembourg did not achieve the 2021 target of 3.10% in its performance plan. For this reason, Belgium-Luxembourg has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

2.2 Measures of Achievement

Belgium-Luxembourg

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✘	Reference in PP	Reference in LSSIP
Belgium-Luxembourg operates an ATS route network in lower airspace (GND - FL195) and upper airspace lower than FL245. Above FL245, MUAC offer FRA in the Brussels FIR.		3.2.1(a)	Page 30
Major ERNIP Recommended Measures:	2	Reference in PP	Reference in ERNIP
Measure included within performance plan?		3.2.1(b)	Page 205
EBCI procedures	✔	3.2.1(b)	Page 218
CDO/CCO improvement at Belgian airports	✔		
FUA Implementation according to latest LSSIP	Implementation		
1	✔		
2	✔		
3	✔		

The chart in section 2.1.1 shows that Belgium-Luxembourg achieved a KEA of 3.37% in 2020. In 2021, Belgium-Luxembourg reached a KEA of 3.55% which means it did not achieve the 2021 target of 3.10% in its performance plan.

Belgium-Luxembourg believes the Network Manager (NM) campaign to fly as filed (to increase capacity) makes it difficult to offer direct routes and improve KEA. However, this was already the case in 2019 and since traffic has reduced, the same measures are unlikely to be needed (the latest forecasts suggests traffic in Belgium-Luxembourg will not return to 2019 levels until 2025). Therefore, Belgium-Luxembourg has room to improve its performance.

Belgium-Luxembourg acknowledged the PRB's view that free route airspace (FRA) is an important enabler for improved routing, but suggests that this improvement is out of scope since it controls airspace below FL245. In response, the PRB suggests that Belgium-Luxembourg considers initiatives across the Single European Sky (SES), where many Member States have offered FRA from GND to FL660, to understand the full benefits.

Belgium-Luxembourg did not elaborate on the specifics of how its environment action plan will help to achieve the targets, i.e. the impact of ATS route improvements or sector re-designs. Instead, it only explained that the plan will help improve horizontal and vertical flight efficiency.

2.3.1 Annex IV 2.1(f): Measures for achievement of targets

Does Belgium-Luxembourg plan for an environmental incentive scheme?	✘
The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.	

BELGIUM

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

ANSP breakdown values are consistent with the ANSP reference values, and fall within the range of the delay forecast.

Capacity plans indicate that Belgium will face a capacity gap throughout 2022-2024, without implementing additional measures compared to those described in the latest NOP.

The implementation of the new ATM system may introduce capacity constraints in 2023-2024. The performance plan does not provide any mitigation measures to reduce such potential effects.

There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures and the proposed breakdown values.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Brussels is the only airport included in the Belgian performance plan for RP3. The proposed target (all causes) is constant for the 2021-2024 and equal to 1.08 minutes per arrival, which is higher than the observed performance in RP2 (0.95 minutes per arrival) for Brussels, therefore it does not represent an improvement with respect to past performance.

3.1.3 Incentives

En route:

Belgium has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.

In addition to the national incentive scheme, a FAB-level incentive scheme also applies.

Maximum bonus and penalty is set at 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.

Terminal:

Belgium has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.

Maximum penalty is set at 0.5%, maximum bonus is set at 0.125%.

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.

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

A capacity gap is expected in Belgium during RP3.

Major investments targeting capacity, flexibility, resilience and scalability are planned, however capacity benefits may only be achieved following RP3. Major investments contribute to PCP/CP1 ATM Functionalities AF1, AF2, AF3, AF4 and AF6.

Other investments are also planned which contribute to flexibility, resilience and scalability.

3.1.5 PRB conclusions

The PRB concludes that the capacity breakdown values proposed by Belgium should be approved.

- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed breakdown values.

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

- Belgium-Luxembourg should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.

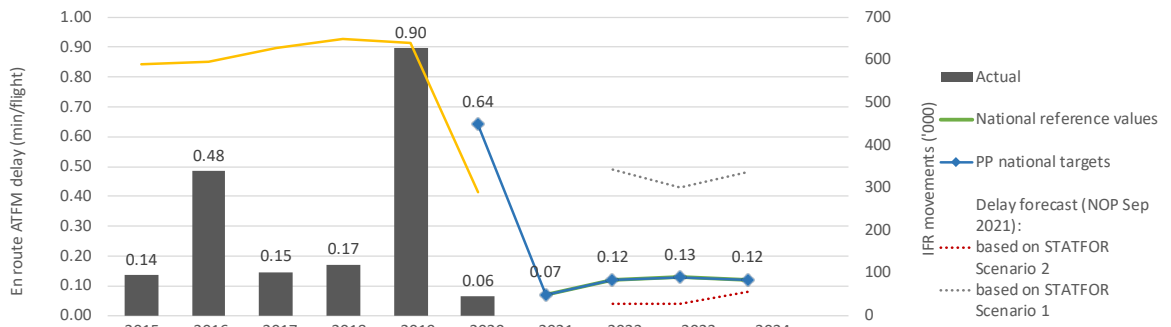
- Belgium should revise the incentive schemes so that they have a material impact on the revenues.

- 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.

3.2 En route ATFM delay per flight

Belgium - keys

3.2.1 Overview of en route ATFM delay per flight ✔



Traffic variation	+5%	+0.6%	+5.6%	+3.3%	-1.5%	-54.7%				
Actual delay/flight	0.14	0.48	0.15	0.17	0.90	0.06				
National reference values						n/a	0.07	0.12	0.13	0.12
PP national targets						0.64	0.07	0.12	0.13	0.12
Based on STATFOR Scenario 1							-	0.49	0.43	0.48
Based on STATFOR Scenario 2							-	0.04	0.04	0.08

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ⓘ

Assessment of capacity enhancement measures and review against NOP

During RP2, Belgium experienced capacity constraints mainly related to staffing, ATM capacity and weather issues. Belgium missed the capacity targets during all years of RP2. The NOP expects the traffic recovery to the 2019 levels already in 2023.

The main capacity enhancement measures introduced by the performance plan include:

- ATM system upgrade,
- ATCO recruitment.

The following measures are listed only in the NOP but could be part of the measures listed by the performance plan in more detail:

- enhanced FUA (AUP/UUP rolling plan),
- improved route network,
- enhanced civil-military procedures.

All measures are identified by the NOP and are expected to positively contribute to the network capacity although some of the benefits are envisaged only in RP4 and later. Update of ATM system is expected only by the end of RP3. Without additional details, it is not possible to accurately determine how the upgrade will benefit the airspace users during RP3.

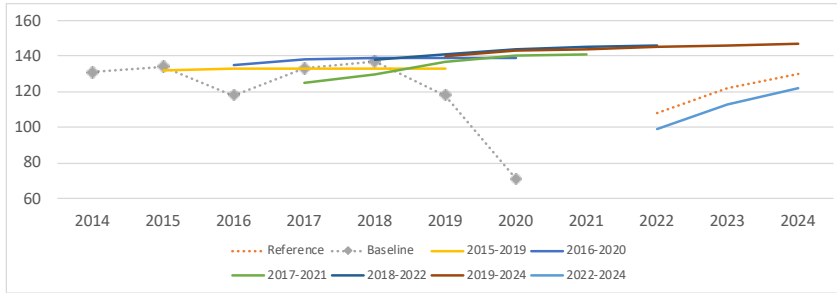
Number of ATCO FTEs will increase by 17 (+21% compared to 2019) between 2021 and 2024, and includes the mitigation of the retirement of ATCO personnel.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Brussels ACC (EBBU)	Additional ATCOs in OPS to start working in the OPS room	0.8	5	3	8	6	7	7	+17
	ATCOs in OPS to stop working in the OPS room	4	12.3	2	1	2.2	6	3	
	ATCOs in OPS to be operational at year-end	87.8	80.5	81.5	88.5	92.3	93.3	97.3	
Total - skeys (en route)	Additional ATCOs in OPS to start working in the OPS room	0.8	5	3	8	6	7	7	+17
	ATCOs in OPS to stop working in the OPS room	4	12.3	2	1	2.2	6	3	
	ATCOs in OPS to be operational at year-end	87.8	80.5	81.5	88.5	92.3	93.3	97.3	

3.2.3 Review of previous and existing capacity profile plans per ACC ✖

Brussels ACC (EBBU)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									108	122	130
Baseline	131	134	118	133	137	118	71				
2015-2019		132	133	133	133						
2016-2020			135	138	139	139					
2017-2021				125	130	137	140	141			
2018-2022					138	141	144	145	146		
2019-2024						140	143	144	145	146	147
2022-2024									99	113	122
Latest vs Reference									-8%	-7%	-6%

- 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. The average growth of baseline values was 1.5% annually between 2015-2018 and significantly decreased in 2019.

- Latest planned capacity profile shows an average annual growth of 11.1% over 2022-2024. Based on the capacity plan, a significant, but decreasing capacity gap of -8%, -7% and -6% is expected in 2022, 2023 and 2024, respectively.

- There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed targets.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events !

Review of the planned impact of special events in some years of RP3

The performance plan provides reference to the implementation of a new, CP1 compliant ATM system, which is going to be shared with MUAC and the Belgian Defense. According to the justification provided regarding the capacity targets, the implementation of the system may introduce additional capacity constraints during 2023-2024. The performance plan does not provide enough details to assess the capacity impact of the implementation phase.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The performance plan contains no information regarding the capacity enhancement measures related to the special event 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 !

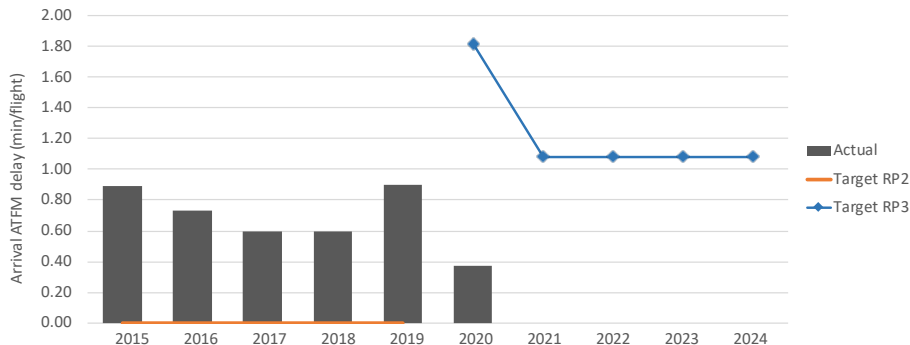
- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? ✔
The capacity profile plan expects capacity gaps during 2022-2024 despite the introduced measures. The performance plan contains additional measures compared to the NOP. These measures may be adequate to close the capacity gap.
- b) Measures proposed by the NM to enhance capacity are planned and described 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 adequately described by the performance plan.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? ✖
The performance plan provides no rationale for not including all the measures from the NOP.
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? ✖
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 provides information on staffing and the evolution of the number of ATCO FTEs during RP3, although the submitted evidence does not make it clear, whether the planned increase in staffing levels will be sufficient to close the capacity gap.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✖
The performance plan contains no information regarding the flexible use of operational staff.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
The performance plan does contain a reference to the implementation of a new ATM system, which will be CP1 compliant, implemented in 2023-2024.

3.2.6 PRB Key Points ✔

- ANSP breakdown values are consistent with the ANSP reference values, and fall within the range of the delay forecast.
- Capacity plans indicate that Belgium will face a capacity gap throughout 2022-2024, without implementing additional measures compared to those described in the latest NOP.
- The implementation of the new ATM system may introduce capacity constraints in 2023-2024. The performance plan does not provide any mitigation measures to reduce such potential effects.
- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed breakdown values.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



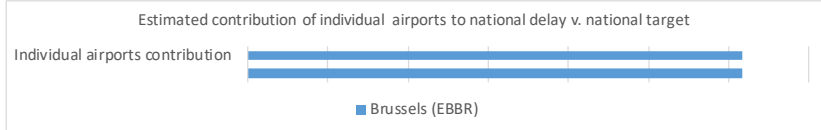
	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	Actual	0.00	0.00	0.00	0.00	0.00	1.82	1.08	1.08	1.08	1.08
Brussels (EBBR)	Actual	1.26	0.93	0.81	0.85	0.90	0.38	1.08	1.08	1.08	1.08

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

Belgium did not set any targets for arrival ATFM delay 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 RP2 from 1.26 minutes per arrival in 2015 to 0.90 minutes per arrival in 2019. The performance plan uses the STATFOR October 2021 base forecast that estimates a CAGR (2019-2024) of -0.6% for Brussels. The proposed target (all causes) is constant for the 2021-2024 and equal to 1.08 min per arrival, which is higher than the observed performance in RP2 (0.95 minutes per arrival) for Brussels, therefore it does not represent an improvement with respect to average past performance. The plan reports that ATCO recruitment is set at full pace to compensate forecasted retirements and to manage forecasted traffic, and the A-SMGCS system will be replaced during RP3 to ensure improved terminal capacity at Brussels during deteriorated weather conditions.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Brussels (EBBR)	1.08
National Target	1.08



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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Brussels (EBBR)	GROUP I	0.65	0.95	+0.30	1.08	+0.13

* 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 Brussels in the past reference period was worse than the median of similar airports (+0.30 min per arrival). The target set for RP3 represents a further worsening with respect to the actual performance of similar airports (+0.43 minutes more delay per arrival).

3.3.5 PRB Key Points

- Brussels is the only airport included in the performance plan. The proposed targets represent a deteriorating performance compared to average performance in RP2, and also a further deterioration when compared to the median performance of the group of similar airports.

3.4 Capacity Incentive schemes

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	0.500%	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			0.12	0.13	0.12
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.12	0.13	0.12
Pivot values for RP3			0.10	0.10	0.10

Threshold and pivot value review

The pivot value is the reference value from the NOP, modulated according to CRSTMP. A deadband of +/- 0.03 minutes is applied around modulated pivot value before any incentives apply. Maximum penalties or bonuses apply at +/- 0.05 minutes from pivot value.

Modulation review

The scope of the en route incentive scheme is modulated according to the ATFM delay codes C,R,S,T,M & P. The target is based on the average ratio of attributed CRSTMP delays during RP2, circa 80% of total en route ATFM delays. 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.

Review of financial advantages/disadvantages

A FAB-wide criteria is applied to determine if ANSPs are initially liable for bonuses or penalties, based on the overall FAB performance. The maximum potential bonus / penalty is fixed at 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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)			±0.060	±0.060	±0.060
Performance Plan targets			1.08	1.08	1.08
Pivot values for RP3			0.12	0.12	0.12

Threshold and pivot value review

The terminal incentive scheme includes a deadband of +/- 25% that allows for small variations in the arrival ATFM delay with no resulting bonuses or penalties. The pivot value, modulated to CRSTMP causes, is 0.12 minutes per arrival, which is higher than the reported CRSTMP delays during RP2 (average 0.08 minutes per arrival).

Modulation review

Belgium has chosen to modulate the pivot values according to CRSTMP causes.

The CRSTMP ratio has been calculated based on the average ratio CRSTMP/all causes of the last five years (2014-2018). This gave a CRSTMP ratio of 11,11%, resulting in a pivot value of 0.12 minutes per arrival.

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, do not seem to incentivise the ANSP to improve its performance.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✘

En route:

- Belgium has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.
- In addition to the national incentive scheme, a FAB-level incentive scheme also applies.
- Maximum bonus and penalty is set at 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.

Terminal:

- Belgium has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.
- Maximum penalty is set at 0.5%, maximum bonus is set at 0.125%.
- 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.

- 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.

3.5 Investments

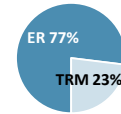
Belgium - skeyes

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	15.1	13.4	14.4	18.3	22.4	83.6
	En route	11.6	10.3	11.3	14.2	16.8	64.3
	Terminal	3.5	3.0	3.1	4.0	5.6	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 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	TRM
1	ATM Next Generation	<i>This program focuses on replacing the current ATM system with a single, integrated and harmonised air traffic management system to support the integration of civil and military ATM services and to improve capacity and operational efficiencies. The program includes the upgrade of the current ATM system to extend its lifetime until the commissioning of the new system</i>	86.6	Yes	Yes	1.5	0.4
2	Remote radio sites	<i>This project focuses on improving the redundancy and resilience of the air-ground radio communication infrastructure (Chain A, B and C), and involves the installation of 18 "new" sites for Enroute and Approach. The project comprises two investments: Remote radio sites and the electronic equipment transmitting and receiving centre.</i>	13.3	No	No	1.2	0.3
3	Wide Area Networking	<i>From mid 2022 onwards, skeyes' existing WAN (SDH network) will no longer be supported by the current Telco service provider, thus becoming obsolete. The creation of a new Wide Area Network (WAN) will support all skeyes operational and business critical processes and related IT systems. In particular, it will provide highly available, secure and scalable network connectivity to interconnect all skeyes locations (point of presence).</i>	7.4	No	No	2.0	0.3
4	A-SMGCS 2 systeem EBBR	<i>This project focuses on replacing the existing Advanced Surface Movement Guidance and Control (A-SMGCS) data fusion system, three Surface Movement Radars (SMR), and the MLAT system at Brussels Airport. The project comprises two investments: the A-SMGCS system and the cameras</i>	5.9	Yes	Yes	0.0	0.7
Total:						4.8	1.7

Airspace user feedback regarding major investments

The airspace users raised remarks about:

- the necessity of investments on Air Traffic Safety Electronics Personnel;
- the inclusion of some investments in the en route part of the performance plan;
- correlation of staffing increase with investments;
- increase in OPEX planned for RP3.

Skeyes noted that investments are necessary due to end-of-life of existing systems. The level of investments initially decreased due to the impact of the pandemic, but will increase in 2022 in order to prepare for the subsequent increase in traffic. Synergies with the Belgian Defense were set up in order to mitigate the costs.

Review of investments

While some investments above 5M€ are detailed in Annex E of the performance plan, they are not included in the "new major investments" section. It is unclear if those investments are existing or split into multiple projects below 5M€.

Investment #4 was included in the RP2 performance plan and will continue throughout RP3. New major investments represent 7.2% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 72% of the planned for the same period and the amount underspent was 25.2M€. In terms of depreciation and cost of capital, the airspace users have financed 20.6M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 radio sites	Network, Local	Safety, Capacity	Increased level of safety for airspace users as a result of improved communication service resilience, guaranteed business continuity of air navigation services through reduced traffic disruption. Reduce risk of traffic disruption (traffic disruption due to system failure led to 52,920 minutes delay in 2015 and 7,442 minutes delay in 2018).
2	Wide Area Networking	Network, Local	Safety, Capacity, Cost-efficiency	Business continuity of air navigation services through reduced risk of data traffic disruption. Cost reduction and efficiency gains through the use of a more efficient, scalable network. Reduce risk of traffic disruption (traffic disruption due to system failure led to 52,920 minutes delay in 2015 and 7,442 minutes delay in 2018).

Additional information

Remote radio sites: "This investment includes the installation of remote radio sites including radio equipment, electronic equipment and infrastructure (shelters and pylons). The project includes installation of 18 "new" sites for Enroute and Approach communications with the following objectives:

- Objective 1: Installation of geo-redundant A+B sites (main redundant) to minimise risks.
- Objective 2: Installation of separate C-chain with nationwide coverage.
- Objective 3: Remove the need for implementation of Climax."

Wide Area Networking: "From mid 2022 onwards, skeyes' existing WAN (SDH network) will no longer be supported by the current Telco service provider, thus becoming obsolete. Skeyes has decided to implement a new network that will be easily upgradable both in capacity and size in order to address future demands. WAN is an important investment in skeyes' planning as many of the proposed RP3 investments depend on a reliable and efficient network. The new WAN will limit the risk of data traffic disruption at a national and local level due to reduced network issues (i.e. loss of data transfer)."

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 RP3 (M€)
Other new investments	119.0	73.2	0.5	1.4	3.2	7.0	9.9	22.0
Existing investments			14.6	11.8	10.4	9.5	8.7	55.0

a) Investments contribute to the rectification of identified capacity shortfalls?

A capacity deficit of -8% is expected for Belgium in 2022, reducing to -6% in 2024.

The main investment contributing to en route capacity enhancement is the ATM Next Generation project. However, the shared data services solution associated with the investment will mainly be developed during RP3 and deployed in RP4 indicating that the capacity contributions will not materialise – at least in full – during RP3.

In addition to the ATM Next Generation investment, the other major investments related to remote radio sites, wide area network renewal and replacement of co-operative surveillance sensors contribute to scalability, flexibility and resilience.

The ATM Next Generation investment contributes to PCP/CP1 ATM Functionalities AF1, AF3, AF4, and AF6 and the A-SMGCS 2 system for EBBR investment contributes to AF2 and AF4.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

The investment will upgrade the current ATM system and improve integration of the civil and military ATM components. Additionally, a contingency solution will be enabled and flexibility in controller working position and airspace sector configuration allocation will be improved through the implementation of a shared data services solution between the civil and military ATM actors.

The investment related to the remote radio sites replaces the current communications infrastructure where the radio communications infrastructure operates from a single site improving resilience of service provision.

WAN investments are needed due to the existing WAN being no longer supported by the telco service provider, and the new WAN will be scalable both in terms of capacity and its size, enabling addressing of future communications demands.

Investments in co-operative surveillance sensors – Mode-S and WAM – are required during RP3 in order to guarantee business continuity, enabling sensor diversity reducing the risk of common modes of failure and improving resilience.

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

The current ATM system received a mid-life upgrade in November 2018 (LSSIP Belgium 2018) and planning the renewal of the system has hence only just started. The ATM Next Generation investment will, for the most part, generate capacity benefits after RP3. While Belgium is experiencing a capacity shortfall during RP3, based on the recency of the mid-life upgrade it can be argued that the renewal project is timed properly as the current system progresses towards end-of-life. However, additional capacity enhancing measures would be needed.

3.5.4 PRB Key Points

- While some investments above 5M€ are detailed in Annex E of the performance plan, they are not included in the "new major investments" section. It is unclear if those investments are existing or split into multiple projects below 5M€.
- The actual CAPEX for RP2 was 72% of the planned for the same period and the amount underspent was 25.2M€. The airspace users have financed 20.6M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- The 2019 submission of the performance plan included a drone detection system as other new investment. However, the investment was not included in the 2021 submission.
- A capacity gap is expected in Belgium during RP3.
- Major investments targeting capacity, flexibility, resilience and scalability are planned, however capacity benefits may only be achieved following RP3. Major investments contribute to PCP/CP1 ATM Functionalities AF1, AF2, AF3, AF4, and AF6.
- Other investments are also planned which contribute to flexibility, resilience and scalability.

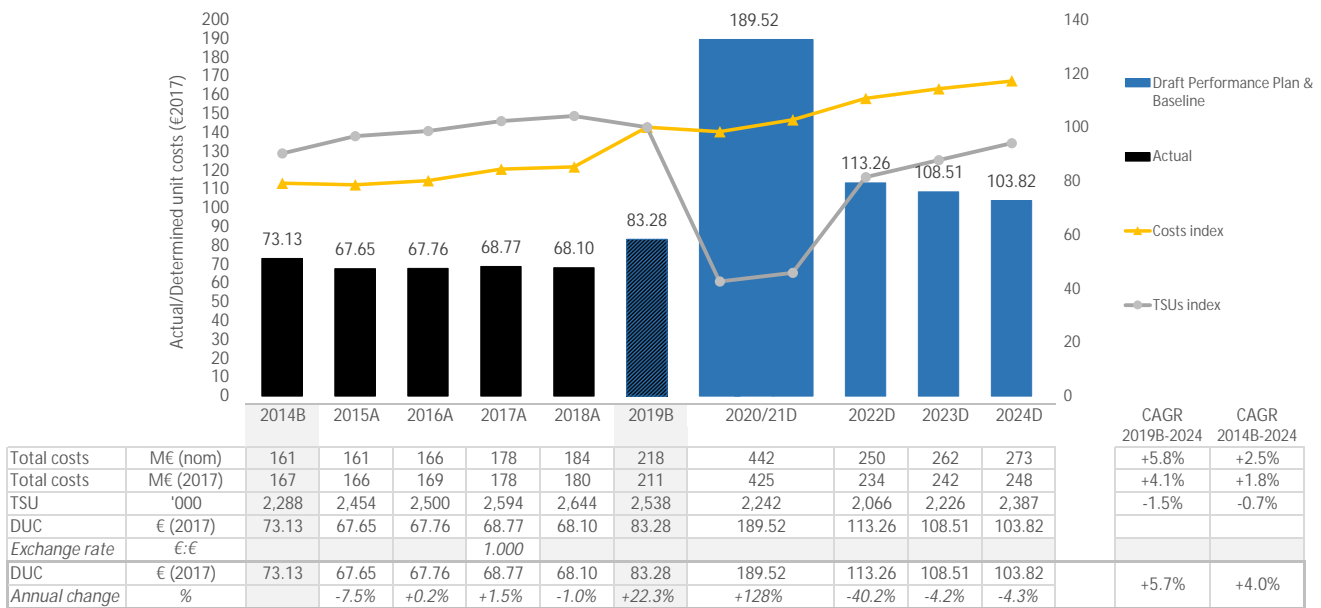
BELGIUM-LUXEMBOURG

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Belgium-Luxembourg - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 83.28 €2017

The MUAC related adjustments should be corrected to avoid double counting. The cost allocation adjustment should be further clarified, especially the 10M€2017 difference between en route and terminal. Therefore the adjustments to the 2019 baseline seem to not be justified.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? +5.7%
The DUC is planned to increase on average by +5.7% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? +4.0%
The DUC is planned to increase on average by +4.0% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- c) DUC level (2019 baseline) lower than the average of comparator group (E) average (73.56 €2017)? +13.2%
The 2019 DUC level is +13.2% higher than the average of the comparator group.
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? -
Even when assuming the request as appropriate, the deviation would not allow for the achievement of the cost-efficiency targets.
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? - n/a

4.1.4 PRB Conclusions

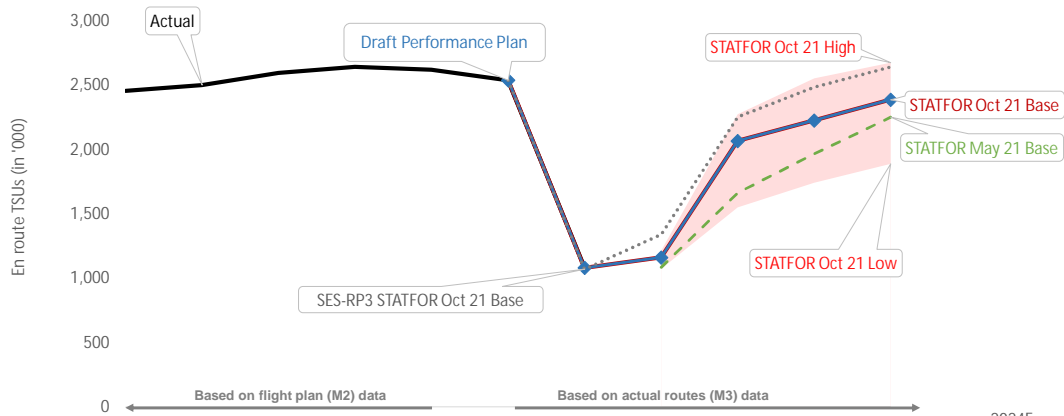
The PRB concludes that the cost-efficiency targets proposed by Belgium-Luxembourg should not be approved.

- Belgium-Luxembourg is not consistent with the RP3 DUC trend in terms of average reduction.
- Belgium-Luxembourg is not consistent with the long-term Union-wide DUC trend.
- Belgium-Luxembourg is not consistent with the average DUC baseline of the comparator group.
- Belgium-Luxembourg presents justifications for a possible deviation to achieve capacity targets. However, even assuming the request as appropriate, the deviation cannot be considered exclusively for the purpose of achieving capacity targets.
- Belgium-Luxembourg should significantly revise downwards the RP3 cost base.
- Belgium-Luxembourg should adjust the cost baseline, and further clarify the 10M€2017 difference between en route and terminal cost allocation adjustments.
- Belgium-Luxembourg should consider in the RP3 cost base the 20.6M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- 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.

4.2 Review traffic forecasts and baseline

Belgium-Luxembourg - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	2,454	2,500	2,594	2,644	2,620	2,538	1,081					
Annual change	%		+1.9%	+3.7%	+1.9%	-0.9%	-4.0%	-57.4%					
STATFOR Oct 21 Base	'000 TSUs								1,161	2,066	2,226	2,387	-5.9%
Annual change	%								+7.4%	+78.0%	+7.7%	+7.2%	
STATFOR May 21 Base	'000 TSUs								1,084	1,665	1,968	2,251	-11.3%
Annual change	%								+0.3%	+53.5%	+18.2%	+14.4%	
Performance Plan	'000 TSUs						2,538	1,081	1,161	2,066	2,226	2,387	-5.9%
Annual change	%						-4.0%	-57.4%	+7.4%	+78.0%	+7.7%	+7.2%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	2,538		2014B (PP baseline)	2,288	
2019A (as in the Reporting tables, M2)	2,620		2014A (as in the Reporting tables, M2)	2,362	
2019B/ 2019A	-3.13%	-3.13%	2014B/ 2014A	-3.13%	-3.13%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-3.13%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-3.13%). The coefficient decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan is in line with the STATFOR October 2021 base scenario.

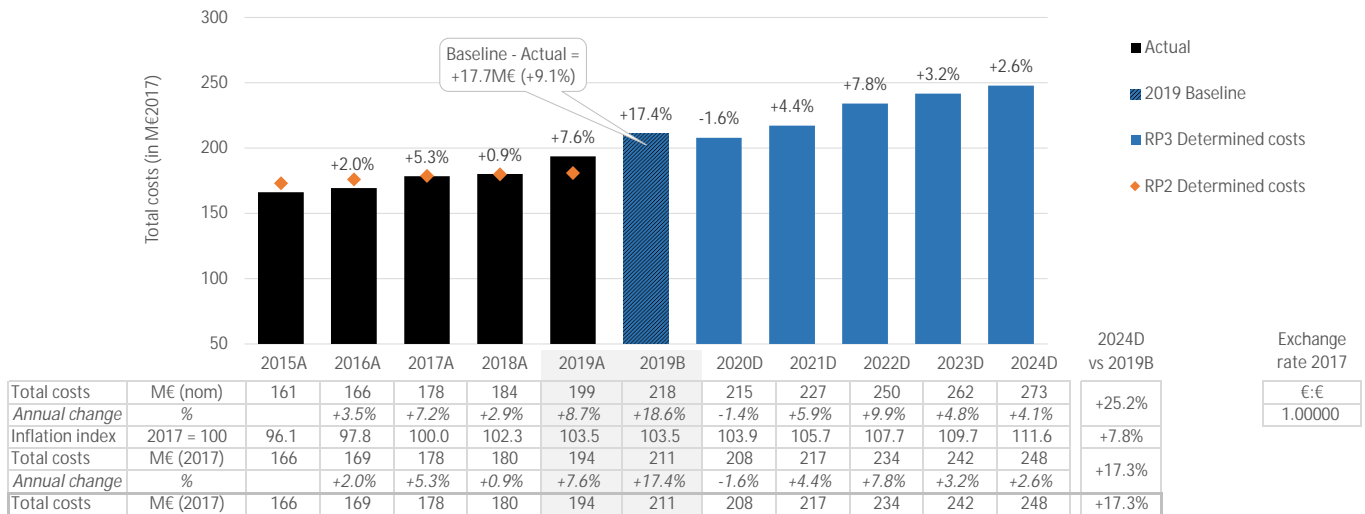
4.2.4 PRB Key Points

- En route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Belgium-Luxembourg - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3

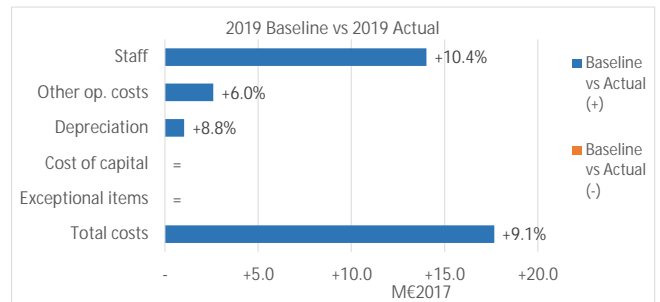


Is inflation in PP in line with IMF (April 2021 forecast)?	Deviation from index < 1p.p. in 2024
Is inflation in PP in line with IMF (October 2021 forecast)?	No

The reported inflation in the performance plan is not fully in line with the IMF April 2021 forecast due to rounding differences.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	5.8	+3.6%
2019B vs 2019A	17.7	+9.1%



2014 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Cost base of ANA Luxembourg added	ANSP	Staff	+3.5
#2 - Cost base of ANA Luxembourg added	ANSP	Other ops.	+2.0
#3 - Cost base of ANA Luxembourg added	ANSP	Depreciation	+0.3

2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Change in APP allocation key	ANSP	Staff	+10.7
#2 - Change in APP allocation key	ANSP	Other ops.	+2.6
#3 - Change in APP allocation key	ANSP	Depreciation	+1.0
#4 - Adjustment of cost base	ANSP	Staff	+3.3
#5 - Adjustment of cost base	ANSP	Other ops.	+0.0

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- The 2014 cost baseline has been adjusted to take account of ANA Lux, which was not included in the cost base in RP1. From RP2 onwards, this cost base was added. To compare over years, this effect should be neutralized and the cost base of 2014 for ANA Lux was added to the baseline value of 2014. The adjustment is mainly related to staff costs and other operating costs.

- The 2019 cost baseline has been adjusted for skyes due to a change in the allocation key of the approach costs (detailed in Annex M of the performance plan and in 4.3.C of this document).

- The 2019 cost baseline has been adjusted for MUAC in relation to the transfer of costs from the Eurocontrol budget to the MUAC budget (for tax compensation on pensions and agency support costs). The pension tax compensation related to MUAC is progressively borne by the four States of MUAC (over a period of seven years from 2016 to 2022). These costs have been included since 2016 in a special Annex (to the general budget of Eurocontrol) in a staggered approach (10% in 2016, 20% in 2017, 30% in 2018, 40% in 2019, 60% in 2020, 80% in 2021). These costs will be included at 100% in MUAC (Part III) general budget and thus the MUAC cost base once the new Maastricht Agreement has been ratified by all four States, which was assumed to happen before the end of 2021.

2014/2019 baseline analysis

- The 2014 cost baseline adjustment, related to ANA Lux inclusion in the Belgium-Luxembourg en route cost base is justified and acceptable. The calculated adjustment (5.5M€2017) is lower when compared with the total 2015 actual costs, reported for the ANSP ANA Lux, in the reporting tables (6.3M€2017). Therefore the amount seems to be reasonable.

The 2019 cost baseline has been adjusted based on the following elements:

- There is a change in the allocation key of the approach costs for skeyes. The change in the methodology compared to RP2 corresponds to a transfer from the terminal charging zones to the en route charging zone. The impact on the en route baseline is significant with an increase of +14.4M€2017. The terminal 2019 baseline adjustment for EBBR presents a reduction of -4.4M€2017. The 10.0M€2017 difference seems very large, considering the other airports in Belgium which are outside the scope of the SES in RP3. The adjustment should be corrected or further justification provided with respect to the reallocation of costs between en route and terminal and between airports.
- The MUAC costs related adjustment to the 2019 baseline for the tax compensation seems justified. However, it should be corrected to avoid double counting of the part of costs that were already included in the 2019 actual NSA costs in this respect. Such correction would slightly reduce the 2019 baseline costs adjustment (by 0.3M€2017).
- The MUAC costs related adjustment to the 2019 baseline for the agency support costs is presented to ensure consistency with the other MUAC States and is correctly set to zero, as these costs have been already included in 2019 actual NSA costs.

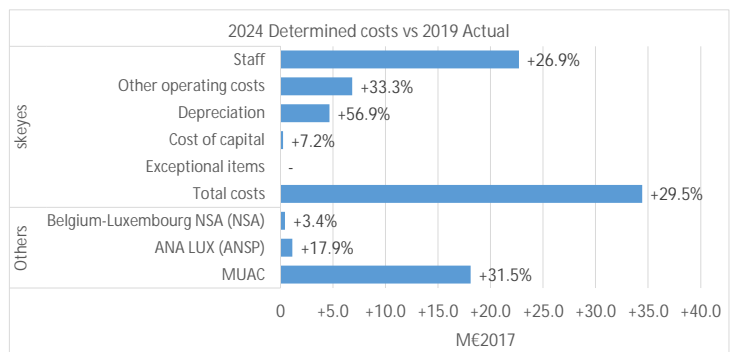
4.3.3 Review of the RP3 determined costs and incentives ✖

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



The total costs of Belgium-Luxembourg are planned to increase by +27.9% (+54.1M€2017), between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is skeyes (+29.5%, or +34.4M€2017 overall).

For skeyes, the planned increase in costs is largely driven by additional staff costs (+26.9%, or +22.7M€2017 between 2019 and 2024).

- According to the information in Annex R of the performance plan, the increase in staff costs is related to: the recruitment and training of new ATCOs; the growing number of pre-retired ATCO and the associated charge over RP3; the recruitments of the necessary technical and project resources for the roll out of the investment plan bound to compulsory replacement and regulations; and inflation and indexation on wages.
- The other operating costs are planned to increase by +6.8M€2017, or +33.3%, between 2019 and 2024, due to external project management and maintenance associated with new investments.
- The increase in depreciation costs (+56.9% or 4.7M€2017 between 2019 and 2024) is explained by the fact that the "fixed assets base is expected to increase significantly (67% increase in NBV over RP3) due to important CAPEX projects most of which are either for replacement and continuity (e.g. Surveillance Radars. Radio communication...) or for investing in a sustainable capacity (NextGen ATM)".

MUAC costs for Belgium-Luxembourg (30.5% of the en route cost-base in 2024) show a +31.5% cost increase between 2019 and 2024, mainly due to an increase in staff costs. The main reasons are: the indexation of remuneration, the integration of costs for tax compensation, the additional ab initio intake, and the "General Condition of Employment package". In 2019, a new GCE agreement was concluded which resulted in a rise in wages for each ATCO in return for extra workload (+/-10% pay rise in return for +/-10% extra shifts).

Total en route service units are forecasted to be lower than 2019 at the end of the period (-5.9%) according to the selected STATFOR October 2021 base forecast. On the contrary, en route costs are planned to exceed both 2019 actual and 2019 baseline values by 2021.

4.3.4 PRB Key Points ✖

- Several adjustments have been done to the 2014 and 2019 cost baseline. The MUAC related adjustment should be corrected to avoid double counting. The cost allocation adjustment should be further clarified, especially the 10.0M€2017 difference between en route and terminal.
- Total costs of skeyes are planned to increase by +29.5%, between 2019 and planned 2024. All cost categories and entities are planned to increase by the end of the period.
- In RP2, in terms of depreciation and cost of capital, airspace users have financed 20.6M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

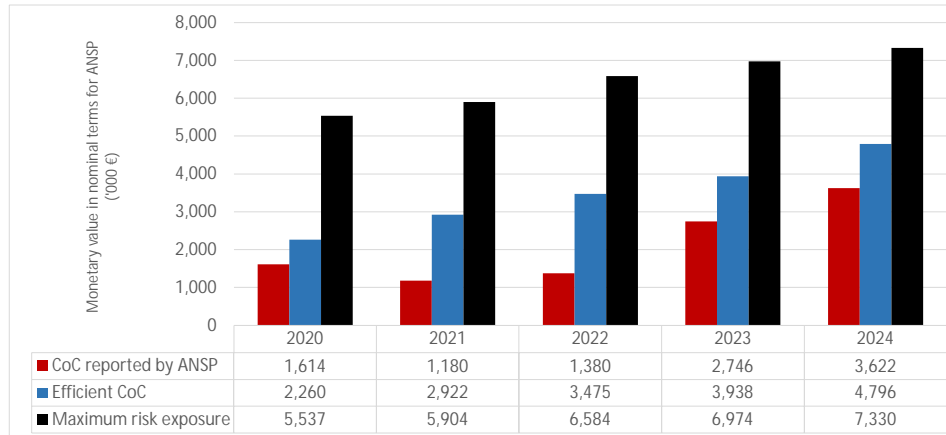
4.3.A Cost of capital

skeyes - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	125,844	134,183	149,645	158,507	166,596
Monetary value of Return on Equity	1,532	1,157	1,368	2,729	3,597
Ratio RoE/DC (%)	1.2%	0.9%	0.9%	1.7%	2.2%

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	2.2%	3.9%	2.3%	5.3%	2.5%	5.5%	3.8%	5.2%	3.8%	5.4%
Interest on debts	1.0%	0.0%	0.1%	1.3%	0.0%	1.5%	0.1%	1.3%	0.1%	1.3%
Capital structure (% debt)	10.7%	25.6%	28.3%	28.8%	31.7%	29.3%	25.6%	29.1%	16.7%	29.1%
WACC	2.1%	2.9%	1.7%	4.2%	1.7%	4.3%	2.8%	4.1%	3.2%	4.2%

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

- Skeyes received three loans, one from Eurocontrol in the autumn of 2020 and two from the Belgian Federal State in 2020 and 2021. The loan of Eurocontrol is being reimbursed by the loans received from the State. The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate are duly justified and in line with competitive market practices.
- The WACC reported in the performance plan has been calculated based on the CAPM. The efficient WACC has been calculated based on option 1.
- The embedded return on equity over RP3 varies from a minimum of 0.9% to a maximum of 2.2%. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	75,149	77,122	92,732	110,889	125,777
Net current assets	2,811	-6,994	-12,584	-14,362	-12,153
Adjustments total assets	0	0	0	0	0
Total asset base	77,960	70,127	80,148	96,528	113,624

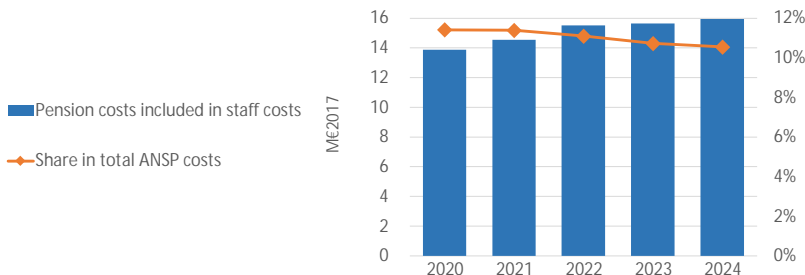
- The fixed asset base is planned to significantly increase over RP3, in line with the increase in investments described in section 3.5 of this document.
- The net current assets do not present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over RP3, driven by the increase in the fixed asset base.

4.3.A.5 PRB Key Points

- The cost of capital does not present major issues.

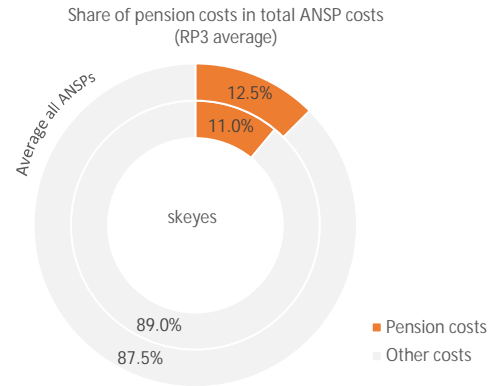
4.3.B Pensions

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	13.9	14.5	15.5	15.7	15.9
Year on year variation	% change		+4.8%	+6.7%	+0.9%	+1.8%
Share in total ANSP costs	%	11.4%	11.4%	11.1%	10.7%	10.6%
Year on year variation	p.p.		0.0p.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? **Slight decrease**



Is the ANSP RP3 average share of pension costs higher or lower than the Union-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
For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024?	No info

No information is provided in the performance plan regarding the main actuarial assumptions, apart from the number of employees that the employer contributes for this scheme, that grows from 385 in year 2020 up to 425 in 2024.

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 from indicating that the pension costs have been determined based on existing regime and that "any unforeseen changes on the costs to be passed on to airspace users will be duly motivated".

4.3.B.4 PRB Key Points

- The increase in pensions costs is related to the increase in the number of staff.
- No major issues identified, but no information is provided in the performance plan regarding the main actuarial assumptions of the defined benefit scheme.

4.3.C Methodology for cost allocation between ER and TRM

Belgium

4.3.C.1 Cost allocation overview

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

- Skeyes reports to have an "activity-based costing system" designed to allocate as many costs as possible directly to the appropriate cost/activity centre. Skeyes lists cost centres at four levels: 1) organisational units, 2) type of services, 3) final products (e.g. ACC, APP, terminal, etc), and 4) airports. Also, skeyes structures the cost centres in various groups including: 1) corporate, 2) operations (ATS, "Meteo" and AIS), 3) equipment, 4) finance and administration, and 5) buildings. For costs that may not be allocated directly to cost centres, skeyes defines allocation keys based on the general principle that every user (internal customer) is paying for the requested services.
- The expenses directly allocated by skeyes to en route include: 1) staff costs of en route controllers and engineers working on development and maintenance of en route systems, 2) depreciation of equipment, systems and buildings used in ACC, and 3) communication of en route data and maintenance costs of en route systems.
- Allocation keys of shared expenses vary with the nature of the cost. Examples of keys are the number of positions, number of controllers, m², frequencies, time spent in the area, 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?

Yes

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

Belgium reports that for RP3 it changed the cost allocation methodology of: 1) approach services, and 2) supervision costs. Skeyes proposes to assign the costs of approach services entirely to en route while keeping the aerodrome control services within terminal. Skeyes justifies this change stating that it better reflects the operational arrangements and the airspace structure in RP3.

In RP2, skeyes obtained the en route share of approach costs by estimating the total volume of controlled airspace from which it deducted a 20km "cylinder" around an airport. However, according to skeyes, most of the workload of approach controllers occurs outside the 20km cylinder, and therefore the allocation method in RP2 assigned a disproportionate part of approach cost to terminal.

For supervision costs in RP3, the cost allocation methodology will better reflect the workload related to each charging zone and each regional airport. Belgium states that the cost allocation key in RP3 "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". In contrast, the RP2 supervision costs were allocated proportionally to the cost base of each charging zone and each final product (that is ACC, APP, and TWR).

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 impact on the 2019 baseline due to the change in the approach allocation methodology is an increase of 14.4M€2017 in en route costs. The impact on the terminal 2019 baseline does not fully correspond to the absolute amount reallocated to en route (-4.4M€2017). The reallocations in en route and terminal costs are however explained by the same percentages of reallocations of individual cost categories: staff costs (75%), other operating costs (18%), and depreciation (7%), respectively.

4.3.C.3 PRB Key Points

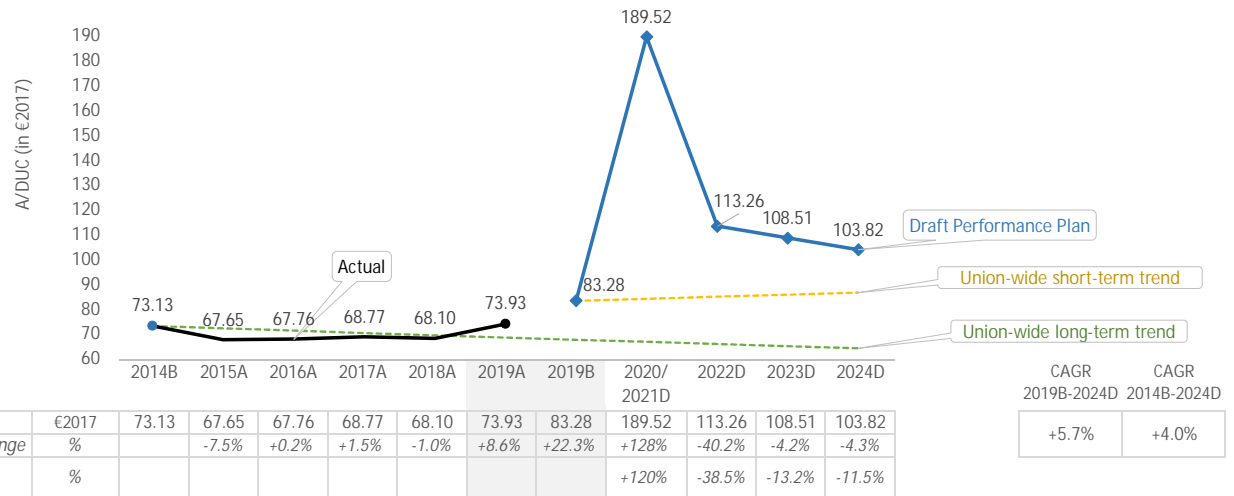


- Belgium changed the cost allocation methodology with respect to RP2 for approach services and supervision costs on the basis of operational requirements. There is no record of airspace users opposing the proposed changes to the cost allocation methodology during the performance plan consultation. However, allocating the approach services fully to en route implies that overflights are financing approach services which they do not use (see PRB en route and terminal cost allocation methodology review).
- The change in the methodology compared to RP2 results in a significant increase of +14.4M€2017 in the en route 2019 baseline costs, which is not consistent with the decrease in terminal baseline costs of -4.4M€2017. The difference between the adjustments due to cost reallocation should be further explained.

4.4 Determined unit costs (DUC)

Belgium-Luxembourg - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+5.7%	+1.0%	+4.7p.p.
Trend (CAGR 2014B-2024)	+4.0%	-1.3%	+5.3p.p.
	Performance Plan	Average comparator group	Difference
2019 baseline	83.28	73.56	+13.2%

- The DUC is planned to increase on average by +5.7% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +4.0% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +13.2% higher than the average of the comparator group.
- Belgium-Luxembourg presents justifications for a deviation to achieve capacity targets, which seems to not be justified.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): vs RP3 criteria +40.9 vs RP2+RP3 criteria +92.6

Additional determined costs related to measures necessary to achieve the en route capacity targets (in M€2017)

	2020D	2021D	2020/2021D	2022D	2023D	2024D	Σ 2020-2024	PP deviation
Staff	2.2	3.0	5.2	2.8	2.8	2.8	13.5	4.5
of which, pension costs	0.2	0.2	0.4	0.2	0.2	0.2	1.1	0.4
Other operating costs	3.2	5.3	8.6	7.3	7.6	8.4	31.9	10.6
Depreciation	-	-	-	-	-	-	-	-
Cost of capital	-	-	-	-	-	-	-	-
Exceptional items	-	-	-	-	-	-	-	-
Total additional costs of measures	5.4	8.3	13.8	10.1	10.4	11.2	45.4	15.1

Overall description of the measures necessary to achieve the en route capacity targets for RP3, which induce additional costs

Skeyes:

- Skeyes has an aging ATCO population, resulting in a large number of ATCOs reaching pre-retirement age during RP3. Therefore additional ATCOs shall be recruited and trained to ensure a sustainable capacity. The associated costs of recruitment and training for new ATCOs in order to replace departing ATCOs over RP3 have been estimated to 25M€.
- Skeyes has planned to replace its ATM system with a single, integrated, and harmonised airspace management system with MUAC and the military that will support the integration of civil and military ATM services, improve capacity and operational efficiencies. The reported additional costs over RP3 (9M€) are just the cost of external support required for the program called NextGen ATM.

MUAC:

- In 2019, a new "General Condition of Employment package" agreement was closed. This agreement increases ATCO availability in order to mitigate the gap between staff availability and traffic demand. This results in a rise in wages for each ATCO, in exchange for extra workload and flexibility. The associated additional costs are 14.3M€, over RP3.
- Implementation of the Post-OPS Analysis and BI (PABI) project, that consists of enhancing the Post-OPS Analysis process and tooling at MUAC, in order to further optimise the planning of daily operations. The associated additional costs are 0.9M€, over RP3.

Demonstration that the deviation is exclusively due to the additional costs related to measures necessary to achieve the capacity targets

"The replacement of end of life equipments, the recruitment and training of new ATCO and the ATM next gen are mandatory to safeguard business continuity and capacity over RP3. This is developed more in depth in the annexes E and R".

Analysis

Based on the information provided in Annex R and E of the performance plan, it appears that the amounts claimed for capacity enhancement measures in skeyes and MUAC are justified.

- An ATCO recruitment plan seems justified. Skeyes report in a table in Annex R of the performance plan an adverse age pyramid in its ATCO population, with 29% of the operational air traffic controllers older than 50 years who will reach the pre-retirement age during RP3, and an extra 19% who will reach pre-retirement in RP4 as they are currently older than 45 years. The costs associated with the planned recruitment and training that skeyes includes in Annex E, page nine, provided proper evidence and justification of the planned additional costs related on this issue.

- Regarding the investment costs, the RP2 CAPEX monitoring report shows that the actual CAPEX that was foreseen for RP2 was not realised and over the whole reference period, the total actual investment costs have been significantly lower than those determined in the performance (by -30%). However, the claim seems valid since it is related to operational costs associated to investments that will be finally executed and not to investments needs of RP3 that may have been charged to users in RP2 while not being implemented.

- Belgium-Luxembourg is deviating by +40.9M€2017 and +92.6M€2017 from the RP3 and long-term trend, respectively. The costs indicated to achieve capacity targets amounts to 15.1M€2017, lower than the deviations from the trends. Therefore, the deviation is not exclusively for the purpose of achieving capacity targets.

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

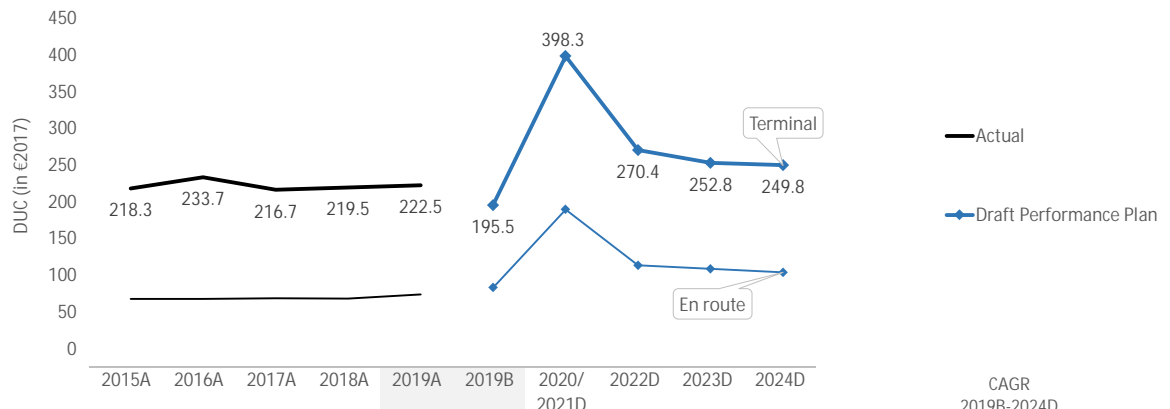
4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✘

- Belgium-Luxembourg is not consistent with the RP3 DUC trend in terms of average reduction.
- Belgium-Luxembourg is not consistent with the DUC long-term Union-wide trend.
- Belgium-Luxembourg is not consistent with the average DUC baseline of the comparator group.
- Belgium-Luxembourg presents justifications for a possible deviation to achieve capacity targets. Even when assuming the request as appropriate, the deviation cannot be considered exclusively for the purpose of achieving capacity targets.

4.5 Terminal

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal		218.3	233.7	216.7	219.5	222.5	195.5	398.3	270.4	252.8	249.8	+6.3%
Annual Change	%		+7.1%	-7.3%	+1.3%	+1.4%	-11.0%	+104%	-32.1%	-6.5%	-1.2%	
DUC - En route		67.6	67.8	68.8	68.1	73.9	83.3	189.5	113.3	108.5	103.8	+5.7%
Annual Change	%		+0.2%	+1.5%	-1.0%	+8.6%	+22.3%	+128%	-40.2%	-4.2%	-4.3%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Brussels (EBBR)	GROUP I	135.0	224.1	+66.0%	179.8	283.4	+57.6%

* 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 average unit cost for Brussels (EBBR) was significantly higher than the median of their comparator group during RP2 (+66.0%). The difference is planned to be slightly lower during RP3 (+57.6%).

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
2019 Traffic Baseline Adjustments	TCZ1	No	

Costs

Cost Baseline analysis		Δ M€2017	%	
2019B vs 2019A	TCZ1	-4.4	-12.2%	
2019 Cost Baseline Adj.	TCZ1			
#1 - Change in APP allocatic	TCZ1	ANSP	Staff	-3.3
#2 - Change in APP allocatic	TCZ1	ANSP	Other ops.	-0.8
#3 - Change in APP allocatic	TCZ1	ANSP	Depreciation	-0.3

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

The 2019 cost baseline has been adjusted for skeyes due to a change in the allocation key of the approach costs. Detailed information is provided in Annex M of the performance plan.

2019 baseline analysis

There is a change in the allocation key of the approach costs for skeyes. The change in the methodology compared to RP2 corresponds to a transfer from the terminal charging zones to the en route charging zone. The impact on the en route baseline is very significant with an increase of +14.4M€2017. The terminal 2019 baseline adjustment for EBBR presents a reduction of -4.4M€2017. The 10.0M€2017 difference seems very large, considering the other airports in Belgium which are outside the scope of the SES in RP3. The adjustment should be corrected or further justification provided with respect to the reallocation of costs between en route and terminal and between airports.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	Yes
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Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

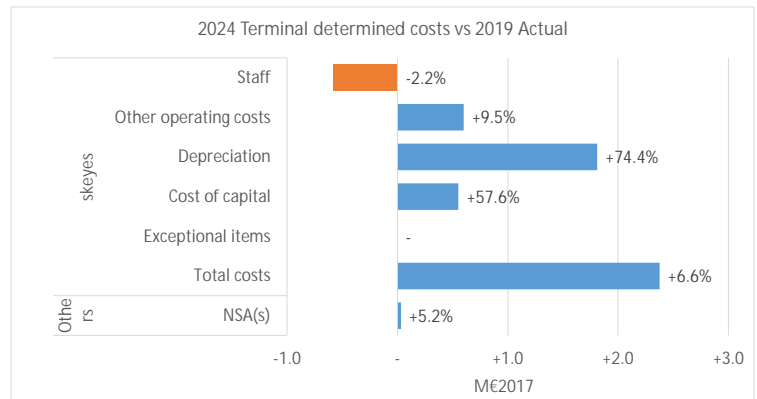
Is inflation in PP in line with IMF (April 2021 forecast)?	Deviation from index < 1p.p. in 2024
Is inflation in PP in line with IMF (October 2021 forecast)?	No

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	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	0.13%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (23%) is slightly higher than the share of terminal total costs (20%).
- Terminal WACC and its parameters are equivalent to the ones for en route for the whole period.
- The share of terminal pension costs in total pension costs (20%) are equivalent to the share of terminal total determined costs.
- The terminal DUC trend over RP3 planned for Belgium TCZ (+6.3% p.a.) is higher than the one planned for en route (+5.7% p.a.).
- For skeyes, total costs in 2024 are planned to be above the 2019 actuals (+6.6%, or +2.4M€2017). The main driver is not the staff costs, as it was the case for en route. For terminal the increase in the planned costs is mainly due to the depreciation costs, which are +74.4%, or 1.8M€2017 higher in 2024. No specific information about terminal determined costs is available in the terminal additional information (section f) to the reporting tables, since the very same information is reported in this section f, than for en route. In Annex E of the performance plan, skeyes provides detailed information on the new investments and the cost allocation between en route and terminal, which shows an extensive agenda of investments planned in RP3 for terminal (detailed analysis of investments is provided in section 3.5 of this document). This accelerate level of investments has an impact as well in the higher operating costs (+9.5%, or 0.6M€2017) due to the external project management and maintenance associated with new investments, and in higher costs of capital (+57.6%, or +0.6M€2017) due to a significant increase in the net current assets (+84.7M€) partially compensated by a decrease in the WACC (from 3.1% in 2019 to 2.07% in 2024).
- The total terminal service units are forecasted to be lower than 2019 at the end of the period (-5.1%) according to the selected STATFOR October 2021 base forecasts. On the contrary, terminal costs are planned to be almost at the same level than 2019 actual, by 2022.

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 +5.7%.
- The terminal RP3 DUC trend is +6.3%, which is worse than the terminal RP2 DUC trend of +0.5%.
- Brussels airport, the only airport included in the scope of the performance plan, had a DUC +66.0% higher than the median of its comparator group over RP2. The difference is expected to become +57.6% over RP3.
- Belgium applies STATFOR October 2021 base scenario forecast.
- The cast baseline has been adjusted following a change in the cost allocation. However, the terminal amounts are not corresponding to the en route amounts.
- Skeyes total costs in 2024 are planned to be +6.6% or +2.4M€2017 above 2019 actuals.

PRB Assessment

FRANCE

Draft Performance Plan

Context and scope

France

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4750, F4751, F4636, F4637, F4640, F4642, F4644, F4645, F4331-F4337, F4340-F4356, F4258-F4373, F4663, F4374, F4662, F4752

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 18.4%
 % Serv. Units vs SES 17.3%
 % Costs vs SES 21.2%

Scope

FAB: FABEC

 ANSPs: DSNA
 Météo France

 Other entities (as per Article 1(2) last para. of Regulation 2019/317): French Civil Aviation Authority, Air Transport Directorate
 Eurocontrol

ATM
 MET

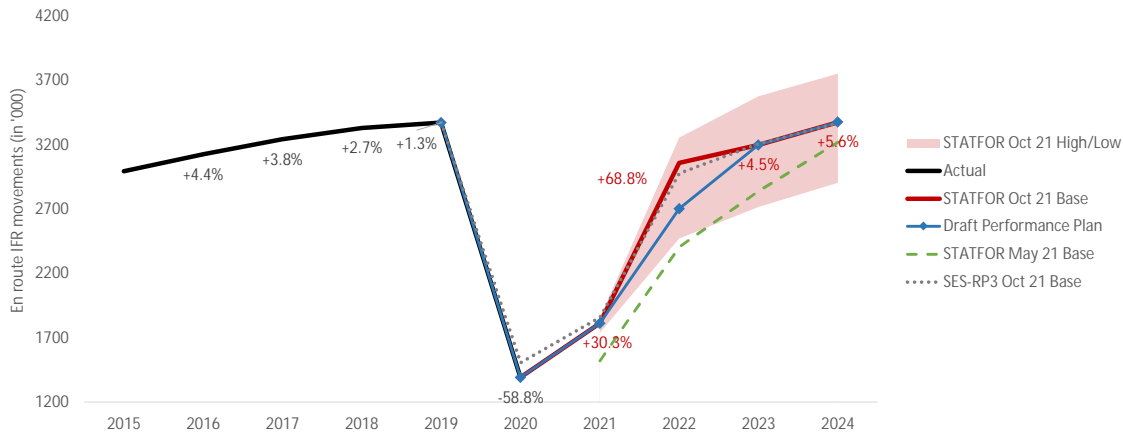
 Competent authority
 NM/CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	France	n/a	No	No	No	
Terminal (TRM)	France - Zone 1 France - Zone 2	2 56	No No	No No	No No	
Changes in the CZs from RP2	No					

Comparator group: Group A Other States in the comparator group: Germany
 Italy
 Spain

 Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
DSNA	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	B	B	C	C	C

PRB assessment

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

- The EoS safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	-	2.92%	2.83%	2.83%	2.83%

PRB assessment

The PRB concludes that the environment targets proposed by FABEC for France should be approved.

- France's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that France did not achieve the 2021 target of 2.92% in its performance plan.
- Due to insufficient environmental performance in past years and missing measures introduced to achieve RP3 targets, France has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	3.12	0.18	0.25	0.25	0.25
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.00	0.40	0.40	0.40	0.40

PRB assessment

The PRB concludes that the capacity breakdown values proposed by France should be approved.

- France may experience a major capacity gap in Reims ACC during all years of RP3, in Brest ACC and Bordeaux ACC in 2023 and 2024, if additional capacity enhancement measures are not implemented.
- There are discrepancies in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed breakdown values.
- The incentive schemes defined in the performance plan do not have a material impact on the revenue at risk.
- The transition projects in French ACCs will likely have a significant impact on the ANSPs of neighbouring Member States and on the European ATM Network during 2022-2024.
- Due to the foreseen major capacity gaps and the network-wide effects associated with the planned transition projects in French ACCs, France has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024	
Target for determined unit cost (DUC) (€2017) - En route	132.06	76.14	62.09	58.56	-0.4%	-1.2%	
Target for determined unit cost (DUC) (€2017) - Terminal	TCZ1	189.83	114.46	102.21	97.81	n/a	+0.6%
	TCZ2	659.13	354.93	338.81	319.52	n/a	-2.4%

PRB assessment

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

- France is consistent with the RP3 DUC trend in terms of average reduction.
- France is not consistent with the long-term Union-wide DUC trend. However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- France is consistent with the average DUC baseline of the comparator group.
- France presents justifications for a deviation to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

5. PRB recommendations

ENVIRONMENT

- France should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- France should ensure that all capacity enhancement measures are properly implemented and are aligned with the reference values.
- France should reduce and mitigate the significant impact of its transition projects on the ANSPs of neighbouring Member States and the airspace users by closely coordinating with the Network Manager.
- France should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.
- France should revise the incentive schemes so that they have a material impact on the revenues.

FRANCE

Safety KPA

1.1 Summary of safety key data and assessment results

France

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 RP3 Union-wide safety targets, are planned to be attained in 2022.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes the measures established at ANSP, CAA and FABEC level. Considering the current safety levels, the measures are considered sufficient and adequate to improve and further ensure the required safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the FABEC approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

The performance plan describes detailed change management processes and transition plans compliant with Commission Implementing Regulation (EU) 2017/373. The 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 be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

1.2 Targets for EoSM for ANSPs and Measures

France

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
DSNA	Safety policy and objectives	C	C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	D	D	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	B	B	B	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 2022. In 2020, France has already met the RP3 safety targets in four out of five management objectives. Only safety culture needs to be improved from level B to level C.

The performance plan describes the specific measures applied at the level of the ANSP, the CAA and the FABEC Authorities.

At ANSP level, the measures are planned to be implemented in the following areas:

- Safety culture assessment and promotion;
- Review and update of the hazard identification and analysis processes;
- Management of improvements in safety that address key risks;
- Application of data science to systematically learn from safety data;
- Update of Safety Risk Target document and corresponding Unit Safety Case.

At the level of the Competent Authority, the measures derived from compliance with Commission Implementing Regulation (EU) 2017/373, applicable to EoSM improvements are regularly reviewed and verified.

Furthermore, FABEC Authorities established a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to review the FABEC ANSPs' performance and to jointly determine if specific actions are necessary. Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach for all seven FABEC ANSPs.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan confirms that changes will be required to achieve targets for other KPAs and that improvements under the safety KPA may affect other KPAs. The performance plan underlines that safety remains the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The impact of changes to the ATM functional system, including changes to the system needed to improve other KPAs, is assessed by the ANSPs through safety procedures compliant with Commission Implementing Regulation (EU) 2017/373, which ensures that safety levels are not compromised. Changes are also presented for approval by the Competent Authority to ensure that there are no unacceptable safety implications.

FABEC ANSPs have defined additional (K)PIs to monitor their performance (on all KPAs) in addition to those specified by Commission Implementing Regulation (EU) 2019/317.

Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (safety, security, quality, environment). Indicators, issues and possible trade-offs are discussed, explained and addressed by board members under the leadership of the ANSPs' management. The approach provides confidence that the changes introduced to reach targets on other KPAs will not deteriorate safety levels.

1.3.2 Change Management Practices

Change management practices and transition plans for the implementations of major airspace changes or the ATM system improvements are handled with "Managing Successfully Programs", a specific method established by DSNA. The practices are compliant with Commission Implementing Regulation (EU) 2017/373.

Additionally, a specific safety-orientated approach was developed, called the "Integrated Safety Approach". The approach aims to improve the safety management system in particularly related to safety event analysis in the safety studies, harmonisation and optimisation of safety studies and improved management of the human factor element in the functional system. The new approach built on Commission Implementing Regulation (EU) 2017/373 further improves the safety management system in important areas. 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

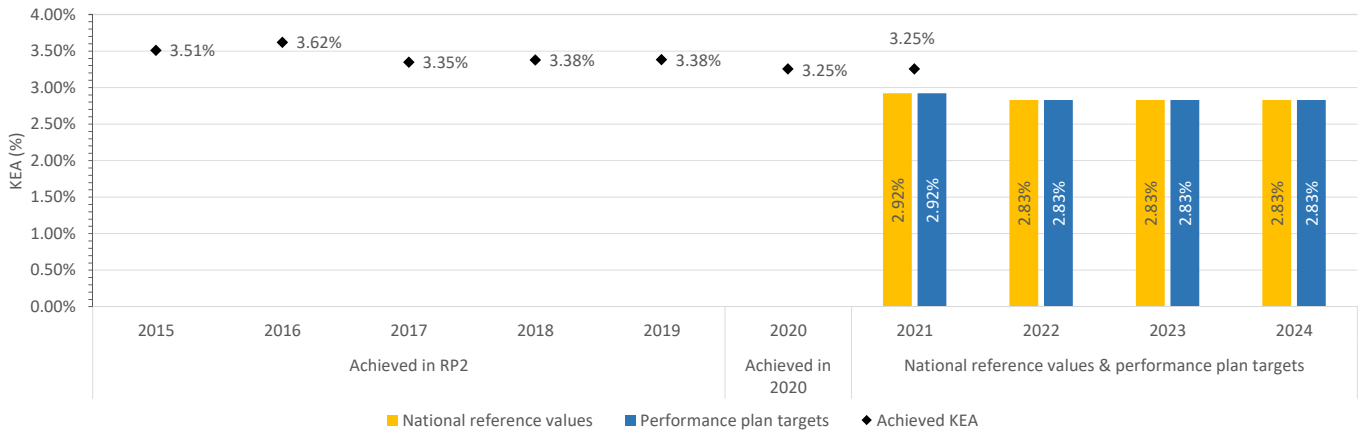
Environment KPA

2.1 Summary of Key Data and Assessment Results

France

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

	2020	2021	2022	2023	2024
National reference values	2.90%	2.92%	2.83%	2.83%	2.83%
Performance plan targets	0.00%	2.92%	2.83%	2.83%	2.83%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by FABEC for France should be approved.

- France's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that France did not achieve the 2021 target of 2.92% in its performance plan.
- Due to insufficient environmental performance in past years and missing measures introduced to achieve RP3 targets, France has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- France should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

France

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?			Reference in PP	Reference in LSSIP
France operates an ATS route network in lower and upper airspace. It does not plan for a full free route airspace (FRA) until 2025.		✘	3.2.1(a)	Page 63
Major ERNIP Recommended Measures:		18	Reference in PP	Reference in ERNIP
Measure included within performance plan?				
PBN transition plan		✔	3.2.1(a)	Page 201
Brest ACC re-organisation		✔	3.2.1(a)	Page 121
Improved interface LIRR/LFMM concerning Sardegna		✘	n/a	Page 116
MODOU Project		✘	n/a	Page 140
FRA Bordeaux – Step 1		✔	3.2.1(a)	Page 150
FRA Brest Atlantic – Step 1		✔	3.2.1(a)	Page 149
FRA Paris – Step 1.1		✔	3.2.1(a)	Page 150
Brest ACC re-organisations step 6 and 7		✘	n/a	Page 180, 181
Free Route Airspace Brest Continental West- Step 1.2		✔	3.2.1(a)	Page 205
Free Route Airspace Marseille ACC - Step 2.0		✔	3.2.1(a)	Page 216
Free Route Airspace Brest Continental East- Step 1.3		✔	3.2.1(a)	Page 216
Free Route Airspace Reims - Step 2.0		✔	3.2.1(a)	Page 215
LUMAS, Phase 2b Marseille FIR - Barcelona FIR		✘	n/a	Page 215
Airspace Structure Improvement Bordeaux ACC		✘	n/a	Page 219
Airspace Structure Improvement Reims ACC		✔	3.2.1(a)	Page 224
ELIXIR Phase 1		✘	n/a	Page 223
ELIXIR Phase 2		✘	n/a	Page 224
Paris ACC re-organisation - Phase 3		✔	3.2.1(a)	Page 221
FUA Implementation according to latest LSSIP		Implementation		
1		✔		
2		✔		
3		✔		

The chart in section 2.1.1 shows that France achieved a KEA of 3.25% in 2020. In 2021, France reached a KEA of 3.25% which means it did not achieve the 2021 target of 2.92% in its performance plan.

There are several projects in the ERNIP that are expected to be implemented by France, but not all of them are committed to nor mentioned in the performance plan. Implementation of all projects on time is important to maximise the ability to achieve the environment targets.

France mentioned establishing new environment indicators to improve environmental performance but does not include them as additional performance indicators.

France acknowledges the importance of flexible use of airspace (FUA) and free route airspace (FRA) to achieve the targets set. Additionally, France is planning the following significant initiatives to improve the environmental performance:

- New DCTs;
- XStream in Paris ACC;
- Dynamic sectorisation in Reims;
- Improvements to interfaces between Marseille ACC and Geneva ACC;
- Focus on improving most penalised city pairs;
- 24 hour CDO at CDG airport.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does France plan for an environmental incentive scheme?	
	✘

The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

FRANCE

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

ANSP breakdown values are consistent with the ANSP reference values. Proposed breakdown value for 2022 is equal to the Scenario 2 delay forecast, whereas the breakdown values for 2023 and 2024 fall significantly below the range of the delay forecast.

Capacity plans indicate that France will face a capacity gap throughout 2022-2024 without implementing additional measures compared to those described in the latest NOP.

The implementation of the new ATM system may introduce capacity constraints in RP3. The performance plan does not provide any mitigation measures to reduce such potential effects.

There are inconsistencies in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures and the proposed breakdown values.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	⚠	⚠	⚠

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

France included 58 airports in the performance plan. National targets are set lower than RP2 targets and represent an improvement compared to the average past performance.

Paris Charles de Gaulle and Paris Orly are the main contributors for airport arrival delays.

There are planned local works and significant international events, which might impact airport capacity negatively during RP3.

The performance of Paris Charles de Gaulle is expected to be better than that of the group of similar airports, while all other airports are expected to achieve worse performance than their respective groups of similar airports, with the exception of Lyon Saint Exupéry.

3.1.3 Incentives

En route:

France has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.

In addition to the national incentive scheme, a FAB-level incentive scheme also applies.

Maximum bonus and penalty is set at 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.

Terminal:

France has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.

Maximum bonus and penalty is set at 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.

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

Capacity shortfalls are expected in Bordeaux, Brest and Reims ACCs while Marseille ACC starts in surplus but ends in shortage. Paris ACC has capacity surplus during RP3. Major investments targeting capacity, flexibility, resilience and scalability are planned with capacity benefits expected during and beyond RP3 but not enough to provide sufficient capacity in all ACCs. Major investments contribute to PCP/CP1 ATM Functionalities AF2, AF3, AF4, AF5 and AF6.

Investments contribute also to improvements in resilience, flexibility and scalability in line with the European ATM evolution.

3.1.5 PRB conclusions

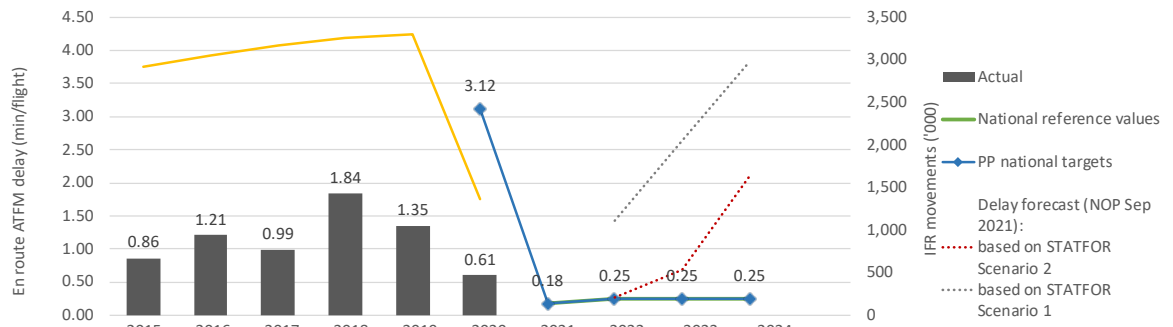
The PRB concludes that the capacity breakdown values proposed by France should be approved.

- France may experience a major capacity gap in Reims ACC during all years of RP3, in Brest ACC and Bordeaux ACC in 2023 and 2024, if additional capacity enhancement measures are not implemented.
- There are discrepancies in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed breakdown values.
- The incentive schemes defined in the performance plan do not have a material impact on the revenue at risk.
- The transition projects in French ACCs will likely have a significant impact on the ANSPs of neighbouring Member States and on the European ATM Network during 2022-2024.
- Due to the foreseen major capacity gaps and the network-wide effects associated with the planned transition projects in French ACCs, France has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- France should ensure that all capacity enhancement measures are properly implemented and are aligned with the reference values.
- France should reduce and mitigate the significant impact of its transition projects on the ANSPs of neighbouring Member States and the airspace users by closely coordinating with the Network Manager.
- France should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.
- France should revise the incentive schemes so that they have a material impact on the revenues.

3.2 En route ATFM delay per flight

France - DSN

3.2.1 Overview of en route ATFM delay per flight



Traffic variation	+2%	+4.5%	+4.0%	+2.7%	+1.4%	-58.7%				
Actual delay/flight	0.86	1.21	0.99	1.84	1.35	0.61				
National reference values						n/a	0.18	0.25	0.25	0.25
PP national targets						3.12	0.18	0.25	0.25	0.25
Based on STATFOR Scenario 1							-	1.43	2.64	3.83
Based on STATFOR Scenario 2							-	0.27	0.68	2.10

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
Deviation target vs reference value	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	⚠	⚠	⚠

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, France experienced capacity constraints related to ATC staffing, ATM capacity and industrial actions. France missed the capacity targets by a significant margin in all years of RP2. The main contributor to delays was Marseilles ACC constrained by staffing issues, industrial actions and adverse weather-related issues.

The performance plan contains the following capacity enhancement measures highlighted as essential to achieve the RP3 capacity targets:

- 1) Implementation of new ATM systems (rescheduled implementation compared to the initial RP3 performance plan):
 - Coflight - flight data processing system (FDPS) capable of provision the FDPS as service (virtualisation),
 - 4Flight - ATM system.
- 2) DSN medium and long-term strategy to address the RP2 staffing issues and avoid future new capacity shortages, including a full set of human resources measures addressing both ATCO shortage and better productivity.

The level of detail provided by the performance plan does not allow to assess if the measures are fully in line with those included in the NOP.

The planned number of ATCO FTEs are increasing above the 2019 levels mainly in Bordeaux ACC and Marseilles ACCs during RP3. During 2022, in Brest and Reims the number of planned ATCO FTEs show a decrease compared to 2021, which may contribute to a capacity gap. DSN has established an adapted recruitment plan that should be implemented during RP3 including three classes of ab-initio training. The new ATCOs in combination with the actual ones should provide enough resources to counteract the previously experienced staffing issues.

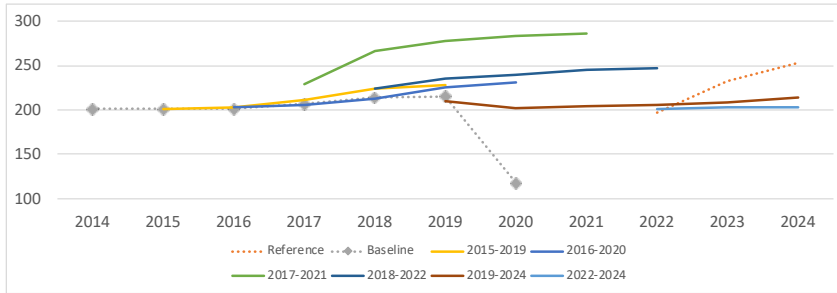
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Bordeaux ACC (LFBB)	Additional ATCOs in OPS to start working in the OPS room	8	12.6	17	14	17	9	13	+31
	ATCOs in OPS to stop working in the OPS room	5	20	5.8	5	11.7	6.6	9.7	
	ATCOs in OPS to be operational at year-end	225.4	218	229.2	238.2	243.5	245.9	249.2	
Brest ACC (LFRR)	Additional ATCOs in OPS to start working in the OPS room	18	14.6	10	9	7	11	8	+6
	ATCOs in OPS to stop working in the OPS room	5	11	11.6	3	9	5.9	10	
	ATCOs in OPS to be operational at year-end	245.6	249.2	247.6	253.6	251.6	256.7	254.7	
Marseille ACC (LFMM)	Additional ATCOs in OPS to start working in the OPS room	15	16	23	26	22	13	12	+39
	ATCOs in OPS to stop working in the OPS room	22	24.4	15.2	7	13.7	10.6	10.7	
	ATCOs in OPS to be operational at year-end	291.8	283.4	291.2	310.2	318.5	320.9	322.2	
Paris ACC (LFFF)	Additional ATCOs in OPS to start working in the OPS room	5	18	16	17	28	14	28	+9
	ATCOs in OPS to stop working in the OPS room	27	32.8	24.6	11	19.8	20.2	18.8	
	ATCOs in OPS to be operational at year-end	271.6	256.8	248.2	254.2	262.4	256.2	265.4	
Reims ACC (LFEE)	Additional ATCOs in OPS to start working in the OPS room	3	6	8	14	12	23	23	+3
	ATCOs in OPS to stop working in the OPS room	16	25	17.2	12	17.8	14.2	15.8	
	ATCOs in OPS to be operational at year-end	214.4	195.4	186.2	188.2	182.4	191.2	198.4	
Total - DSN (en route)	Additional ATCOs in OPS to start working in the OPS room	49	67.2	74	80	86	70	84	+87
	ATCOs in OPS to stop working in the OPS room	75	113.2	74.4	38	72	57.5	65	
	ATCOs in OPS to be operational at year-end	1248.8	1202.8	1202.4	1244.4	1258.4	1270.9	1289.9	

3.2.3 Review of previous and existing capacity profile plans per ACC



Bordeaux ACC (LFBB)



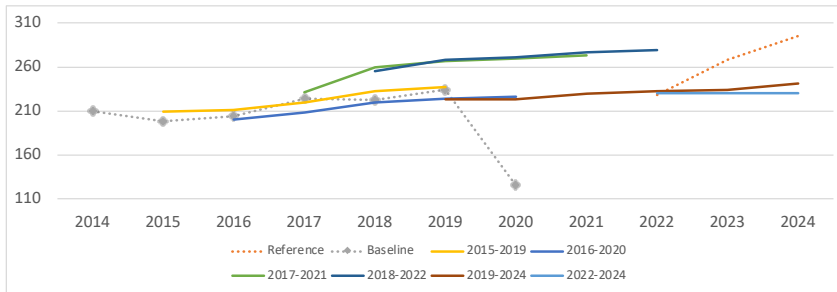
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									197	233	253
Baseline	201	201	201	207	214	215	118				
2015-2019		201	203	211	224	228					
2016-2020			203	205	213	226	231				
2017-2021				229	266	277	283	286			
2018-2022					224	235	240	245	247		
2019-2024						210	202	204	206	208	214
2022-2024									201	203	203
Latest vs Reference									2%	-13%	-20%

- Historical data shows that the baseline value in RP2 grew by around 1.4% annually and that ANSP capacity plans were significantly above the baseline values for the second half of RP2.

- The latest capacity plan shows an average annual growth of 0.5% over the period which does not follow the reference profile generating an increasing capacity gap of -13% and -20% in 2023 and 2024 respectively.

- There is an inconsistency between capacity profile plans, planned number of ATCO FTEs, capacity enhancement measures and proposed breakdown values.

Brest ACC (LFRR)



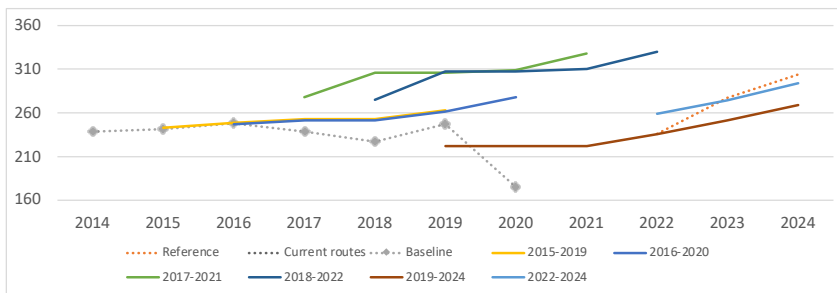
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									228	268	295
Baseline	209	198	204	224	223	234	125				
2015-2019		209	211	219	232	237					
2016-2020			200	208	220	224	226				
2017-2021				231	259	267	270	273			
2018-2022					255	268	271	276	279		
2019-2024						223	223	230	232	234	241
2022-2024									230	230	230
Latest vs Reference									1%	-14%	-22%

- Historical data shows that baseline values in RP2 grew by around 2.4% annually and that ANSP capacity plans were significantly above the baseline values for the second half of RP2. The majority of capacity issues were related to disruptions and ATM capacity especially during second half of RP2.

- The latest capacity plan shows flat values over RP3 not following the reference profiles, generating an increasing capacity gap from -14% in 2023 to -22% in 2024.

- There is an inconsistency between capacity profile plans, planned number of ATCO FTEs, capacity enhancement measures and proposed breakdown values.

Marseille ACC (LFMM)



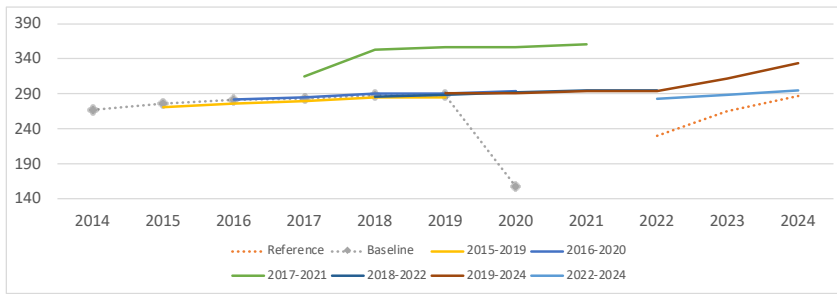
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									236	277	304
Baseline	238	242	248	239	227	247	175				
2015-2019		243	248	253	253	263					
2016-2020			247	252	252	262	278				
2017-2021				278	306	306	309	328			
2018-2022					275	308	308	311	330		
2019-2024						222	222	222	235	251	269
2022-2024									259	275	294
Latest vs Reference									10%	-1%	-3%

- Historical data shows that baseline values in RP2 grew by around 0.9% annually and that ANSP capacity plans were significantly above the baseline values for the second half of RP2. The majority of capacity issues were related to staffing, ATM capacity and industrial actions.

- The latest capacity plan shows an average annual growth of 6.5% over the period which partially follows the reference values. A minor but increasing capacity gap is expected in 2023 (-1%) and in 2024 (-3%).

- There may be an inconsistency between capacity profile plans, planned number of ATCO FTEs, capacity enhancement measures and proposed breakdown values.

Paris ACC (LFFF)

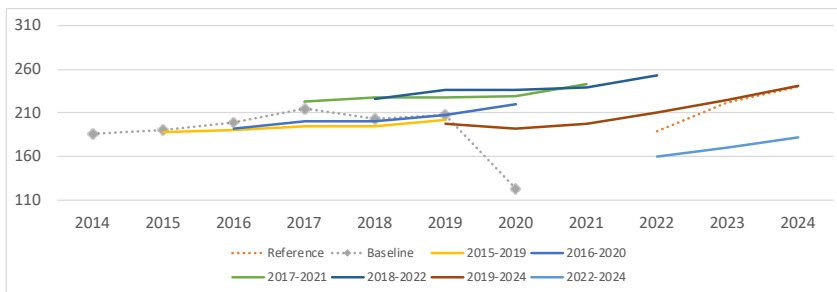


	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									230	266	287
Baseline	268	276	281	283	288	288	157				
2015-2019		271	276	279	285	285					
2016-2020			282	285	291	291	294				
2017-2021				315	353	357	357	361			
2018-2022					286	289	292	295	295		
2019-2024						291	291	294	294	312	334
2022-2024									283	289	295
Latest vs Reference									23%	9%	3%

- Historical data shows that baseline values in RP2 grew by around 1.5% 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 ACC did not experienced capacity gap during the period.

- The latest capacity plan shows an average annual growth of 2.1% over the period which results in a decreasing capacity surplus towards the end of RP3. Paris ACC is expected to have a significant capacity surplus of 23% in 2022.

Reims ACC (LFEE)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									189	222	240
Baseline	186	190	199	215	204	207	123				
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
2022-2024									160	170	182
Latest vs Reference									-15%	-23%	-24%

- Historical data shows that baseline values in RP2 grew by around 2.3% annually, which includes a -5.1% drop in 2018. ANSP capacity plans were significantly above the baseline values for 2014, 2017 and 2018. The majority of capacity issues were related to staffing and ATM capacity especially during second half of RP2.

- The latest capacity plan for RP3 shows an average annual growth of 6.7% over the period. Despite the increase, capacity profiles are not in line with reference profiles, resulting in an increasing capacity gap of -15% in 2022 to -24% in 2024.

- There is an inconsistency between capacity profile plans, planned number of ATCO FTEs, capacity enhancement measures and proposed breakdown values.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events

Review of the planned impact of special events in some years of RP3

The FRA implementation and gradual implementation of the new ATM system including FDSP (4Flight/Coflight) is planned during RP3 and is described by the NOP as a special event. The performance plan does not address include information on the impact of those events.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The performance plan does not contain information on the mitigation meausers associated with special events.

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

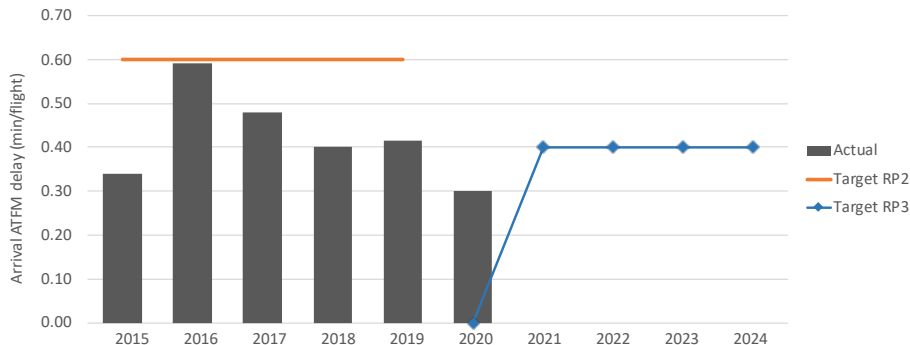
- | | | |
|----|--|-----|
| a) | Performance plan contains additional measures compared to the NOP in order to close the capacity gap? | ⓘ |
| | The level of details provided by the performance plan does not allow to assess if the main capacity enhancement measures include as well measures and functionalities listed in the NOP and the ones proposed by the NM. | |
| b) | Measures proposed by the NM to enhance capacity are planned and described in the performance plan? | ⓘ |
| | The performance plan provides mainly description of the investment projects related to the ATM system upgrade. Those measures are prioritised to provide increased capacity in RP3. The NOP includes many of procedural (ATFM) and organisational measures (staffing, airspace and ASM), which have been implemented as short-term measures. The plan provides detail only on ATCOs levels management. | |
| c) | The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? | n/a |
| | n/a | |
| d) | The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? | ✘ |
| | The NSA has not proposed additional measures. | |
| e) | Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)? | ✘ |
| | The planned number of ATCO FTEs may not be sufficient to close the capacity gap in Bordeaux ACC, Brest ACC, Marseille ACC and Reims ACC. | |
| f) | The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? | ✔ |
| | The performance plan describes the new rostering system and its ability to enhance capacity only on high-level. It is described as one of the HR management tools, although no further details are provided. | |
| g) | The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? | ✔ |
| | The performance plan justifies the implementation of the new ATM system to enhance the capacity. | |

3.2.6 PRB Key Points

- ANSP breakdown values are consistent with the ANSP reference values. Proposed breakdown value for 2022 is equal to the Scenario 2 delay forecast, whereas the breakdown values for 2023 and 2024 fall significantly below the range of the delay forecast.
- Capacity plans indicate that France will face a capacity gap throughout 2022-2024 without implementing additional measures compared to those described in the latest NOP.
- The implementation of the new ATM system may introduce capacity constraints in RP3. The performance plan does not provide any mitigation measures to reduce such potential effects.
- There are inconsistencies in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures and the proposed breakdown values.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



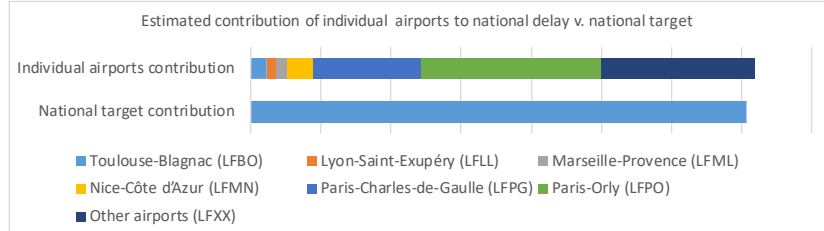
National level	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Actual	0.60	0.60	0.60	0.60	0.60	0.00	0.40	0.40	0.40	0.40
Toulouse-Blagnac (LFBO)	0.34	0.26	0.41	0.21	0.24	0.09	0.16	0.25	0.25	0.25	0.25
Lyon-Saint-Exupéry (LFLL)	0.03	0.03	0.10	0.09	0.05	0.03	0.10	0.10	0.10	0.15	0.10
Marseille-Provence (LFML)	0.12	0.54	0.13	0.16	0.17	0.10	0.10	0.15	0.20	0.20	0.20
Nice-Côte d'Azur (LFMN)	0.23	0.20	0.20	0.27	0.24	0.13	0.20	0.25	0.30	0.30	0.30
Paris-Charles-de-Gaulle (LFPG)	0.35	0.53	0.34	0.28	0.31	0.11	0.30	0.30	0.32	0.35	0.35
Paris-Orly (LFPO)	0.96	1.90	1.40	1.38	1.38	0.96	1.00	1.10	1.15	1.20	1.20
Other airports (LFXX)	0.23	0.39	0.52	0.29	0.37	0.37	0.37	0.37	0.35	0.35	0.35

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

France includes 58 airports in FABEC's performance plan. The national capacity targets have been set taking into account the actual RP2 and 2020 performance for terminal capacity. They are set constant during RP3 and equal to the performance in 2018 and they represent an improvement with respect to the past targets for RP2 (33% lower arrival ATFM delays). According to the performance plan, this capacity improvement will be implemented on the main French airports during the whole RP3 building on implementations of new ATM terminal systems and/or airspace design projects while local works are also planned during RP3 (on runways, taxiways or towers) as well as international events management (Olympic Games 2024 organised in France from 26th of July to 11th of August). The performance plan also mentions that some of these implementations/works will require ATFM regulations. It also states that priority will be given to French en route ACC for ATCO hiring and high level of retirement expected as from end of RP3 will affect the capacity provision at some French airports. The performance plan uses the STATFOR October 2021 base forecast that estimates a CAGR in IFR movements (2019-2024) of -0.3% for the French TCZ 1 (Paris Charles de Gaulle and Paris Orly) and 0.4% for the TCZ 2 (the other 56 airports).

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Toulouse-Blagnac (LFBO)	0.25
Lyon-Saint-Exupéry (LFLL)	0.11
Marseille-Provence (LFML)	0.16
Nice-Côte d'Azur (LFMN)	0.26
Paris-Charles-de-Gaulle (LFPG)	0.32
Paris-Orly (LFPO)	1.11
Other airports (LFXX)	0.36
National Target	0.40



The breakdown at airport level of the national target estimates the biggest contribution to delays by Paris Orly, followed by Paris Charles de Gaulle. 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 approximately the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Toulouse-Blagnac (LFBO)	GROUP III	0.12	0.24	+0.12	0.25	+0.13
Lyon-Saint-Exupéry (LFLL)	GROUP III	0.12	0.06	-0.05	0.11	-0.00
Marseille-Provence (LFML)	GROUP III	0.12	0.22	+0.11	0.16	+0.05
Nice-Côte d'Azur (LFMN)	GROUP II	0.23	0.23	+0.00	0.26	+0.03
Paris-Charles-de-Gaulle (LFPG)	GROUP I	0.65	0.36	-0.29	0.32	-0.34
Paris-Orly (LFPO)	GROUP I	0.65	1.40	+0.75	1.11	+0.46
Other airports (LFXX)	GROUP IV	0.00	0.35	+0.35	0.36	+0.36

* 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

During RP2, only the performance of Paris Charles de Gaulle and Lyon were better than airports in their respective group. Toulouse and Marseille had slightly more delays than similar airports and Paris Orly significant worse performance than the median of airports in its group.

The proposed targets for RP3 maintain this comparison with similar airports, although represent an improvement for both main airports.

3.3.5 PRB Key Points

- France included 58 airports in the performance plan. National targets are set lower than RP2 targets, and represent an improvement compared to the average past performance.
- Paris Charles de Gaulle and Paris Orly are the main contributors for airport arrival delays.
- There are planned local works and significant international events, which might affect airport capacity negatively during RP3.
- The performance of Paris Charles de Gaulle is expected to be better than that of the group of similar airports, while all other airports are expected to achieve worse performance than their respective groups of similar airports, with the exception of Lyon Saint Exupéry.

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route 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
NOP reference values			0.25	0.25	0.25
Alert threshold (Δ Ref. value in fraction of min)			±0.053	±0.053	±0.053
Performance Plan targets			0.25	0.25	0.25
Pivot values for RP3			0.16	0.16	0.16

Threshold and pivot value review

The pivot value is the reference value from the NOP, modulated according to CRSTMP. A dead band of +/- 30% is applied around modulated pivot value before any incentives apply. Maximum penalties or bonuses apply at +/- 0.05 minutes from pivot value.

Modulation review

The scope of the en route incentive scheme is modulated according to the ATFM delay codes C,R,S,T,M & P. The target is based on the average ratio of attributed CRSTMP delays during RP2, circa 60% of total en route ATFM delays. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect financial incentive.

Review of financial advantages/disadvantages

A FAB-wide criteria is applied to determine if ANSPs are initially liable for bonuses or penalties, based on the overall FAB performance. The maximum potential bonus / penalty is fixed at 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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
Performance Plan targets			0.40	0.40	0.40
Pivot values for RP3			0.10	0.10	0.10

Threshold and pivot value 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. The pivot values, modulated to cover only CRSTMP causes, are 0.10 minutes per arrival, which is slightly worse than the reported CRSTMP delay in RP2 (0.09 minutes per arrival).

Modulation review

France has chosen to modulate the pivot values according to CRSTMP causes. For the calculation of this pivot value, the performance plan applies a CRSTMP share of ATFM delay causes of 25% to calculate the pivot value, reportedly based on RP2 historical data. Nevertheless the reported share of CRSTMP delays in 2015-2019 is 20.5%, that would result in a pivot value of 0.082 minutes per arrival.

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:

- France has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.
- In addition to the national incentive scheme, a FAB-level incentive scheme also applies.
- Maximum bonus and penalty is set at 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.

Terminal:

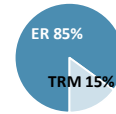
- France has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.
- Maximum bonus and penalty is set at 0.5%.
- The maximum penalty defined by the incentive 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.
- 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.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	206.8	224.4	220.7	233.0	250.0	1135.0
	En route	175.7	190.7	187.4	198.0	212.9	964.7
	Terminal	31.1	33.7	33.4	34.9	37.1	170.3

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	TRM
1	4-FLIGHT	<p>4-FLIGHT represents the heart of the modernization of the French ATM system. The programme will make it possible to put into operation in the French en-route control centers a complete new generation control system, taking up all the functionalities of the current system, CAUTRA, while bringing new potential for developments aligned with the strategic roadmap of the European SESAR programme and the related European regulations.</p> <p>More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.</p>	853.4	Yes	Yes	124.9	0.0
2	AIS/AIM	<p>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.</p> <p>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.</p> <p>Additional costs corresponding to this major investment are MCO costs related to recurrent activities are necessary to be able to operate the AIS/AIM systems: annual obstacle surveys, corrective, preventive and evolutive maintenance.</p>	0.0	Yes	No	13.3	3.1
3	CDM/AMAN/DMAN/XMAN	<p>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.</p> <p>The Airport CDM project aims at improving the overall efficiency of operations at an airport, with a particular focus on the aircraft turn-round and pre-departure sequencing process.</p> <p>More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.</p>	100.0	Yes	Yes	12.2	2.9
4	COFLIGHT	<p>COFLIGHT is the next generation automated flight plan processing system that will replace the STPV (CAUTRA 4 Flight Plan Processing System - Automatic Air Traffic Coordinator). Its commissioning will be concurrent with that of the 4-FLIGHT system in the first 3 en route control centers of the DSNA (Reims in the 1st half of 2022, Marseille in the 2nd half of 2022 and Paris in 2023).</p> <p>More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.</p>	350.0	Yes	Yes	77.4	18.1
5	CSSIP	<p>The CSSIP (Ground-Ground Communications under Internet Protocol) program implements a national telecommunications network of new generation based on IP protocols for voice digital conversion and the migration of voice and data communications from the previous network to the new one called RENAR-IP. It provides all voice and data exchanges for the traffic control purposes. Connected to PENS, it is able to exchange data with various international networks and simplifies the systems and application interoperability between adjacent ANSPs.</p>	81.0	Yes	No	7.0	1.7

6	NVCS	<i>The NVCS (New Voice Communication System) program aims at replacing the current safety voice communications system of the DSNA's five metropolitan en route control centres (first deployments atBrest and Bordeaux ACCs) and Roissy-CDG, as part of a joint acquisition with FABEC partners, in particular the Maastricht International Control Centre (MUAC) of the Eurocontrol agency.</i> <i>More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.</i>	72.0	Yes	No	26.5	1.1
7	SYSAT	<i>The SYSAT program is aiming at modernizing ATM systems at Approach and Tower level. The systems developed within this program will interface with the 4-FLIGHT system for IFR flights and cover specific needs such as advanced management of VFR flights, ground traffic, landing, take-off, as well as collaboration and data exchange with airport systems. DSNA has opted to acquire an existing off-the-shelf industrial system, which will be adapted to DSNA's operational technical environment.</i> <i>More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.</i>	500.5	Yes	Yes	40.1	23.6
8	MCO and evol CNS/ATM	<i>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.</i> <i>It also includes costs related to operational (corrective, preventive and evolutive) maintenance for NAV/COM/Surveillance/ATM systems</i>	0.0	No	No	348.1	81.7
9	CATIA	<i>Radio is a critical component for flight safety and the architecture and design of radio communication systems is subject to a particularly high level of software assurance. In addition, the transition to the Internet Protocol (IP) standard for voice transmission increases the challenge of securing these systems against cyber threat.</i> <i>More details can be found in section 2.2 of the performance plan and in Annex E of the performance plan.</i>	39.9	Yes	No	15.1	3.5
Total:						664.5	135.6

Airspace user feedback regarding major investments

The airspace users welcomed DSNA's approach for the RP3 investment plan. However, they requested more transparency between the investments and their benefits, while also commenting that the high overspending during RP2 does not provide visible benefits to the users.

Review of investments

Most of the investments were included in the RP2 performance plan and will continue throughout RP3. New major investments represent 49.2% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 0.5% higher than the planned for the same period and the amount overspent was 4.2M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total actual costs related to investments were 54.2M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	MCO and evol NAV/COM/ATM	None	Safety, Capacity	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.

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 RP3 (M€)
Other new investments	0.0	108.4	17.7	8.8	14.9	14.7	14.5	70.5
Existing investments			202.7	178.8	141.4	122.7	111.1	756.7

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?



Significant capacity shortfalls are expected in Bordeaux (up to -20% in 2024) and Brest (up to -22% in 2024). A 10% capacity surplus is expected in Marseille ACC in 2022 but this reduces to -3% by 2024. Paris ACC evolves from significant (23%) to slight (3%) capacity surplus during RP3. And Reims ACC has a significant capacity shortage which increases during RP3 (from -15% to -24%).

The main major investments contributing to capacity enhancements are the 4-FLIGHT, the COFLIGHT and the SYSAT investments. These investments contribute to PCP/CP1 ATM Functionalities AF2, AF3, AF4, AF5 and AF6. Airport and TMA capacity can be expected to be improved with the Airport CDM/AMAN/DMAN/XMAN investment contributing to PCP/CP1 ATM Functionalities AF1, AF2, AF4 and AF5.

All abovementioned investments together with the AIS/AIM investment contribute also to improvements in flexibility and scalability. Additional investments related to communications (CSSIP, NVCS and CATIA investments) and CNS infrastructure maintenance (MCO and evol. NAV/COM/ATM investment) contribute also to resilience. Investments are generally in line with the European ATM evolution.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?



The 4-FLIGHT project introduces new radar processing system (ARTAS provided by Eurocontrol) and a new human-machine interface (HMI) with improvements to ATC tools, improved Free Route capabilities and EPP functionalities. The 4-FLIGHT investment is complemented by the COFLIGHT investment representing the next generation automated flight plan processing system which will be commissioned together with the 4-FLIGHT system. The SYSAT investment aimed at modernising ATM systems at approach and tower level will improve integration with the en route systems and may yield additional capacity improvements.

The 4-FLIGHT and COFLIGHT investments will be deployed in phases during 2022/23 and will impact all ACCs and the investments will continue to yield capacity benefits beyond RP3 as well.

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



Based on the information available in the LSSIP documents for France the 4-FLIGHT implementation has been delayed approximately five years. The 4-FLIGHT and COFLIGHT investments will be deployed in phases during 2022-2023 and will impact all ACCs and the investments will continue to yield capacity benefits beyond RP3 as well. The capacity gains expected from the implementation of 4-FLIGHT are 20 to 25% in Reims, Marseille and Paris, and 10 to 15% in Bordeaux and Brest (smaller gains as ERATO system already implemented), i.e. some of the capacity gaps experienced during the recent years may have been avoided with an earlier implementation of the new system.

3.5.4 PRB Key Points



- Most of the investments were included in the RP2 performance plan and will continue throughout RP3.
- The actual CAPEX for RP2 was 0.5% higher than the planned for the same period and the amount overspent was 4.2M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total actual costs related to investments were 54.2M€ lower than determined. It is unknown if this amount will be reimbursed to the airspace users.
- In the 2019 submission, France included an investment in "Airspace projects" as an other new investment. Among other functionalities, the investment also referred to airspace changes needed to provide service and capacity to drones. The 2021 submission lacks information about other new investments, therefore it is unknown if this investment is still included in the performance plan.
- Capacity shortfalls are expected in Bordeaux, Brest and Reims ACCs while Marseille ACC starts in surplus but ends in shortage. Paris ACC has capacity surplus during RP3.
- Major investments targeting capacity, flexibility, resilience and scalability are planned with capacity benefits expected during and beyond RP3 but not enough to provide sufficient capacity in all ACCs. Major investments contribute to PCP/CP1 ATM Functionalities AF2, AF3, AF4, AF5 and AF6.
- Investments contribute also to improvements in resilience, flexibility and scalability in line with the European ATM evolution.

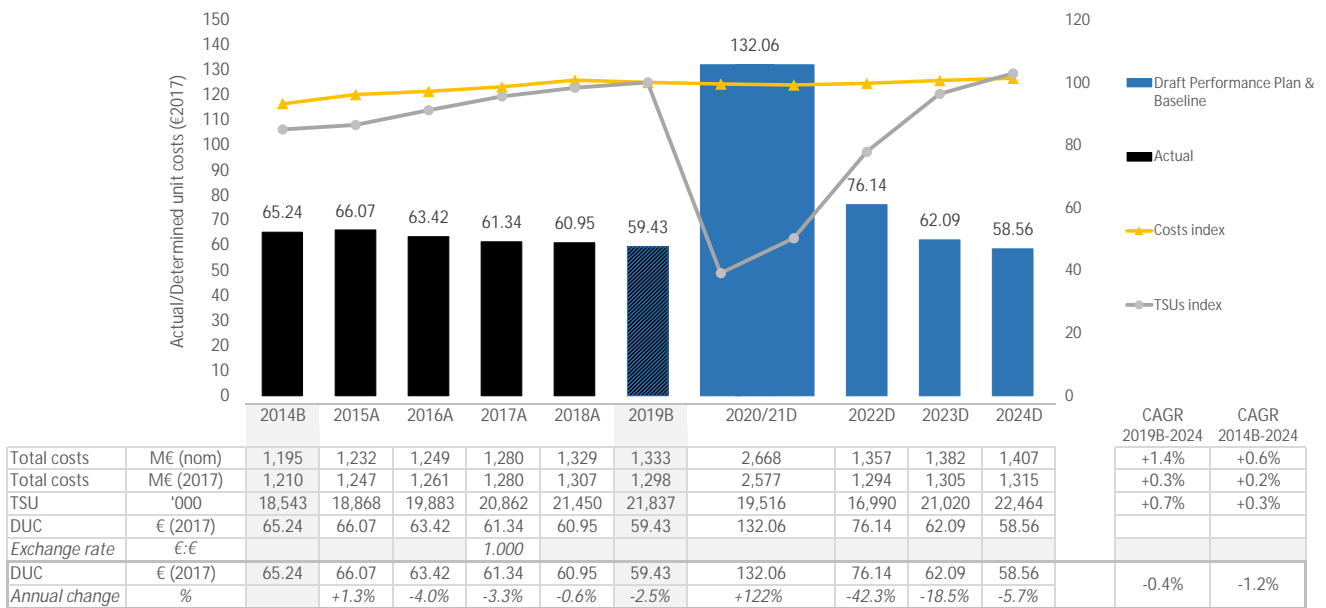
FRANCE

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

France - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	59.43 €2017	✓
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No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

- | | | |
|--|-------|-----|
| a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? | -0.4% | ✓ |
| The DUC is planned to decrease on average by -0.4% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%). | | |
| b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? | -1.2% | ✓ |
| The DUC is planned to decrease on average by -1.2% between 2014 and 2024, which is slightly worse than the long-term Union-wide trend (-1.3%). However, the difference is negligible and the trend can be considered consistent with the Union-wide one. | | |
| c) DUC level (2019 baseline) lower than the average of comparator group (A) average (60.53 €2017)? | -1.8% | ✓ |
| The 2019 DUC level is -1.8% lower 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

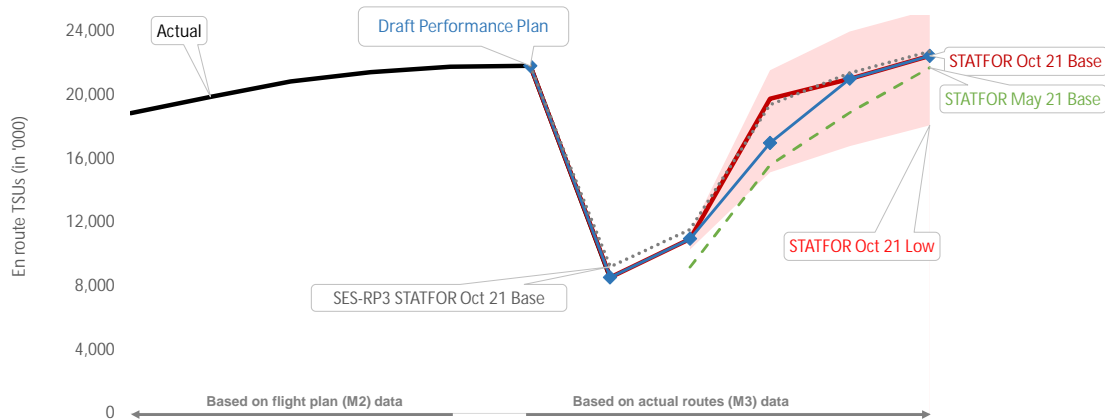
The PRB concludes that the cost-efficiency targets proposed by France should be approved.

- France is consistent with the RP3 DUC trend in terms of average reduction.
- France is not consistent with the long-term Union-wide DUC trend. However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- France is consistent with the average DUC baseline of the comparator group.
- France presents justifications for a deviation to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

4.2 Review traffic forecasts and baseline

France - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	18,868	19,883	20,862	21,450	21,782	21,837	8,547					
Annual change	%		+5.4%	+4.9%	+2.8%	+1.5%	+1.8%	-60.9%					
STATFOR Oct 21 Base	'000 TSUs								10,969	19,768	21,020	22,464	+2.9%
Annual change	%								+28.3%	+80.2%	+6.3%	+6.9%	
STATFOR May 21 Base	'000 TSUs								9,186	15,582	18,888	21,710	-0.6%
Annual change	%								+7.5%	+69.6%	+21.2%	+14.9%	
Performance Plan	'000 TSUs						21,837	8,547	10,969	16,990	21,020	22,464	+2.9%
Annual change	%						+1.8%	-60.9%	+28.3%	+54.9%	+23.7%	+6.9%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	21,837		2014B (PP baseline)	18,543	
2019A (as in the Reporting tables, M2)	21,782		2014A (as in the Reporting tables, M2)	18,497	
2019B/ 2019A	0.25%	+0.25%	2014B/ 2014A	0.25%	+0.25%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (+0.25%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (+0.25%). The coefficient slightly increases the number of 2014 and 2019 traffic baselines while decreasing the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- The STATFOR October 2021 base forecast has been evaluated by the French DGCA prospective unit and it is considered optimistic but relevant and consistent with the forecast made internally by France. As a result, the French NSA has decided to apply the STATFOR October 2021 base scenario except for the year 2022.
- France considers that the very short term (2021) and the long-term (2024) traffic bases forecast are consistent and reasonable. For the year 2023, the STATFOR October 2021 base scenario is valued as being optimistic but in the acceptable range of the local forecast (gap of 6.2%). For the year 2022, the discrepancy between the STATFOR October 2021 base scenario and the local base scenario is deemed to be too high (gap of 14.1% between the two base scenarios). With these considerations, the French NSA has chosen to implement an en route local traffic forecast in 2022.

Review of the PP traffic forecast

France decided to not apply the STATFOR October 2021 base forecast in 2022 considering the volatility of traffic due to the pandemic impact and associated risks.

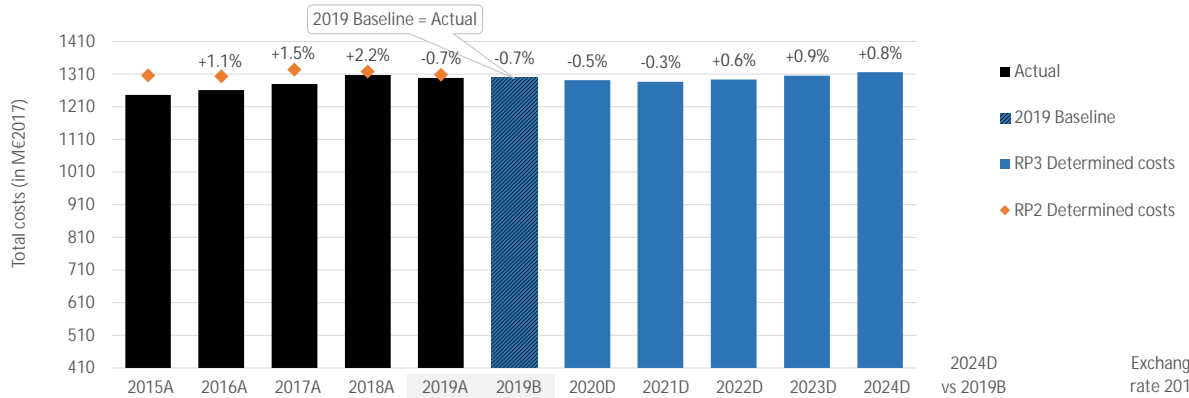
4.2.4 PRB Key Points

- France applied the en route traffic forecast from STATFOR October 2021 base scenario for all RP3 years except 2022.

4.3 Review of determined costs and baseline

France - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	1,232	1,249	1,280	1,329	1,333	1,333	1,331	1,337	1,357	1,382	1,407	+5.6%
Annual change	%		+1.4%	+2.4%	+3.8%	+0.3%	+0.3%	-0.1%	+0.5%	+1.5%	+1.9%	+1.8%	+5.6%
Inflation index	2017 = 100	98.5	98.9	100.0	102.1	103.4	103.4	103.9	105.1	106.3	107.7	109.3	+1.4%
Total costs	M€ (2017)	1,247	1,261	1,280	1,307	1,298	1,298	1,291	1,286	1,294	1,305	1,315	+1.4%
Annual change	%		+1.1%	+1.5%	+2.2%	-0.7%	-0.7%	-0.5%	-0.3%	+0.6%	+0.9%	+0.8%	+1.4%
Total costs	M€ (2017)	1,247	1,261	1,280	1,307	1,298	1,298	1,291	1,286	1,294	1,305	1,315	+1.4%

Exchange rate 2017	€:€
	1.00000

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 No adjustments applied to the 2014 or 2019 cost baselines.

2014/2019 baseline analysis

The 2014 and 2019 cost baseline are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

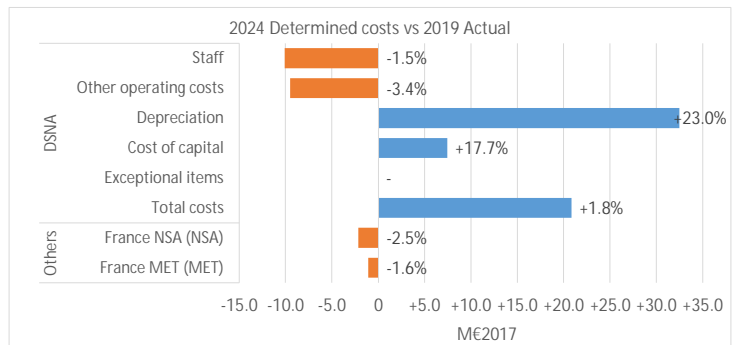
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



The total costs of France are planned to increase by +1.4%, or 17.6M€2017, between actuals 2019 and planned 2024. The main contributor to this planned increase in costs is DSNA (+1.8%, or +20.8M€2017 overall). Costs remained roughly stable during 2020 and 2021 compared to 2019 actual costs, with no substantial decreases in reaction to COVID-19.

For DSNA, the planned increase in costs is largely driven by additional depreciation costs (+23.0%, or +32.5M€2017 between 2019 and 2024), which according to the information in Annex R of the performance plan, is related to the fact that DSNA is currently in a very sensitive phase of modernisation of its major ATM systems (Coflight, 4Flight, SYSAT) which cannot be delayed in order to achieve the capacity targets. Then, even if some other minor investments have been postponed, the depreciation costs are planned to increase.

- The staff costs decrease during the period (-1.5%, or -101M€2017), is mainly driven by the fact that the initial social agreement negotiation was put on hold and salaries frozen. In addition, some ATCO salaries were reduced by 500€ per month by not renewing some rostering flexibility agreements. These savings are partially offset by the ATCO recruitment plan.

- Other operating costs are planned to decrease by -9.5M€2017, or -3.4%, between 2019 and 2024, reflecting an internal review carried out by DSNA to identify saving measures in travels, fuel, meetings, training, non-priority contracts, subcontractors, ordinary supplies, vehicles, extraordinary and social events, and communication costs.

- The cost of capital increase (+17.7%, or 7.4M€2017 between 2019 and 2024) is due to a significant increase in the net current assets, partially compensated by a decrease in the WACC (from 5.3% in 2019 to 2.7% in 2024).

Both NSA and MET costs are planned to decrease between actuals 2019 and planned 2024 (-2.5% and -1.6% respectively).

Total en route service units are forecast to reach the 2019 levels in 2024 according to the selected forecast, while en route costs are planned to exceed 2019 actual values by 2021.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for DSNA are planned to increase by +1.8% (or +20.8M€2017).
- As for the previous performance plan, the main contributor to the increase in costs are the depreciation costs related to the modernisation of ATM systems.

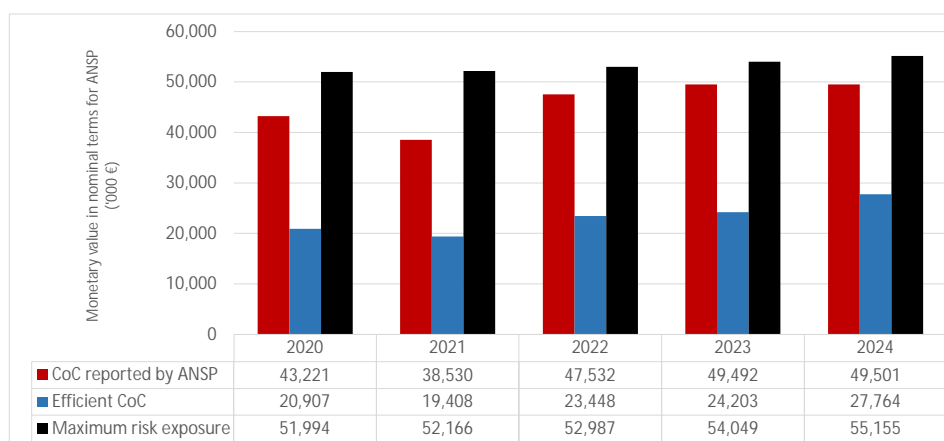
4.3.A Cost of capital

DSNA - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	1,181,681	1,185,600	1,204,247	1,228,395	1,253,531
Monetary value of Return on Equity	31,213	24,500	33,669	38,654	41,207
Ratio RoE/DC (%)	2.6%	2.1%	2.8%	3.1%	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 vs Efficient ('000 €)	2020	2021	2022	2023	2024
	22,314	19,122	24,084	25,289	21,737

Total 2020-2024	112,547
-----------------	---------

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	14.9%	4.2%	21.1%	4.6%	16.2%	4.6%	13.7%	4.7%	11.9%	5.1%
Interest on debts	0.9%	0.9%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.5%	0.6%
Capital structure (% debt)	86.8%	86.8%	95.1%	95.1%	91.9%	91.9%	87.8%	87.8%	82.7%	82.7%
WACC	2.7%	1.3%	1.6%	0.8%	1.9%	0.9%	2.1%	1.1%	2.5%	1.4%

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

- DSNA does not raise its own loans. The reported cost of debt represents the actual cost of debt for DSNA's share in the borrowings. 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 are duly justified and in line with competitive market practices.

- DSNA is planning to face a significant increase in working capital requirements due to the drop in traffic in 2020 and 2021. In order to not fully charge it to airspace users, DSNA applies a different WACC rate depending on the nature of assets. The WACC reported in the performance plan has been calculated based on the CAPM and is applied to fixed assets and the usual working capital. As of 2023, a WACC of 0.5% is applied to working capital requirements resulting from "the impact of adjustments due to the drop in traffic", while a WACC of 0% is applied to working capital stemming from "the deferral of payment offered to users" in 2020. This results in a lower overall WACC over RP3. The efficient WACC has been calculated based on option 3.

- Over RP3, the reported cost of capital is 112.5M€ above the efficient cost of capital. Despite this and the remarkably high return on equity rate, the monetary value of the embedded return on equity is commensurate to the determined costs over RP3 (ranging between 2.1% and 3.3%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	831,785	837,931	849,911	858,114	855,604
Net current assets	758,200	1,515,648	1,707,293	1,443,844	1,149,782
Adjustments total assets	0	0	0	0	0
Total asset base	1,589,985	2,353,579	2,557,204	2,301,959	2,005,386

- The fixed asset base is planned to slightly increase over RP3. This is not fully in line with the increase in investments described in section 3.5 of this document.
- The net current assets will significantly increase over RP3 due to an increase in working capital requirements resulting from the drop in traffic in 2020 and 2021. Although a cost of capital will not be fully charged on the net current assets, they seem excessive compared to the expected cash flows in RP3.
- The regulated asset base does not include adjustments to the total asset base.
- The total asset base will increase over RP3, mainly driven by the increase in net current assets.

4.3.A.5 PRB Key Points



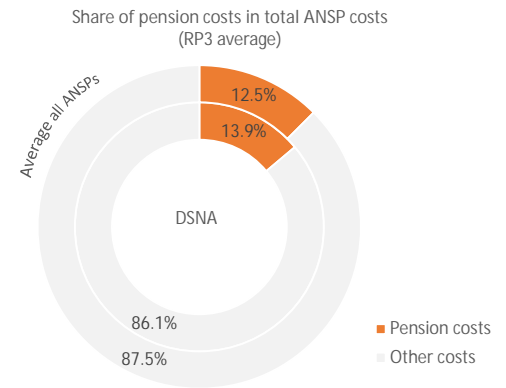
- The net current assets will significantly increase over RP3 due to an increase in working capital requirements resulting from the drop in traffic in 2020 and 2021. Although a cost of capital will not be fully charged on the net current assets, they seem excessive compared to the expected cash flows in RP3.
- Over RP3, the reported cost of capital is 112.5M€ above the efficient cost of capital. Despite this and the remarkably high return on equity rate, the monetary value of the embedded return on equity is commensurate to the total determined costs over RP3 (ranging between 2.1% and 3.3%).

4.3.B Pensions

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		159.1	162.0	162.3	161.5	161.0
Year on year variation	% change		+1.8%	+0.2%	-0.5%	-0.3%
Share in total ANSP costs	%	13.8%	14.2%	14.1%	13.9%	13.7%
Year on year variation	p.p.		0.3p.p.	-0.1p.p.	-0.2p.p.	-0.2p.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 Union-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? **n/a**

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

DSNA contributes to two programmes of pensions: programme "741" (civil pensions) and programme "742" (State workers). Contribution to programme 741 is equal to the product of the contribution rate times the contribution base. Contribution base to programme 741 corresponds to gross salaries (i.e. not including bonuses or premiums). The Ministry of Economy & Finance decides on the contribution rate to programme 741 each year. An assumption of a flat contribution rate for programme 741 has been taken. The rate is flat from year 2013. A pension reform is envisaged at State level. But the date of this reform, if it occurs, is not known at this stage of the development of RP3, nor the form it could take.

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? **n/a**

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

The contribution rate is decided by Ministry of Economy & Finance and has been flat since 2013. No change is foreseen at the moment.

4.3.B.4 PRB Key Points

- No major issues identified. **✓**

4.3.C Methodology for cost allocation between ER and TRM

France

4.3.C.1 Cost allocation overview

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

- France did not mention changing the cost allocation methodology with respect to RP2.
- Costs are allocated to accounting units, which are further divided in cost centres, to which staff and technical installations are allocated.
- ACC costs are allocated 100% to en route, while TWR costs are allocated 100% to terminal. Costs of technical facilities are based on the services supported by the facility. Costs allocated to a transversal body or to general activity are allocated according to average cost ratios. Approach costs are allocated according to flight distance ratios (20km rule).

More details can be found in 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

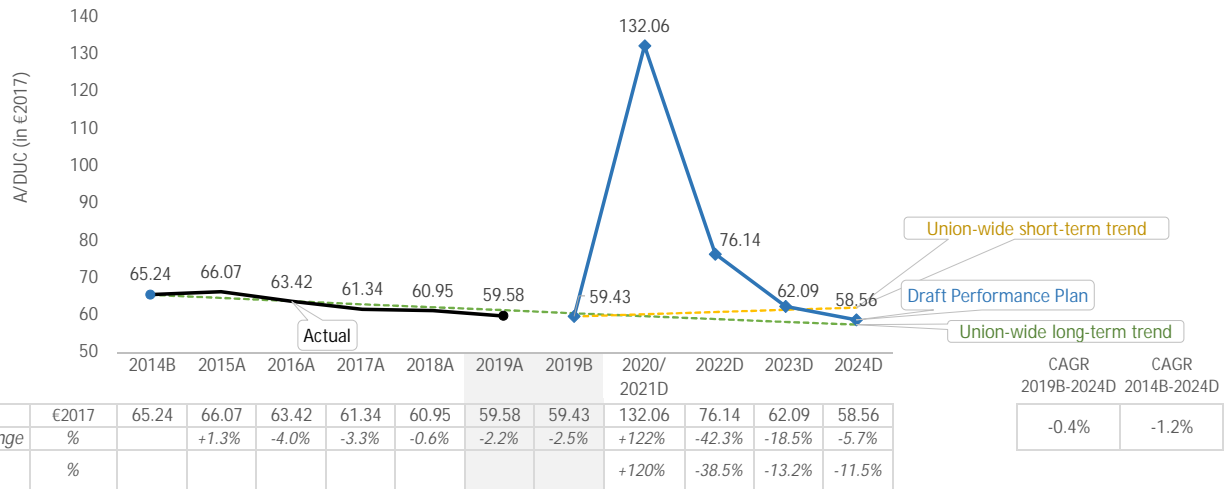


- France did not mention changing the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

France - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

✓ DUC consistency with the Union-wide RP3 DUC trend	Trend (CAGR 2019B-2024)	Performance Plan -0.4%	Union-wide +1.0%	Difference -1.4p.p.
✓ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	-1.2%	-1.3%	+0.1p.p.
✓ DUC level consistency	2019 baseline	Performance Plan 59.43	Average comparator group 60.53	Difference -1.8%

- The DUC is planned to decrease on average by -0.4% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -1.2% between 2014 and 2024, which is slightly worse than the long-term Union-wide trend (-1.3%). However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- The 2019 DUC level is -1.8% lower than the average of the comparator group.
- France presents justifications for a deviation to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

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

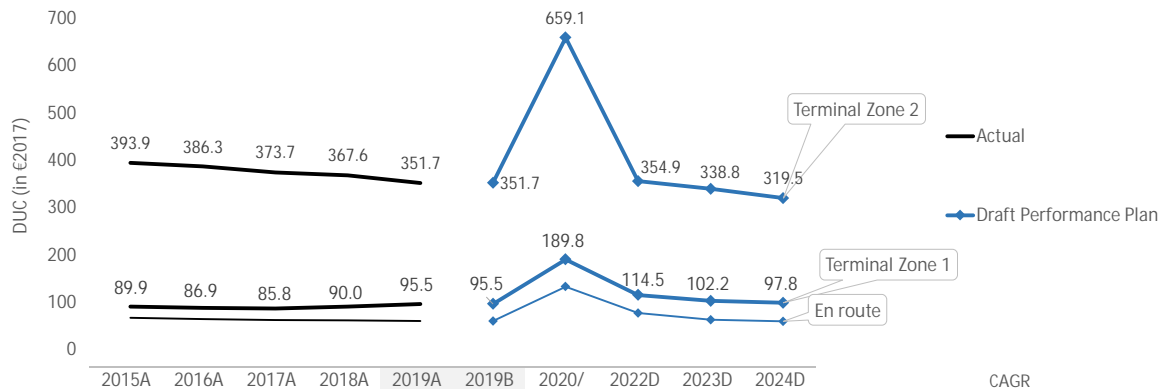
4.4.5 PRB Key Points

- France is consistent with the RP3 DUC trend in terms of average reduction.
- France is not consistent with the DUC long-term Union-wide trend. However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- France is consistent with the average DUC baseline of the comparator group.
- France presents justifications for a deviation to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

4.5 Terminal

France

4.5.1 Overview and trends of the terminal DUC



	€2017	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal Zone 1	89.9	86.9	85.8	90.0	95.5	95.5	189.8	114.5	102.2	97.8	+0.6%
Annual Change	%	-3.3%	-1.3%	+5.0%	+6.0%	+6.0%	+99%	-39.7%	-10.7%	-4.3%	
DUC - Terminal Zone 2	393.9	386.3	373.7	367.6	351.7	351.7	659.1	354.9	338.8	319.5	-2.4%
Annual Change	%	-1.9%	-3.3%	-1.6%	-4.3%	-4%	+87%	-46.2%	-4.5%	-5.7%	
DUC - En route	66.1	63.4	61.3	60.9	59.6	59.4	132.1	76.1	62.1	58.6	-0.4%
Annual Change	%	-4.0%	-3.3%	-0.6%	-2.2%	-2.5%	+122%	-42.3%	-18.5%	-5.7%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Toulouse-Blagnac (LFBO)	GROUP III	165.1	171.6	+3.9%	238.6	221.5	-7.2%
Lyon-Saint-Exupéry (LFLL)	GROUP III	165.1	197.3	+19.5%	238.6	246.0	+3.1%
Marseille-Provence (LFML)	GROUP III	165.1	204.8	+24.0%	238.6	247.8	+3.8%
Nice-Côte d'Azur (LFMN)	GROUP II	168.6	168.6	+0.0%	191.3	192.1	+0.4%
Paris-Charles-de-Gaulle (LFPG)	GROUP I	135.0	78.4	-41.9%	179.8	118.1	-34.3%
Paris-Orly (LFPO)	GROUP I	135.0	120.2	-10.9%	179.8	135.3	-24.8%
Bâle-Mulhouse (LFSB)	GROUP IV	698.0	174.4	-74.0%	1002.2	210.1	-78.0%
Agen-La Garenne (LFBA)	GROUP IV	698.0	2767.2	+294.5%	1002.2	5963.3	+494.0%
Albert-Bray (LFAQ)	GROUP IV	698.0	2486.7	+254.3%	1002.2	3539.4	+253.2%
Anney-Meythet (LFLP)	GROUP IV	698.0	3887.0	+454.9%	1002.2	4045.3	+303.6%
Avignon-Caumont (LFMV)	GROUP IV	698.0	3704.3	+430.7%	1002.2	3682.3	+267.4%
Bastia-Poretta (LFKB)	GROUP IV	698.0	264.9	-61.0%	1002.2	341.4	-65.9%
Beauvais-Tillé (LFOB)	GROUP IV	698.0	181.3	-74.0%	1002.2	390.4	-61.0%
Bergerac-Roumanière (LFBE)	GROUP IV	698.0	1066.6	+52.8%	1002.2	1793.2	+78.0%
Béziers-Vias (LFMU)	GROUP IV	698.0	1304.8	+86.9%	1002.2	1801.0	+79.0%
Biarritz-Bayonne-Anglet (LFBZ)	GROUP IV	698.0	298.3	-57.3%	1002.2	416.5	-58.4%
Bordeaux-Mérignac (LFBD)	GROUP IV	698.0	176.9	-74.7%	1002.2	279.2	-72.1%
Brest-Bretagne (LFRB)	GROUP IV	698.0	254.4	-63.5%	1002.2	335.3	-66.5%
Brive-Souillac (LFSL)	GROUP IV	698.0	1174.6	+68.3%	1002.2	1626.1	+62.0%
Caen-Carpiquet (LFRK)	GROUP IV	698.0	1103.1	+58.0%	1002.2	1115.1	+11.3%
Calvi-Sainte-Catherine (LFKC)	GROUP IV	698.0	1078.1	+54.5%	1002.2	1368.3	+36.5%
Cannes-Mandelieu (LFMD)	GROUP IV	698.0	1580.7	+126.5%	1002.2	1946.0	+94.0%
Carcassonne-Salvaza (LFMK)	GROUP IV	698.0	847.8	+21.5%	1002.2	1490.9	+48.8%
Châlons-Vatry (LFOK)	GROUP IV	698.0	659.2	-5.6%	1002.2	994.4	-0.8%
Chambéry-Aix-les-Bains (LFLB)	GROUP IV	698.0	618.3	-11.4%	1002.2	1012.8	+1.1%
Châteauroux-Déols (LFLX)	GROUP IV	698.0	839.8	+20.3%	1002.2	1248.1	+24.5%
Clermont-Ferrand-Auvergne (LFLC)	GROUP IV	698.0	520.8	-25.4%	1002.2	823.0	-17.9%
Deauville-Normandie (LFRG)	GROUP IV	698.0	864.9	+23.9%	1002.2	1241.8	+23.9%
Dinard-Pleurtuit-Saint-Malo (LFRD)	GROUP IV	698.0	1748.7	+150.5%	1002.2	2824.4	+181.9%
Dôle-Tavaux (LFGJ)	GROUP IV	698.0	1944.1	+176.3%	1002.2	2537.7	+153.2%
Figari-Sud Corse (LKFJ)	GROUP IV	698.0	757.9	+8.6%	1002.2	875.8	-12.6%
Grenoble-Isère (LFLS)	GROUP IV	698.0	1054.3	+51.0%	1002.2	1870.4	+86.6%
Hyères-Le Palyvestre (LFTH)	GROUP IV	698.0	547.5	-21.6%	1002.2	564.7	-4.7%
Istres-Le Tubé (LFMI)	GROUP IV	698.0	175.7	-74.8%	1002.2	0.0	-100.0%
La Rochelle-Ile de Ré (LFBH)	GROUP IV	698.0	680.0	-2.5%	1002.2	1078.6	+7.5%
Lille-Lesquin (LFOQ)	GROUP IV	698.0	374.6	-46.3%	1002.2	489.4	-51.2%
Limoges-Bellegarde (LFBG)	GROUP IV	698.0	556.7	-20.2%	1002.2	767.4	-23.4%
ENVIRONNEMENT	GROUP IV	698.0	347.4	-50.2%	1002.2	378.2	-61.3%
Lyon-Bron (LFLY)	GROUP IV	698.0	1952.2	+177.1%	1002.2	2080.3	+107.6%
Metz-Nancy-Lorraine (LJL)	GROUP IV	698.0	784.3	+12.4%	1002.2	2237.1	+122.2%
Montpellier-Méditerranée (LFMT)	GROUP IV	698.0	401.9	-42.4%	1002.2	589.2	-41.2%

Nantes-Atlantique (LFRS)	GROUP IV	698.0	177.9	-7.5%	1002.2	273.3	-7.7%
Ajaccio-Napoléon-Bonaparte (LFKJ)	GROUP IV	698.0	244.4	-6.0%	1002.2	309.9	-6.1%
Nîmes-Garons (LFTW)	GROUP IV	698.0	1429.0	+10.7%	1002.2	2035.1	+10.1%
Paris-Le Bourget (LFPB)	GROUP IV	698.0	698.0	+0.0%	1002.2	871.6	-13.0%
Pau-Pyrénées (LFBP)	GROUP IV	698.0	418.1	-4.1%	1002.2	744.3	-25.7%
Perpignan-Rivesaltes (LFMP)	GROUP IV	698.0	974.3	+3.6%	1002.2	1074.8	+7.2%
Poitiers-Biard (LFB1)	GROUP IV	698.0	552.3	-2.9%	1002.2	792.4	-20.9%
Quimper-Pluguffan (LFRO)	GROUP IV	698.0	2769.4	+29.8%	1002.2	4824.4	+38.4%
Rennes-Saint-Jacques (LFRN)	GROUP IV	698.0	356.9	-4.9%	1002.2	546.0	-4.5%
Rodez-Marcillac (LFCR)	GROUP IV	698.0	1395.0	+9.9%	1002.2	3351.7	+23.4%
Rouen (LFOP)	GROUP IV	698.0	4442.7	+53.5%	1002.2	6233.9	+52.0%
Saint-Etienne-Bouthéon (LFMH)	GROUP IV	698.0	4931.8	+60.6%	1002.2	11683.1	+106.7%
Saint-Nazaire-Montoir (LFRZ)	GROUP IV	698.0	1045.1	+4.7%	1002.2	1413.0	+4.0%
Strasbourg-Entzheim (LFST)	GROUP IV	698.0	393.9	-4.6%	1002.2	694.9	-30.7%
Tarbes-Lourdes Pyrénées (LFBT)	GROUP IV	698.0	893.1	+2.0%	1002.2	1776.3	+7.0%
Tours-Val de Loire (LFOT)	GROUP IV	698.0	803.8	+15.2%	1002.2	1215.0	+21.2%
Toussus-le-Noble (LFPN)	GROUP IV	698.0	4557.8	+55.0%	1002.2	5206.8	+41.5%

* 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 average RP3 DUC for Paris-Charles-de-Gaulle (LFPG) and Paris-Orly (LFPO), both in TCZ1, are well below the median DUC of similar airports.
 - On the other hand, the 59 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.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP
 n/a

2019 baseline analysis

France has not applied adjustments to the 2019 traffic or cost baseline.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	TZ1	TZ2
	Yes	Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
 n/a

Review of the PP traffic forecast

The terminal traffic forecast presented in the performance plan of France is in line with the STATFOR October 2021 base scenario. No modifications have been applied, differently from en route.

Determined costs (terminal)

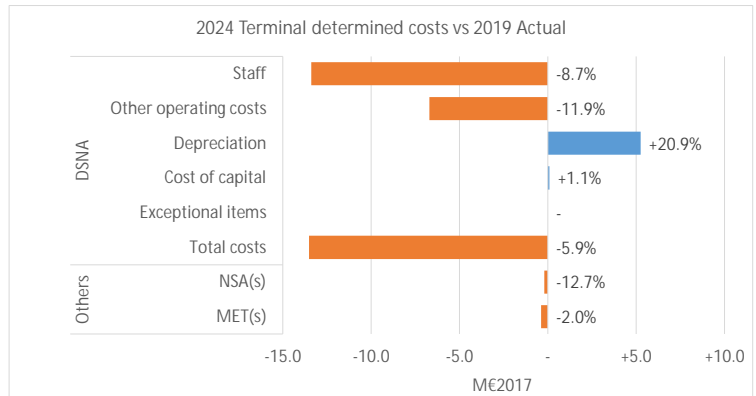
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

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	4.40%
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 costs in total investment costs (15%) is slightly lower than the share of terminal costs in total determined costs (16%).
- The terminal WACCs reported are different among both terminal CZs and compared to the en route WACC, for all years of RP3. There are different information comparing the reporting tables and the related additional information.
- The share of terminal pension costs in total pensions costs (18%) is slightly higher than the share of terminal costs in total determined costs (16%).
- In terms of DUC evolution over RP3, TCZ1 is expected to increase its DUC by +0.6% p.a. between 2019 baseline and 2024, while TCZ2 decreases -2.4% p.a. between 2019 baseline and 2024. *"This is mainly due to the priority given to terminal CZ1 in the review done by DSNA of the investment plan in order to prepare SYSAT implementation at major French airports and to secure capacity for Paris airports. This is largely compensated by the cost savings implemented by DSNA for terminal CZ2."*
- For DSNA, total costs in 2024 are planned to be below the 2019 level (-5.9%, or -13.5M€2017). The main driver is the staff costs (-8.7%, or -13.4M€2017), followed by the other operating costs (-11.9% or -6.7M€2017), and partially compensated by higher depreciation costs than planned (+20%) related to its investments planned in TCZ1 indicated above.
- In TCZ1, the total terminal service units are forecast to not reach the 2019 level in RP3, being -1.9% in 2024 according to the selected STATFOR October 2021 base forecasts, while terminal costs are planned to exceed 2019 actual costs in 2024.
- In TCZ2, the total terminal service units are forecast to reach the 2019 level in 2024, according to the selected STATFOR October 2021 base forecasts, while terminal costs are planned to not reach 2019 actual costs in RP3 (-7.5% in 2024).
- A cross-financing between TCZ1 and TCZ2 has been implemented, as observed in the reporting tables for all years of RP3. An average of 42.3M€, nominal terms, for each year of the period is subtracted from the costs considered to calculate the unit rate of TCZ2 and added to TCZ1.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is +0.6% for TCZ1 and -2.4% for TCZ2, worse and better, respectively, than the en route RP3 DUC trend of -0.4%.
- The terminal RP3 DUC trend is +0.6% for TCZ1, which is better than the terminal RP2 DUC trend of +1.5%. The terminal RP3 DUC trend is -2.4% for TCZ2, which is worse than the terminal RP2 DUC trend of -2.8%.
- Paris Charles-de-Gaulle and Paris Orly, the main airports (included in TCZ2), had a DUC lower (-41.9% and -10.9%) than the median of their comparator group over RP2. The differences are expected to be -34.3% and -24.8%, respectively, over RP3.
- France applied STATFOR October 2021 base forecast for terminal service units.
- A cross-financing between TCZ1 and TCZ2 has been implemented, shifting on average 42.3M€ p.a. between terminal charging zones.

PRB Assessment

GERMANY

Draft Performance Plan

Context and scope

Germany

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4750, F4751, F4738, F4739, F4740, F4741, F4742, F4743, F4752

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 13.2%
 % Serv. Units vs SES 12.6%
 % Costs vs SES 14.8%

Scope

FAB: FABEC

ANSPs: DFS
 Deutscher Wetterdienst (DWD)
 MUAC

ATM
 MET
 ATM

Other entities (as per Article 1(2) last para. of Regulation 2019/317): German Federal Supervisory Authority for Air Navigation Services
 Eurocontrol

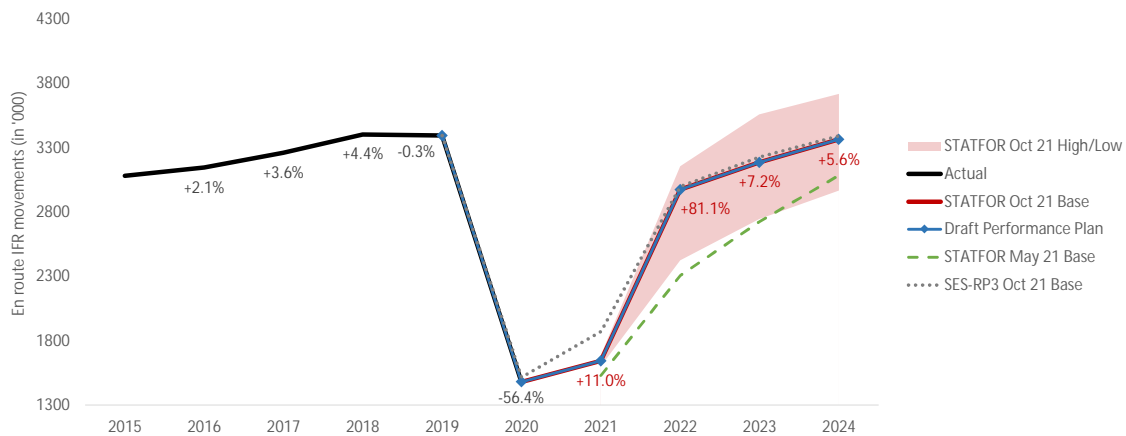
Competent authority
 NM/CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Germany	n/a	No	No	No	
Terminal (TRM)	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

Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



PRB assessment

Germany - Draft Performance Plan

1. Safety



Safety PP targets

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

PRB assessment

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

- The EoS safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	-	2.31%	2.30%	2.30%	2.30%

PRB assessment

The PRB concludes that the environment targets proposed by FABEC for Germany should be approved.

- Germany's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	2.73	0.18	0.24	0.25	0.24
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.66	0.45	0.45	0.45	0.45

PRB assessment

The PRB concludes that the capacity breakdown values proposed by Germany should be approved.

- The PRB appreciates the commitment from Germany to contribute positively to the resolution of the network impact generated by the transition projects in France during 2022-2023.
- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs for Langen ACC in 2022 and 2023.
- The en route capacity incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.
- Germany included an investment regarding the detection of drones in the performance plan.
- Capacity plans indicate that Germany may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast, and the impact generated by the transition projects in France is higher than expected. For this reason, Germany has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	129.44	67.52	63.29	59.89	-2.4%	-3.8%
Target for determined unit cost (DUC) (€2017) - Terminal	422.78	216.36	198.63	199.79	n/a	+1.3%

PRB assessment

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

- Germany is consistent with the RP3 DUC trend in terms of average reduction.
- Germany is consistent with the long-term Union-wide DUC trend.
- Germany is not consistent with the average DUC baseline of the comparator group.
- Germany presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.
- Some elements in the adjustment of the cost baseline should not be included. However, Germany would achieve the cost-efficiency trends without such adjustments.

5. PRB recommendations

ENVIRONMENT

- Germany should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Germany should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.
- Germany should revise the incentive schemes so that they have a material impact on the revenues.
- Germany should ensure that all capacity enhancement measures are properly implemented, and sufficient capacity is available to meet traffic demand.

GERMANY

Safety KPA

1.1 Summary of safety key data and assessment results

Germany

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 RP3 Union-wide safety targets, are planned to be attained in 2023.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes the measures established at ANSP, CAA and FABEC level. Considering the current safety levels, the measures are considered adequate.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the FABEC approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

DFS has established a dedicated change management process to handle the implementation of major airspace changes as well as implementation of new/revised ATM systems, under the approval by the German NSA. 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.

1.1.5 PRB conclusions



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

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

1.2 Targets for EoSM for ANSPs and Measures

Germany

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
DFS	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	D	✓	
	Safety assurance	B	B	B	B	C	C	✓	
	Safety promotion	B	B	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained in 2023. Germany has met the RP3 safety targets in two out of five management objectives. Safety promotion and assurance need to be improved from level B to level C and safety risk management needs to be improved to level D.

The performance plan describes the specific measures applied at the level of the ANSP, the CAA and the FABEC Authorities.

At ANSP level, the following measures are planned to be implemented:

- Conduct a Safety Culture Survey;
- Conduct regular Local Safety Surveys;
- Conduct regular safety culture campaigns;
- Regular update of the Safety Plan.

At the level of Competent Authority, the measures derived from compliance with Commission Implementing Regulation (EU) 2017/373, applicable to EoSM improvements are regularly reviewed and verified.

Furthermore, FABEC Authorities established a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to review the FABEC ANSPs' performance and to jointly determine if specific actions are necessary. Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach for all seven FABEC ANSPs.

Considering current safety levels, some measures in the area of risk management, safety promotion and assurance at the ANSP level should be provided. Nevertheless, the safety roadmap described in the performance plan gives confidence that the ANSP will achieve the safety levels at the end of RP3.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan confirms that changes will be required to achieve targets for other KPAs and that improvements under the safety KPA may affect other KPAs. The performance plan underlines that safety remains the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The impact of changes to the ATM functional system, including changes to the system needed to improve other KPAs, is assessed by the ANSPs through safety procedures compliant with Commission Implementing Regulation (EU) 2017/373, which ensures that safety levels are not compromised. Changes are also presented for approval by the Competent Authority to ensure that there are no unacceptable safety implications.

FABEC ANSPs have defined additional (K)PIs to monitor their performance (on all KPAs) in addition to those specified by Commission Implementing Regulation (EU) 2019/317. Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (safety, security, quality, environment). Indicators, issues and possible trade-offs are discussed, explained and addressed by board members under the leadership of the ANSPs' management. The approach provides confidence that the changes introduced to reach targets on other KPAs will not deteriorate safety levels.

1.3.2 Change Management Practices

DFS has established a dedicated change management process to handle the implementation of major airspace changes as well as implementation of new/revised ATM systems.

The multi-step process (including analysis phase, planning and organisation and implementation phase) is customised for the need of the change and uses a portfolio of various tools to ensure an optimal way to minimise the impact on day-to-day business/operational processes.

The process includes the assessment of all the changes and potential impacts to different functional systems generated by this change, safety- and risk assessments, as well as the approval by the German NSA.

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.

GERMANY

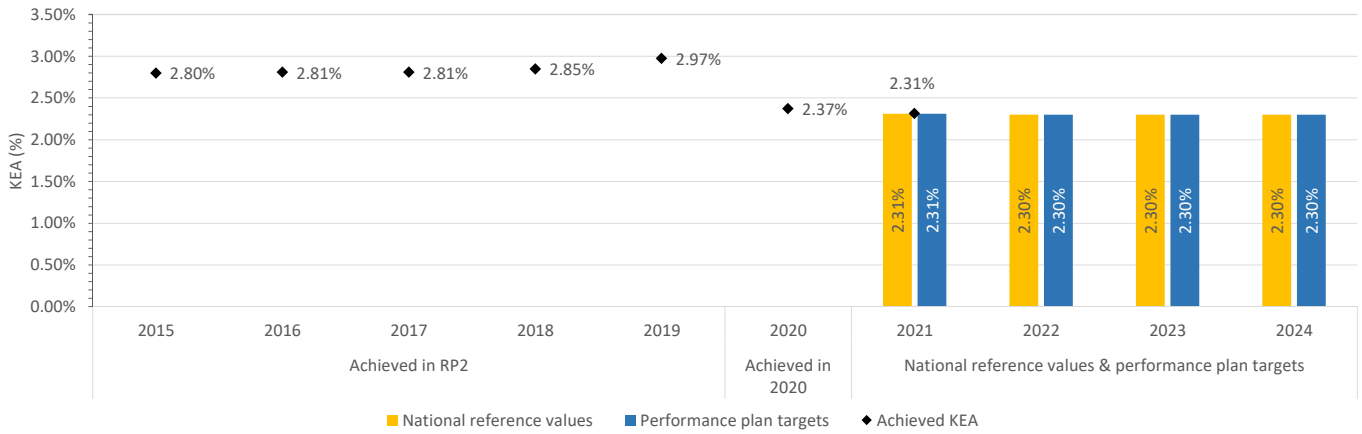
Environment KPA

2.1 Summary of Key Data and Assessment Results

Germany

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

	2020	2021	2022	2023	2024
National reference values	2.81%	2.31%	2.30%	2.30%	2.30%
Performance plan targets	0.00%	2.31%	2.30%	2.30%	2.30%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by FABEC for Germany should be approved.

- Germany's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Germany should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Germany

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		Reference in PP	Reference in LSSIP
With effect from March 2018, DFS implemented free route airspace (FRA) above FL245 within the part of Germany that is controlled by DFS and lies within the Area of Responsibility (AoR) of Karlsruhe UAC (EDUU) and the respective parts of the AoRs of Bremen ACC (EDWW) and München ACC (EDMM). FRA Cells EDMM East, EDMM South and EDWW East will remain available during night (2230-0400 UTC) only.	✓	3.2.1(a)	Page 93
Major ERNIP Recommended Measures:	12	Reference in PP	Reference in ERNIP
Measure included within performance plan?			
Langen ACC Sector Group 1 re-design	✓	3.2.1(a)	Page 114
ATS Route Improvement Langen ACC	✓	3.2.1(a)	Page 115
Sharp Turn Angle Resolution	✓	3.2.1(a)	Page 115
FRA Germany - Step 2c	✓	3.2.1(a)	Page 120
ATS Route Network Improvement Munich ACC/ Karlsruhe UAC	✓	3.2.1(a)	Page 124
Sector Changes in Munich ACC	✓	3.2.1(a)	Page 128
New TANJO STAR Frankfurt/ EDDF	✗	n/a	Page 135
Interface re-sectorisation - COBRA WEST	✗	n/a	Page 144
Interface re-sectorisation - COBRA CENTRAL	✗	n/a	Page 179
PBN transition plan	✗	n/a	Page 190
Cross-border FRA CHE/ DEU	✓	3.2.1(a)	Page 196
Interface re-sectorisation between German ACCs	✗	n/a	Page 211
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Germany achieved a KEA of 2.37% in 2020. In 2021, Germany reached a KEA of 2.31% which means it achieved the 2021 target of 2.31% in its performance plan.

In the performance plan, Germany explains its actions in 2020 that had a significant impact on the environment performance such as removal of route restrictions, flight level caps, and other enhanced Network Manager (eNM) measures. This has given DFS the opportunity to implement new procedures and adopt best practise that it hopes to continue for the remainder of RP3.

Germany has committed to offering cross-border operations with Austria, Czech Republic, Poland, Switzerland, France and Belgium in 2022, which is a welcomed measure to help achieve the targets.

The actions in 2020 and planned cross-border free route airspace (CB FRA) are consistent with the ERNIP, but further measures can also be used such as optimising interfaces and improving the route network until a full 24-hour FRA is available in Germany (EDMM South and EDWW East are still only night time FRA).

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Germany plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

GERMANY

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

ANSP breakdown values are consistent with the ANSP reference values, and fall within the range of the delay forecast.

Capacity plans indicate that Bremen ACC will face a capacity gap in 2022-2023 without implementing additional measures compared to those described in the latest NOP. The implementation of the new ATM system may introduce capacity constraints in RP3.

There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs for Langen ACC in 2022.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Germany included 16 airports in the performance plan. The proposed national targets are significantly lower than the RP2 targets, however are still higher than the average past performance.

Frankfurt, Munich and Dusseldorf are the main contributors to arrival ATFM delay in Germany.

The performance of Munich, Stuttgart and Berlin/Tegel is expected to be better than that of the similar group of airports, while the performance of Berlin Brandenburg, Frankfurt, Hamburg, Cologne-Bonn, Dusseldorf, Leipzig-Halle and Bremen is expected to be worse than that of the similar group of airports.

3.1.3 Incentives

En route:

Germany has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.

In addition to the national incentive scheme, a FAB-level incentive scheme also applies.

Maximum bonus and penalty is set at 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.

Terminal:

Germany has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.

Maximum bonus and penalty is set at 1%.

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

Germany included an investment regarding the detection of drones in the performance plan.

The investment "iCAS programme" was also included in the RP2 performance plan and it showed the largest underspending during the period.

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 by 79.4M€ over the period.

Significant capacity deficit is expected in Bremen ACC gradually reducing to zero, other ACCs will deliver capacity profiles is at or near zero delays.

New major investments with capacity benefits beyond RP3 are envisaged but due to early project phase the benefit realisation target date has a lot of uncertainty. Major investments contribute only to PCP/CP1 ATM Functionality AF6.

Several investments contribute to resilience, scalability and flexibility and are in line with the European ATM evolution.

3.1.5 PRB conclusions

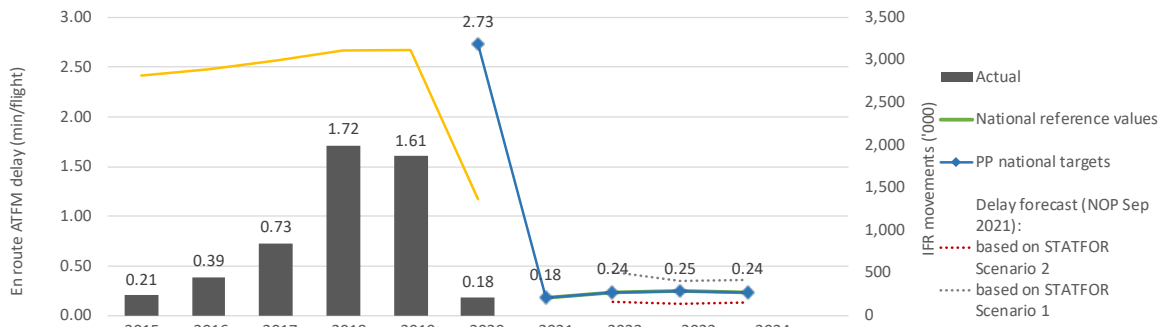
The PRB concludes that the capacity breakdown values proposed by Germany should be approved.

- The PRB appreciates the commitment from Germany to contribute positively to the resolution of the network impact generated by the transition projects in France during 2022-2023.
- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs for Langen ACC in 2022 and 2023.
- The en route capacity incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.
- Germany included an investment regarding the detection of drones in the performance plan.
- Capacity plans indicate that Germany may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast, and the impact generated by the transition projects in France is higher than expected. For this reason, Germany has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Germany should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.
- Germany should revise the incentive schemes so that they have a material impact on the revenues.
- Germany should ensure that all capacity enhancement measures are properly implemented, and sufficient capacity is available to meet traffic demand.

3.2 En route ATFM delay per flight

Germany - DFS

3.2.1 Overview of en route ATFM delay per flight ✔



Traffic variation	+2%	+2.7%	+3.5%	+4.0%	+0.2%	-56.1%				
Actual delay/flight	0.21	0.39	0.73	1.72	1.61	0.18				
National reference values						n/a	0.18	0.24	0.25	0.24
PP national targets						2.73	0.18	0.24	0.25	0.24
Based on STATFOR Scenario 1							-	0.44	0.35	0.36
Based on STATFOR Scenario 2							-	0.14	0.12	0.13

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
Deviation target vs reference value	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures !

Assessment of capacity enhancement measures and review against NOP

During RP2, the ACCs of Germany experienced capacity constraints related mostly to Bremen (ATM capacity and weather), Karlsruhe (ATM capacity, weather and staffing), Langen (ATM capacity, weather and staffing) and Munich (weather). Germany generated delays significantly higher than capacity targets in 2017 (+76%), 2018 (+283%) and 2019 (+245%).

The performance plan provides the following capacity enhancement measures:

- ATM system upgrade (iCAS) and ATCO training,
- Airspace redesign and re-sectorisation - COBRA (Collaborative Optimization of Boundaries, Routes and Airspace),
- Implementation of a Complexity Management Tool (2023),
- Increasing ATCO numbers in line with the traffic demands, flexible planning and rostering,
- Cross-border initiatives.

The combination of the proposed measures is considered as appropriate and effective to address the capacity gap experienced by Germany in the past, provided that all measures are properly implemented as planned.

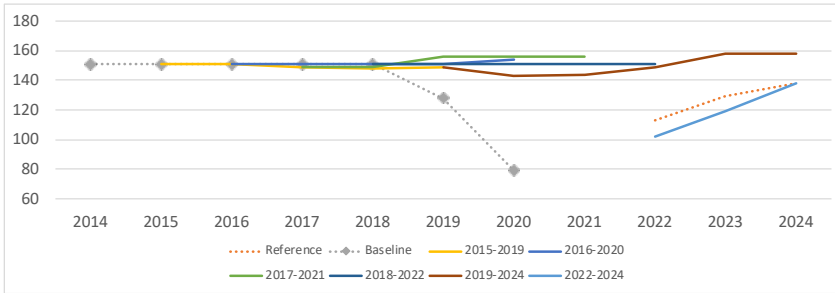
The number of planned ATCO FTEs is reasonable, and addresses ACCs, which had capacity/staffing issues in RP2. The realisation of the planned increase of ATCO FTEs in Karlsruhe UAC by the end of 2022 will be critical in achieving the adequate level of staffing for later years of RP3.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Bremen ACC (EDWW)	Additional ATCOs in OPS to start working in the OPS room	9.6	1.2	7.6	6	14.6	27.05	25.15	+18
	ATCOs in OPS to stop working in the OPS room	12.08	13.16	22.51	5.7	16.35	12.65	5.35	
	ATCOs in OPS to be operational at year-end	261.78	249.82	234.91	235.21	233.46	247.86	267.66	
Langen ACC (EDGG)	Additional ATCOs in OPS to start working in the OPS room	8	13.5	8.23	18.04	27.46	32.7	29.83	+3
	ATCOs in OPS to stop working in the OPS room	17.41	35.85	15.09	16.02	43.83	15.43	23.26	
	ATCOs in OPS to be operational at year-end	467.2	444.85	437.99	440.01	423.64	440.91	447.48	
Karlsruhe UAC (EDUU)	Additional ATCOs in OPS to start working in the OPS room	8.8	9.4	42.7	36.282	63.101	33.573	22.573	+89
	ATCOs in OPS to stop working in the OPS room	27.4	17.2	59.14	11.818	21.203	7.171	9.9	
	ATCOs in OPS to be operational at year-end	404.21	396.41	379.97	404.434	446.332	472.734	485.407	
Munich ACC (EDMM)	Additional ATCOs in OPS to start working in the OPS room	0	3.4	2	8.18	7.66	24.649	6.294	-2
	ATCOs in OPS to stop working in the OPS room	16.01	13.09	11.79	7	14.325	15.873	1.68	
	ATCOs in OPS to be operational at year-end	297.32	287.63	277.84	279.02	272.355	281.131	285.745	
Total - DFS (en route)	Additional ATCOs in OPS to start working in the OPS room	26.4	27.5	60.53	68.502	112.821	117.972	83.847	+108
	ATCOs in OPS to stop working in the OPS room	72.9	79.3	108.53	40.538	95.708	51.124	40.19	
	ATCOs in OPS to be operational at year-end	1430.51	1378.71	1330.71	1358.67	1375.79	1442.64	1486.29	

3.2.3 Review of previous and existing capacity profile plans per ACC

Bremen ACC (EDWW)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									113	129	138
Baseline	151	151	151	151	151	128	79				
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
2022-2024									102	119	138
Latest vs Reference									-10%	-8%	0%

- Historical data shows that capacity plans were mainly followed and that the baseline value remained flat at 151 until 2019.

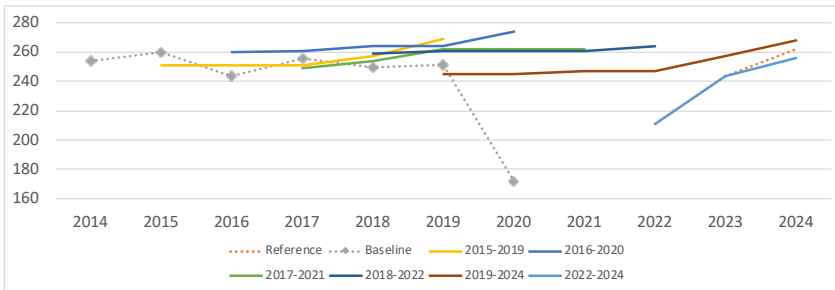
- During 2022-2024, Bremen ACC plans training for iCAS, which may impact capacity.

- Bremen ACC is expected to reach 2019 traffic level in 2024 or later.

- The latest capacity plans show an annual growth of 16% on average, starting with a capacity gap in 2022, which is gradually closed until 2024.

- The planned increase in ATCO FTEs corresponds to the planned capacity profiles.

Langen ACC (EDGG)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									211	244	262
Baseline	254	260	244	256	250	251	172				
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
2022-2024									211	244	256
Latest vs Reference									0%	0%	-2%

- Historical data shows that the baseline value increased in all the years of RP2 except in 2016 when the baseline value decreased by 6.5%.

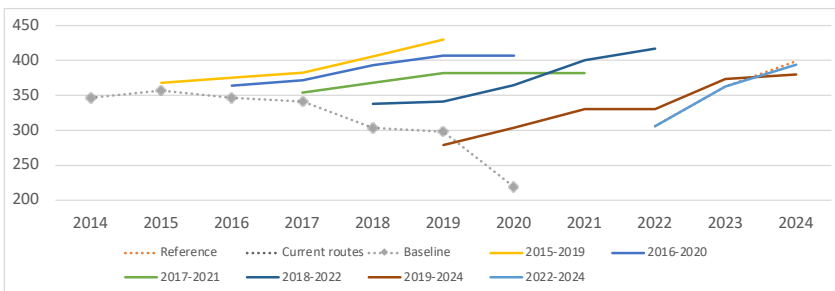
- During 2022-2024, Langen ACC plans training for iCAS, which may impact capacity.

- Langen ACC is expected to reach 2019 traffic level in 2024 or later.

- The latest capacity plan shows an average annual growth of 10%, ensuring required capacity during 2022 and 2023 but resulting in a minor capacity gap in 2024 when traffic levels are expected to reach 2019.

- There may be a minor inconsistency between capacity profile plans and planned number of ATCO FTEs in 2022-2023.

Karlsruhe UAC (EDUU)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									306	363	399
Baseline	347	357	347	341	303	299	219				
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
2022-2024									306	363	394
Latest vs Reference									0%	0%	-1%

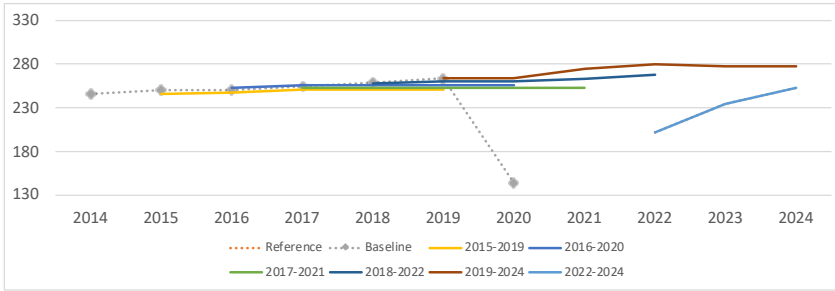
- Historical data shows that the baseline value significantly decreased between 2015 and 2018 and that the plans from 2018 onwards were not realised.

- Karlsruhe ACC is expected to reach 2019 traffic level already in 2022.

- The latest capacity plan shows an average annual growth of 13.5%, following the reference profile in 2022 and 2023, and generating a minor capacity gap of -1% in 2024.

- The planned number of ATCO FTEs corresponds to the planned capacity profiles.

Munich ACC (EDMM)



- Historical data shows that baseline values increased during RP2 except in 2016 where no baseline growth was achieved.
- During 2021-2022, Munich ACC plans training for iCAS ATM system and its implementation during 2022-2023.
- Munich ACC is expected to reach 2019 traffic level in 2024.
- Latest capacity plan shows an average annual growth of 11.9% and is in line with the reference profiles in all years of RP3.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									202	234	253
Baseline	246	250	250	255	259	264	144				
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
2022-2024									202	234	253

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events

Review of the planned impact of special events in some years of RP3

The performance plan provides a list of project and activities that may impact capacity performance including:

Bremen ACC:

- Training and transition for iCAS Phase II : significant capacity reduction expected in 2022 and 2023 in all sector families,
- iCAS Phase II (01/2024-03/2024).

Karlsruhe UAC:

- COBRA (Collaborative Optimization of Boundaries, Routes and Airspace) (Q1/2022),
- Implementation of a Complexity Management Tool (2023),
- Erlangen sector: vertical split into 3 sectors (capacity increase through a more flexible opening scheme) (2024).

Langen ACC:

- iCAS Phase II (10/2025-03/2026).

Munich ACC:

- iCAS Phase II (09/2022).

Additionally, the NOP references ILA Berlin Fair and MAGEX (military exercise in June 2023). The performance plan makes only high-level reference to the possible impacts of these events.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The information is not available in the performance plan.

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

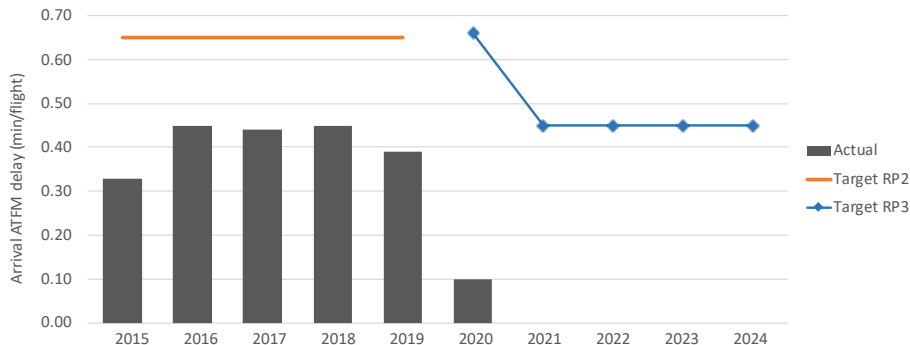
- a) Performance plan contains additional capacity enhancement measures planned to address the gap closure ✘
With low level of detail on capacity enhancement measures, it is difficult to make the link with proposed capacity targets.
- b) Measures proposed by the NM are implemented in the Performance Plan ⓘ
The performance plan does not contain the above-mentioned 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 ✘
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 planned number of ATCO FTEs is in line with capacity profiles and addresses the closure of the capacity gap, with the only exception of Bremen, where a capacity gap is expected to remain in 2022 and 2023.
- f) Flexible use of operational staff is planned and ensured ⓘ
The performance plan contains references measures targetet at flexible planning and rostering of operational personnel, however only high level information is
- g) Limitations of ATM system/infrastructure is mitigated ✔
The performance plan does not explicitly identifies limitations of the current ATM system, nevertheless the new ATM system (iCAS) is to be implemented during RP3 and it is expected to address existing limitations (at least partially).

3.2.6 PRB Key Points ✔

- ANSP breakdown values are consistent with the ANSP reference values, and fall within the range of the delay forecast.
- Capacity plans indicate that Bremen ACC will face a capacity gap in 2022-2023 without implementing additional measures compared to those described in the latest NOP.
- The implementation of the new ATM system may introduce capacity constraints in RP3.
- There is a discrepancy in the performance plan between capacity profile plans and planned number of ATCO FTEs for Langen ACC in 2022.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



National level	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Actual	0.65	0.65	0.65	0.65	0.65	0.66	0.45	0.45	0.45	0.45
Berlin Brandenburg (formerly Berlin-Frankfurt (EDDF))	0.00	0.05	0.04	0.01	0.04	0.00	0.24	0.24	0.24	0.24	0.24
Hamburg (EDDH)	0.67	0.86	0.84	0.87	0.69	0.19	0.94	0.94	0.94	0.94	0.94
Cologne-Bonn (EDDK)	0.57	0.39	0.26	0.55	0.55	0.03	0.38	0.38	0.38	0.38	0.38
Dusseldorf (EDDL)	0.02	0.08	0.39	0.47	0.31	0.03	0.16	0.16	0.16	0.16	0.16
Munich (EDDM)	0.34	0.54	0.73	0.45	0.68	0.26	0.53	0.53	0.53	0.53	0.53
Stuttgart (EDDS)	0.33	0.49	0.35	0.44	0.25	0.08	0.49	0.49	0.49	0.49	0.49
Berlin/ Tegel (EDDT)	0.09	0.08	0.13	0.14	0.14	0.00	0.08	0.08	0.08	0.08	0.08
Dresden (EDDC)	0.20	0.53	0.39	0.18	0.19	0.05	0.00	0.00	0.00	0.00	0.00
Erfurt (EDDE)	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Muenster-Osnabrueck (EDDG)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuremberg (EDDN)	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Leipzig-Halle (EDDP)	0.00	0.18	0.12	0.35	0.35	0.14	0.14	0.14	0.14	0.14	0.14
Saarbruecken (EDDR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hanover (EDDV)	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bremen (EDDW)	0.00	0.03	0.01	0.41	0.34	0.01	0.09	0.09	0.09	0.09	0.09

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

The proposed national target is constant for the period 2021 to 2024 and equal to 0.45 minutes per arrival, which is an improvement with respect to RP2 targets but represents higher delays than observed in average during RP2 (0.41 minutes per arrival). Germany uses the STATFOR October 2021 base forecast with a CAGR in IFR movements of -0.1% for the period (2019-2024).

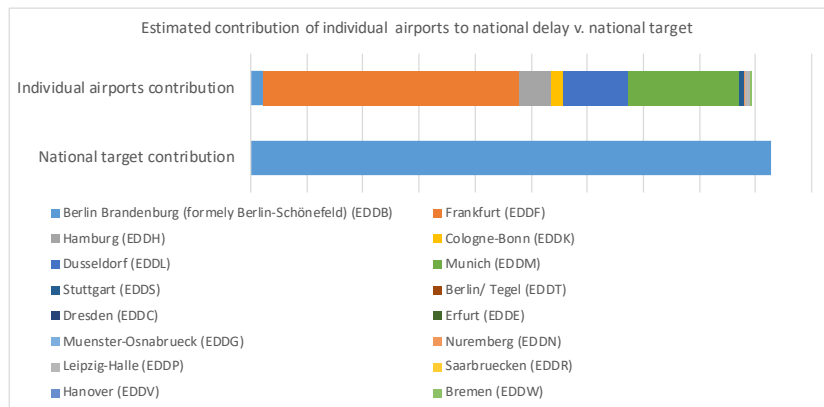
According to the performance plan, the following items were considered when setting the national target:

1. Traffic of the previous years,
2. Delay of the previous years,
3. Traffic forecasts,
4. Technical developments and probability of system failures,
5. Potential influence of the COVID-19 pandemic on capacity,
6. Eventuality of "uncontrollable" or non-CRSTMP delays.

These factors were particularly considered in the target calculation since these are the major factors influencing the overall national capacity value at airports for the upcoming years.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Berlin Brandenburg (formerly Berlin-Frankfurt (EDDF))	0.24
Hamburg (EDDH)	0.38
Cologne-Bonn (EDDK)	0.16
Dusseldorf (EDDL)	0.53
Munich (EDDM)	0.49
Stuttgart (EDDS)	0.08
Berlin/ Tegel (EDDT)	0.00
Dresden (EDDC)	0.00
Erfurt (EDDE)	0.00
Muenster-Osnabrueck (EDDG)	0.00
Nuremberg (EDDN)	0.01
Leipzig-Halle (EDDP)	0.14
Saarbruecken (EDDR)	0.00
Hanover (EDDV)	0.00
Bremen (EDDW)	0.09
National Target	0.45



Frankfurt is the main contributor in terms of delay (as it is in terms of IFR movements) followed by Munich and then Dusseldorf and Hamburg. Nevertheless, the estimated contribution is based on the RP3 targets but the RP2 traffic share, which has changed for Berlin (EDDB) since it has now incorporated the traffic from the former Berlin Tegel (EDDT). Therefore a higher contribution than the one displayed in the chart is expected for Berlin Brandenburg (EDDB). The breakdown of the targets per airport approximately corresponds with the national target, assuming the same traffic share as in the past.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Berlin Brandenburg (formely Berlin-Frankfurt (EDDF)	GROUP III	0.12	0.03	-0.09	0.24	+0.12
Hamburg (EDDH)	GROUP I	0.65	0.78	+0.13	0.94	+0.16
Cologne-Bonn (EDDK)	GROUP III	0.12	0.46	+0.34	0.38	+0.26
Dusseldorf (EDDL)	GROUP III	0.12	0.26	+0.14	0.16	+0.04
Munich (EDDM)	GROUP III	0.12	0.55	+0.43	0.53	+0.41
Stuttgart (EDDS)	GROUP I	0.65	0.37	-0.28	0.49	-0.16
Berlin/ Tegel (EDDT)	GROUP III	0.12	0.12	+0.00	0.08	-0.04
Dresden (EDDC)	GROUP III	0.12	0.30	+0.18	0.00	-0.12
Erfurt (EDDE)	GROUP IV	0.00	0.00	+0.00	0.00	-0.00
Muenster-Osnabrueck (EDDG)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00
Nuremberg (EDDN)	GROUP IV	0.00	0.00	+0.00	0.01	+0.01
Leipzig-Halle (EDDP)	GROUP IV	0.00	0.21	+0.21	0.14	+0.14
Saarbruecken (EDDR)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00
Hanover (EDDV)	GROUP IV	0.00	0.01	+1%	0.00	-0%
Bremen (EDDW)	GROUP IV	0.00	0.15	+15%	0.09	+9%

* 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 $< 80,000$

Munich and former Berlin Shoenefeld are the only German airports that performed better than similar airports during RP2. Frankfurt and all other medium airports performed worse than other airports in their respective category. The proposed targets per airport continue in the same line.

3.3.5 PRB Key Points

- Germany included 16 airports in the performance plan. The proposed national targets are significantly lower than the RP2 targets, however are still higher than the average past performance.
- Frankfurt, Munich and Dusseldorf are the main contributors to arrival ATFM delay in Germany.
- The performance of Munich, Stuttgart and Berlin/Tegel is expected to be better than that of the similar group of airports, while the performance Berlin Brandenburg, Frankfurt, Hamburg, Cologne-Bonn, Dusseldorf, Leipzig-Halle and Bremen is expected to be worse than that of the similar group of airports.

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route 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
NOP reference values			0.24	0.25	0.24
Alert threshold (Δ Ref. value in fraction of min)			±0.052	±0.053	±0.052
Performance Plan targets			0.24	0.25	0.24
Pivot values for RP3			0.16	0.17	0.16

Threshold and pivot value review

The pivot value is the reference value from the NOP, modulated according to CRSTMP. A deadband of +/- 30% is applied around modulated pivot value before any incentives apply. Maximum penalties or bonuses apply at +/- 0.05 minutes from pivot value.

Modulation review

The scope of the en route incentive scheme is modulated according to the ATFM delay codes C,R,S,T,M & P. The target is based on the average ratio of attributed CRSTMP delays during RP2, circa 70% of total en route ATFM delays. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect financial incentives.

Review of financial advantages/disadvantages

A FAB-wide criteria is applied to determine if ANSPs are initially liable for bonuses or penalties, based on the overall FAB performance. The maximum potential bonus / penalty is fixed at 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±50.0%	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)			±0.013	±0.013	±0.013
Performance Plan targets			0.45	0.45	0.45
Pivot values for RP3			0.03	0.03	0.03

Threshold and pivot value review

The German 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. The pivot values are constant and CRSTMP modulated and the proposed value represents a slight worse performance than during RP2.

Modulation review

Germany has chosen to modulate the pivot values according to CRSTMP causes. The proposed pivot value is constant for 2022-2024 period and is set at 0.026 minutes per arrival, the average value (as reported in the performance plan) since the beginning of RP1 (2012-2020). Nevertheless this pivot value is twice the average reported CRSTMP delays in 2015-2019 (0.013 minutes per arrival).

Review of financial advantages/disadvantages

Germany is one of the few countries that presents an incentive scheme with 1% associated maximum bonus or penalties. According to the performance during RP2, this scheme would have resulted in a maximum bonus (2 years) or no bonus / penalty (3 years).

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✘

En route:

- Germany has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.
- In addition to the national incentive scheme, a FAB-level incentive scheme also applies.
- Maximum bonus and penalty is set at 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.

Terminal:

- Germany has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.
- Maximum bonus and penalty is set at 1%.

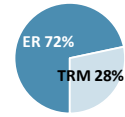
- As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors by the ANSP in the attribution of cause of delay could impact financial incentive.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	94.3	93.3	100.4	110.9	122.3	521.2
	En route	70.0	66.1	71.2	78.7	87.5	373.6
	Terminal	24.2	27.2	29.1	32.2	34.8	147.6

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.

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. Germany included a correction in the performance plan defined as "experience-based correction by DFS management and non-regulated services" that reduces the amount of the total new and existing investments by 79.4M€ over RP3.

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	TRM
1	Drone Detection System	DFS got the order by the Ministry of Transport to establish at all international airports a system to seek, recognize and identify all flight objects flying in the TMA that cause dangerous situations at international airports. Quick action to complete the project is required due to the misuse of drones and the number of drone sightings and threats in the vicinity of the airport with the known consequences. More details can be found in section 2.3 of the performance plan.	193.7	No	No	0.0	6.0
2	iCAS architecture project	Software licenses for the ATS-System. The new iCAS Architecture and peripheral systems will provide a more cost efficient and flexible mode of operation on Data Center Platforms, i.e. IaaS, CaaS cloud service models. It is in line with the EATM Masterplan.	53.9	No	No	0.0	0.0
3	Data Center	Platform to support cost efficient operation modes for ATS Systems, i.e. IaaS, CaaS	27.7	No	No	3.2	0.8
4	PIPE2 – IP enhancement phase 2	With the IP upgrading project for the radio and radar sites Phase 1, 144 sites were non-redundantly connected to the MPLS-A network. This is where phase 2 begins, with which the redundant connection to the locations from phase 1 as well as to all other remote locations will take place. In addition, the Voice-over-IP and Surveillance-over-IP functionality will be introduced throughout DFS. More details can be found in section 2.3 of the performance plan.	27.5	No	No	2.6	0.6
5	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. By the end of the year the project was stopped in order to find out if it's also feasible to rent the required space. The current solution intends to rent for five years, demolish the old building in the meantime and restart the planning of the project in 2023.	19.1	No	No	0.2	0.1
6	iTEC V3	Seven European ANSPs, organised in the iTEC Cooperation, intend to develop a common ATS system named iTEC OneSky. Based on harmonised requirements across all seven ANSPs iTEC OneSky will provide - new way in sharing major cost (for development, training, operation, maintenance, etc.) , - an efficient way to keep ATM systems state-of-the-art and up-to-date, - a major technical step forward (e.g using cloud technology) - new possibilities of working seamless and harmonised (based in a common CONOPs). More details can be found in section 2.3 of the performance plan.	10.6	No	Yes	0.8	0.0
7	ViTo-MUC - Virtual Tower Munich	The Flughafen München GmbH (FMG) informed DFS, that the Tower building at the airport has to be renovated. The FMG owns the building used by DFS and others. The contract between DFS and FMG states the DFS has to bear a 47% share of the renovation costs. More details can be found in section 2.3 of the performance plan.	6.4	No	No	0.0	0.7

8	Program ADS-B	The goal is to implement the surveillance system mix set forth in the Surveillance Strategic Architecture Plan and, as a result, to reduce the number of radar systems to be modernized, taking into account today's air situational requirements.	5.3	Yes	No	0.6	0.1
9	ADS-C	The goal of this project is develop and provide the necessary ADS-C systems and application software necessary to comply with EU Commission Implementing Regulation EU 2021/116 , part AF6 "Initial Trajectory Information Sharing". The AF6 mandates the support of ADS-C functions for airspace users and by all European ANSPs for all flight segments above FL285 from 31.12.2027 onwards. The project scope thus includes the ATS system development for DFS control centers in Karlsruhe and partially Munich. More details can be found in section 2.3 of the performance plan.	8.9	Yes	NO	0.0	0.0
Total:						7.4	8.3

Airspace user feedback regarding major investments

The airspace users support the investments that are expected to deliver increase in capacity, productivity and cost-efficiency, however they commented that the ANSP has failed to provide quantifiable justification for cost-efficiency gains for the proposed investments.

The airspace users reiterated their concern about the Drone Detection System investment, which is considered not eligible to be included in the performance plan. Germany noted that there was a review of the benefit and legality of the inclusion of the investment in the performance plan, adding that the costs will be split according to a transparent methodology approved by the NSA and will lower the terminal charges for the respective year in accordance with Art. 29 (6) IR (EU) 2019/317.

Review of investments

Investment #2 is related to the investment "iCAS programme", which was included in RP2 and represented DFS' largest underspending during RP2 and will continue throughout RP3. New major investments represent 3.2% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 70% of the planned for the same period and the amount underspent was 207.6M€. In terms of depreciation and cost of capital, the airspace users have financed 36.6M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Drone Detection System	None	Safety, Capacity, Cost-efficiency	Quick action to complete the project is required due to the misuse of drones and the number of drone sightings and threats in the vicinity of the airport with the known consequences. Such incidents and operational disruptions also result in loss of revenue, costs, and considerable damage to the image of the airports. With the installation of the Drone Detection System, all unmanned aircraft systems (UAS) that may pose a threat can be detected.
2	iCAS architecture project	Network, Local	Cost-efficiency	n/a
3	Data Center	Network, Local	Cost-efficiency	n/a
4	PIPE2 – IP enhancement phase 2	Local	Safety, Capacity, Cost-efficiency	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.
5	New construction of an office building at the DFS Campus in Munich	None	Cost-efficiency	The demolition of the old building and the new construction of the new office building are having a positive effect, as a refurbishment of the old building would be considerably more expensive than a demolition and new construction. The facility Management costs for the new and smaller building are less than for the current old building.
6	iTEC V3	Network, Local	Safety, Environment, Capacity, Cost-efficiency	Provides the opportunity for future business models (like ADSP) and improved cooperation between the ANSPs that are covering a major part of the European Airspace. iTEC OneSky Definition Phase has started to agree the common requirements for the iTEC OneSky systems. By end of 2022/beginning of 2023 iTEC ANSPs will decide based on improved business cases about the implementation of iTEC OneSky. Implementation Phase is foreseen to start mid 2023, a first deployment of iTEC OneSky at DFS will be possible not earlier than 2028.
7	ViTo-MUC - Virtual Tower Munich	Local	Safety, Cost-efficiency	The reductions compared to the Draft Performance Plan RP3-2019 result from the validation of an alternative approach with the aim of increasing the "Finance" KPI. During the validation, the renovation measures are limited to the bare minimum. Depending on the validation results, the implementation of the virtual approach or the renovation of the ATC tower will then take place after RP3.

Additional information

Drone Detection System (DDS): After an additional review of the benefit and legality concerning the inclusion of the DDS project into the performance plan, NSA opts to include it as the initial plan. The DDS project is legally included based on regulation, in order to avoid any collision at the terminal and it is not a matter of national security, but a project to ensure the safety of aviation. The cost of prosecution of infringements is not part of it and also not the cost of drone defense, it is just a surveillance system to uncover drones.

iCAS architecture project: joint investment in coordination with iCAS and iTEC partners. Overhaul of Data Center readiness for the iCAS ATS-System and peripheral components. It contributes to Essential Operational Change 'Virtualisation of Service Provision' [European ATM Master Plan 2019, chapter 4.2.5].

Data Centre: replacement of local IT-infrastructure by a central IT-infrastructure in Data Center. (a) Data Center Initial disassembly and scaling services contribute to Essential Operational Change 'Virtualisation of Service Provision' [European ATM Master Plan 2019, chapter 4.2.5]; (b) Data Center initial disassembly is additionally indirectly linked to DVO (EU) 716/2014 because the IT-infrastructure changes are the precondition for realising the project TANGe which will fulfill the mentioned DVO.

iTEC V3: joint investment of seven ANSPs collaborating in iTEC. iTEC V3 is based on current components shared between iTEC partners. The result will be a new ATS System ready to be deployed at all "iTEC centres". iTEC V3 will implement mandated functionality included in current CP1 (EU 2021/116, former PCP) such as SWIM, Free Route, Extended Arrival Management.

ViTo-MUC - Virtual Tower Munich: ATM MP: SDM-0201 Remotely Provided Air Traffic Service for Single Aerodrome.

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 RP3 (M€)
Other new investments	27.9	21.3	0.1	0.3	1.0	1.6	2.2	5.3
Existing investments			99.3	99.6	106.5	116.9	126.2	548.5

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	SWE iCAS Phase II KAR	4.9	2.6	0.0	0.0	0.0	0.0	0.2	0.2	As part of a cooperation between MUAC and DFS, a study is currently being conducted to determine whether a joint air traffic control system can be used in the future (MAKAN: MAAstricht KArlsruhe Networks). The realisation of MAKAN would replace the planning of iCAS2.
2	iCAS Flight Object IOP	4.1	1.9	0.0	0.0	0.0	0.0	0.0	0.0	The iCAS System project iCAS Flight Object IOP is currently in the planning phase due the changed IOP Strategy. The project will implement the necessary functionality in the future ITC V3 ATM system to prepare the deployment of Flight Object interoperability as part of ISWIM in the DFS control centers. The assets reported here are preliminary and will be updated once the planning phase is completed.
3	A-SMGCS Leipzig	3.9	3.9	0.0	0.1	0.3	0.5	0.5	1.4	Implementing an A-SMGCS Level 2 (Phoenix-Ground-Situation-Display) including the necessary infrastructure (e.g. Sensor technology, Power, Data, HMI) at the international Airport Leipzig.
4	LIZ Rehosting	2.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	Migration of servers from current location and management to a central Data Center incl. software portation wherever necessary.
5	Future orientation AIM and Regulation	2.2	2.2	0.0	0.0	0.1	0.2	0.3	0.6	The functional system in the context of AIM has undergone many changes in recent years and the change continues. The ZAAR project is intended to analyze the actual situation of the functional systems and the upcoming requirements.
6	Maintenance Solutions	1.2	1.0	0.0	0.1	0.1	0.2	0.2	0.6	Modern maintenance processes and technologies (e.g. Mobile Work & Asset Management, IIoT & Predictive Maintenance, Digital & Smart Logistics) based on a future-proof infrastructure.
7	Automation tools ATM	1.6	1.6	0.0	0.0	0.0	0.1	0.2	0.3	CATo, MET-IF, DZSA, future CWP
8	Measuring technology	2.6	2.0	0.0	0.0	0.0	0.1	0.2	0.3	Procurement, regular operation service and maintenance from several measuring technologies (hard- and software e.g. oscilloscope or high-precision test measurement station for TACAN and DME systems including software applications for monitoring and reporting.

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? ⓘ
- Significant capacity deficit is expected in Bremen ACC in 2022 (-10%), reducing to zero in 2024. In other ACCs, the difference between the reference and planned capacity profiles is at or near zero.
- There are no major new investments contributing to capacity during RP3, some new investments are expected to contribute to capacity after RP3. One new major investment (ADS-C) will contribute to PCP/CP1 ATM Functionality AF6. One new major investment (iTEC V3) is in definition phase but can be expected to contribute to CP1 ATM Functionalities and provide capacity benefits once it progresses to implementation phase. However, the implementation may be beyond RP4.
- Several new major investments (ADS-B, ADS-C, ViTo-MUC, iCAS architecture project, PIPE2 and Drone detection system) contribute also to resilience, scalability and flexibility.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? ✔
- The iTEC V3 investment is expected to introduce new capabilities in virtualisation and ADSP capabilities in line with the expected evolution of ATM in the European region. This can be expected to generate benefits in the capacity domain as well as improve flexibility, scalability, and resilience. The specific functions to be deployed are not elaborated in the performance plan but e.g. FO-IOP capabilities are noted.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? ✔
- The iTEC V3 investment is expected to be deployed in 2028 at the earliest and therefore any benefits will not materialise during RP3 or possibly even during RP4. The predecessor of iTEC V3 (iCAS programme (iTEC Centre Automation System)) was included in FABEC / DFS RP2 planning with expected capacity benefits for Karlsruhe (2018), Bremen (2018-2020), Munich (2019-2021) and Langen (2020-2022). iCAS has been implemented in Karlsruhe in 2017 but according to LSSIP 2020 Germany, the implementation in Bremen, Munich and Langen is now planned for 2024, 2022 and 2025-26 respectively. Taking into consideration the current delays in iCAS programme deployment, an eight to nine year gap may be expected between the first and last implementations of the iCAS system. However, as the capacity gap is reducing during RP3 the iCAS programme seems to be able to deliver the required capacity prior to the iTEC deployment.

3.5.4 PRB Key Points

- Germany included an investment regarding the detection of drones in the performance plan.
- The investment "iCAS programme" was also included in the RP2 performance plan and it showed the largest underspending during the period.
- The actual CAPEX for RP2 was 70% of the planned for the same period and the amount underspent was 207.6M€. In terms of depreciation and cost of capital, the airspace users have financed 36.6M€ for investments that have not been materialised. It is unknown 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 and non-regulated services to show reduced depreciation figures" that reduces the amount of the total new and existing investments by 79.4M€ over the period.
- Significant capacity deficit is expected in Bremen ACC gradually reducing to zero, other ACCs will deliver capacity profiles is at or near zero delays.
- New major investments with capacity benefits beyond RP3 are envisaged but due to early project phase the benefit realisation target date has a lot of uncertainty. Major investments contribute only to PCP/CP1 ATM Functionality AF6.
- Several investments contribute to resilience, scalability and flexibility and are in line with the European ATM evolution.

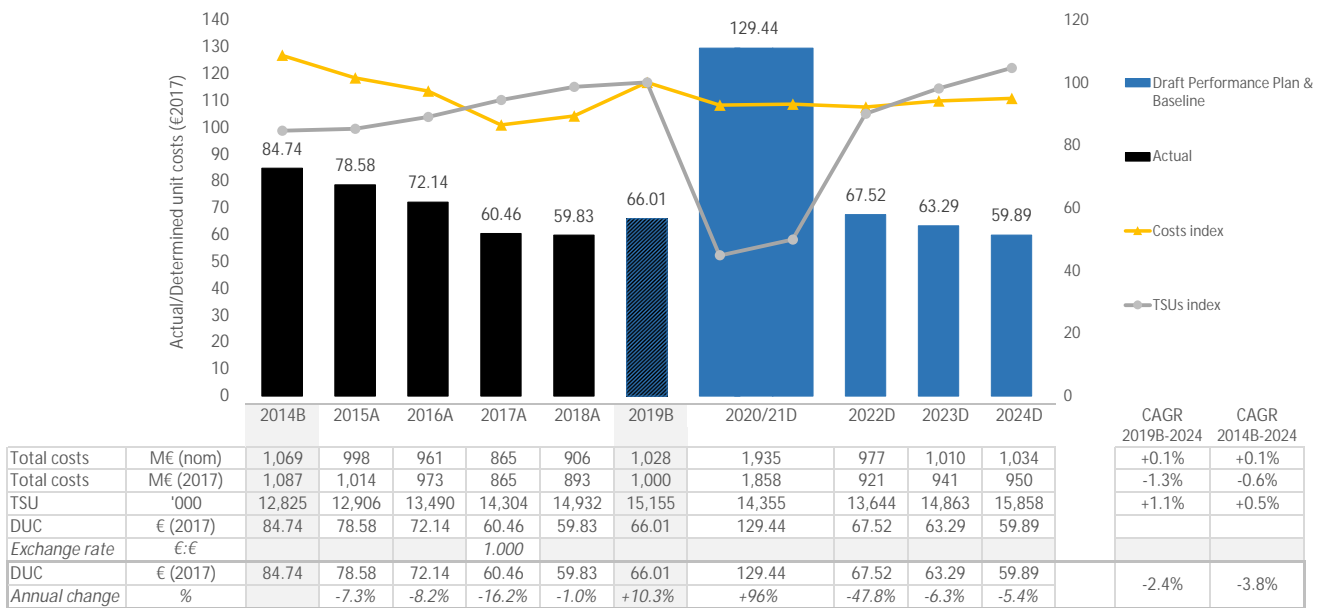
GERMANY

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Germany - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 66.01 €2017 !

The proposed adjustments relating to MUAC costs and to the DFS corporate action programme are duly justified. The proposed adjustment relating to DFS pension costs should not be considered for the baseline value. However Germany would achieve the cost-efficiency trends without such adjustments.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? -2.4% ✓
The DUC is planned to decrease on average by -2.4% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -3.8% ✓
The DUC is planned to decrease on average by -3.8% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- c) DUC level (2019 baseline) lower than the average of comparator group (A) average (58.33 €2017)? +13.2% ✗
The 2019 DUC level is +13.2% 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 ✓

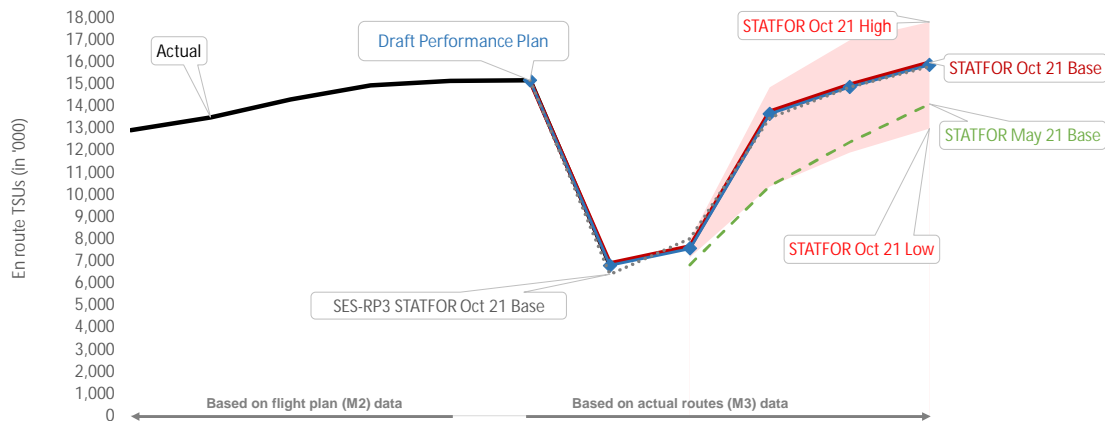
The PRB concludes that the cost-efficiency targets proposed by Germany should be approved.

- Germany is consistent with the RP3 DUC trend in terms of average reduction.
- Germany is consistent with the long-term Union-wide DUC trend.
- Germany is not consistent with the average DUC baseline of the comparator group.
- Germany presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.
- Some elements in the adjustment of the cost baseline should not be included. However, Germany would achieve the cost-efficiency trends without such adjustments.

4.2 Review traffic forecasts and baseline

Germany - En route CZ

4.2.1 Overview of service units forecasts for RP3



	2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	12,906	13,490	14,304	14,932	15,132	15,155	6,887				
Annual change	%		+4.5%	+6.0%	+4.4%	+1.3%	+1.5%	-54.6%				
STATFOR Oct 21 Base	'000 TSUs							7,661	13,742	14,961	15,956	+5.3%
Annual change	%							+11.2%	+79.4%	+8.9%	+6.7%	
STATFOR May 21 Base	'000 TSUs							6,818	10,371	12,366	14,085	-7.1%
Annual change	%							-1.0%	+52.1%	+19.2%	+13.9%	
Performance Plan	'000 TSUs					15,155	6,792	7,563	13,644	14,863	15,858	+4.6%
Annual change	%					+1.5%	-55.2%	+11.3%	+80.4%	+8.9%	+6.7%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	15,155		2014B (PP baseline)	12,825	
2019A (as in the Reporting tables, M2)	15,132		2014A (as in the Reporting tables, M2)	12,806	
2019B/ 2019A	0.15%	+0.15%	2014B/ 2014A	0.15%	+0.15%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

Both the 2014 and the 2019 traffic baselines are based on the actual number of service units (after adjustment for OAT traffic), adjusted to take account of the transition from M2 to M3 on the basis of the M2/M3 CRCO 12-month coefficient (+0.15%).

Review of 2014 and 2019 traffic baseline

The adjustments made to both the 2014 and 2019 traffic baselines are made on the basis of the M2/M3 CRCO 12-month coefficient. The coefficient slightly increases the number of 2014 and 2019 traffic baselines while decreasing the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

The figures provided are slightly adjusted downwards as a result of the deduction of the service units relating to OAT traffic (95,000 service units per year).

Review of the PP traffic forecast

The selected TSU forecast underlying the proposed cost-efficiency targets for RP3 is in line with STATFOR October 2021 base forecast, after adjustment for OAT traffic.

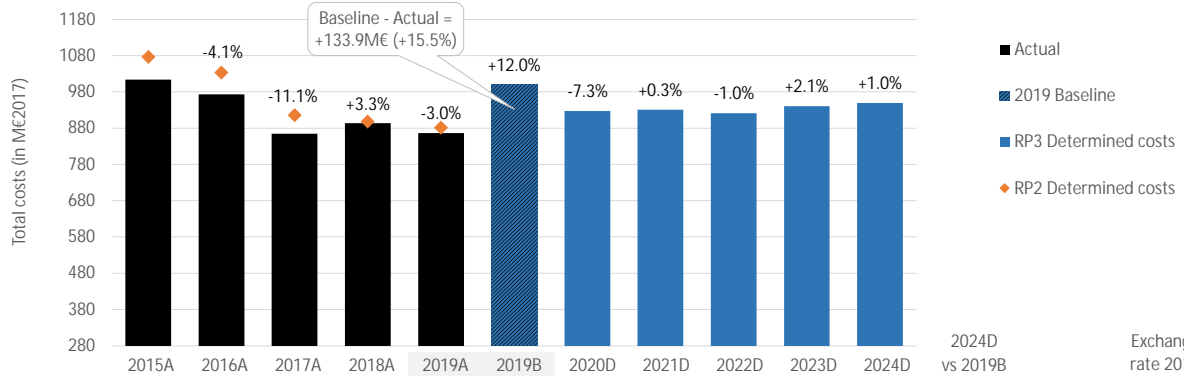
4.2.4 PRB Key Points

- The en route traffic forecast of Germany is in line with STATFOR October 2021, after the adjustment for OAT traffic.
- No major issues identified.

4.3 Review of determined costs and baseline

Germany - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	998	961	865	906	889	1,028	957	979	977	1,010	1,034	+0.6%
Annual change	%	-	-3.7%	-10.0%	+4.8%	-1.8%	+13.4%	-6.9%	+2.3%	-0.1%	+3.3%	+2.3%	+7.1%
Inflation index	2017 = 100	97.9	98.3	100.0	101.9	103.3	103.3	103.7	106.1	107.2	108.8	110.6	-5.1%
Total costs	M€ (2017)	1,014	973	865	893	866	1,000	927	931	921	941	950	-5.1%
Annual change	%	-	-4.1%	-11.1%	+3.3%	-3.0%	+12.0%	-7.3%	+0.3%	-1.0%	+2.1%	+1.0%	-5.1%
Total costs	M€ (2017)	1,014	973	865	893	866	1,000	927	931	921	941	950	-5.1%

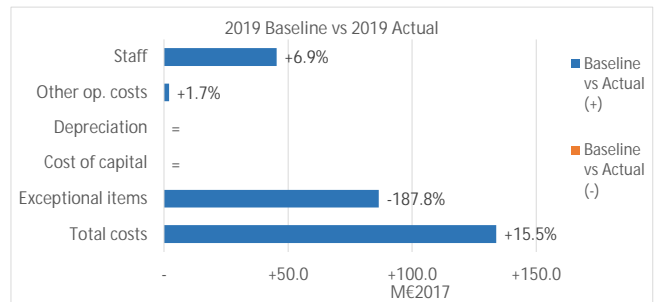
Exchange rate 2017	€:€
	1.00000

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
⚠ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	54.1	+5.2%
2019B vs 2019A	133.9	+15.5%



2014 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Change in the interest rate for the DFS pension scheme	ANSP	Staff	+45.5
#2 - Transfer of costs for tax compensation into MUAC cost base	ANSP	Other ops.	+5.7
#3 - Transfer of costs for HQ costs into MUAC cost base	ANSP	Other ops.	+2.9

2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Corporate action in RP2	ANSP	Excep. items	+86.5
#2 - Change in the interest rate for the DFS pension scheme	ANSP	Staff	+37.6
#3 - Integration of costs for tax compensation into MUAC cost base	ANSP	Staff	+7.8
#4 - Integration of HQ costs into MUAC cost base	ANSP	Other ops.	+2.0

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- The 2014 cost baseline has been adjusted for DFS in respect of pension costs and for MUAC in relation to the transfer of costs from the Eurocontrol budget to the MUAC budget (for tax compensation and agency support costs).
- The 2019 cost baseline contains similar adjustments, in addition to an adjustment for DFS reflecting the corporate action programme effect on the 2019 actual costs.

2014/2019 baseline analysis

The proposed en route cost baseline contains adjustments, which represent a significant increase compared to the actual costs recorded in those years (+5.2% for 2014 and +15.5% for 2019).

- DFS pension costs: The proposed adjustment to the DFS pension costs relates to increases that only materialise from 2020 onwards and should not be reflected in neither the 2014 nor the 2019 cost baseline. The adjustment is not related to a change of scope between reference periods, and it is only pertinent to RP3.
- MUAC adjustments: These adjustments correspond to new cost items that were previously covered by the Eurocontrol budget and that are being transferred to MUAC. The two adjustments on 2014 should however be corrected so as to avoid double counting the part for Germany that was included in the NSA costs (for 2019, there is no double counting, as Part I of the budget was not included in the NSA costs).
- DFS corporate action in RP2: The 2019 actual costs are artificially reduced by the State subsidies, and the baseline value for 2019 should be adjusted to remove this effect to allow a comparison between reference periods.

The DFS pension adjustment should be removed for both 2014 and 2019, and the MUAC adjustments should be slightly amended for 2014. This would reduce both the 2014 and the 2019 cost baseline. However, Germany would achieve the cost-efficiency trends without such adjustments.

4.3.3 Review of the RP3 determined costs and incentives



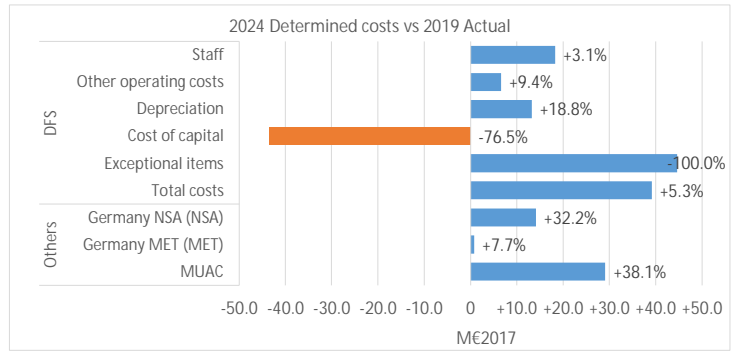
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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



The total costs of Germany are planned to increase by +9.6%, or 83.2M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is DFS (+5.3%, or +39.2M€2017 overall).

DFS (82% of Germany's en route cost base in 2024) shows in 2024 en route determined costs higher than the 2019 actual costs by +5.3%.

- This increase is entirely due to the effects of the corporate action programme (a negative amount of -86.5M€2017 which was recorded in the exceptional items in 2019). In fact, when removing the effects of the RP2 corporate action programme, the 2024 en route determined costs for DFS would actually end below the 2019 costs (by -5.8%).

- DFS does not charge a return on equity in the RP3 en route determined costs.

MUAC (11% of the en route cost base in 2024) shows a +38.1% cost increase between 2019 and 2024 mainly due to an increase in staff costs. The main reasons are: the indexation of remuneration, the integration of costs for tax compensation, the additional ab initio intake, and the "General Condition of Employment package" negotiated with ATCOs in 2018 aiming at providing increased capacity through increased ATCOs working time.

NSA costs (6% of the en route cost base in 2024) increase between 2019 and 2024 (+32.2%) in relation to both staff costs and Eurocontrol costs. MET costs (1% of the en route cost-base in 2024) show a +7.7% increase over RP3.

En route service units are forecasted to reach 2019 levels in 2024, while en route costs for the en route charging zone are planned to still be slightly below the 2019 actual level in 2024 (by -0.3%) after the removal of the effect of the RP2 corporate action programme on 2019 actuals.

4.3.4 PRB Key Points



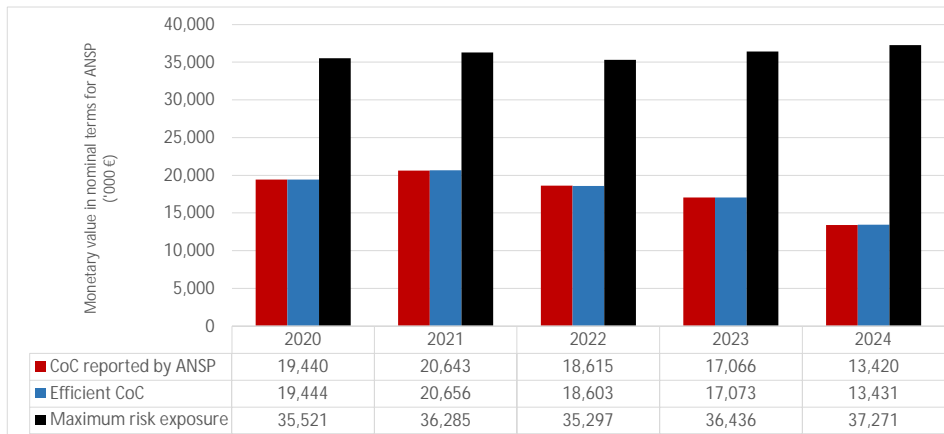
- Germany includes corrections to the cost baselines due to DFS pension costs, MUAC adjustments, and DFS corporate action. The DFS pension adjustment should not be included in the cost baseline.
- The costs over the period remain almost constant, despite a significant increase in MUAC costs.
- DFS is not charging return on equity over RP3.
- MUAC RP3 determined costs are expected to increase due to costs not fully related to capacity provision.

4.3.A Cost of capital

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	807,298	824,666	802,206	828,096	847,075
Monetary value of Return on Equity	0	0	0	0	0
Ratio RoE/DC (%)	0.0%	0.0%	0.0%	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	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debts	1.5%	1.5%	1.5%	1.5%	1.4%	1.4%	1.5%	1.5%	1.5%	1.5%
Capital structure (% debt)	67.6%	67.6%	72.7%	72.7%	61.4%	61.4%	59.4%	59.4%	49.5%	49.5%
WACC	1.0%	1.0%	1.1%	1.1%	0.9%	0.9%	0.9%	0.9%	0.7%	0.7%

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

- The interest on debts of DFS mainly results from the interest costs of the pension scheme and the general interest expense. The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate are duly justified and in line with competitive market practices.
- In the WACC reported in the performance plan, the Ministry of Transport imposed a return on equity of 0% over RP3 in order to reduce the increase of unit rates. The efficient WACC has been calculated based on option 2.
- The embedded return on equity reported in the performance plan is 0% over RP3. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	497,891	494,323	507,526	523,111	539,349
Net current assets	756,299	682,012	971,389	900,812	806,343
Adjustments total assets	663,389	718,340	612,628	556,378	501,495
Total asset base	1,917,579	1,894,676	2,091,544	1,980,301	1,847,188

- The fixed asset base is planned to increase over RP3, in line with the increase in investments described in section 3.5 of this document.
- The net current assets are planned to increase until 2022. Germany explains this increase by an increase in equity in 2021 and carry-overs.
- 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 planned assets of the pension scheme.
- The total asset base will be stable over RP3.

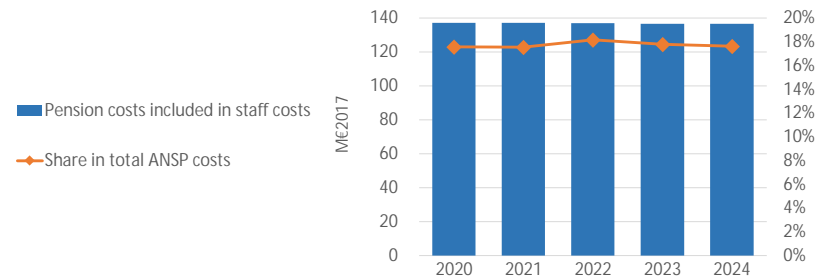
4.3.A.5 PRB Key Points

- The cost of capital does not present major issues over RP3.
- The German Ministry of Transport imposed a return on equity of 0% over RP3 to reduce the increase of unit rates.
- The net current assets seem excessive compared to the expected cash flow over RP3.

4.3.B Pensions

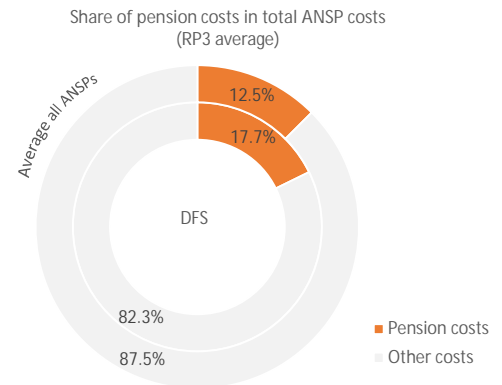
DFS - En route

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	137.1	137.1	136.9	136.5	136.6
Year on year variation	% change		+0.0%	-0.2%	-0.3%	+0.0%
Share in total ANSP costs	%	17.6%	17.5%	18.2%	17.8%	17.6%
Year on year variation	p.p.		0.0p.p.	0.6p.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 Union-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
--	-----

Following the change of the accounting system to IFRS, the IFRS conversion effects were spread over 15 years and reported under exceptional items up to 2021 included (some 43M€2017 per year for en route).

The pension costs included in staff costs and shown in the graph in 4.3.B.1 above relate to the defined benefit schemes only. The pension costs relating to the State pension scheme have not been identified separately in the en route reporting tables.

Additionally, the cost of capital includes some pension costs, as the asset base is adjusted to take account of the outstanding receivables from the conversion to IFRS, as well as the outstanding receivables for the difference between the obligation and planned assets of the pension scheme (plan deficit/plan surplus).

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

The contribution rate is planned at 18.6% in 2020 to 2022 and 18.7% in 2023 to 2024, split equally between employees and employers.

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
--	----

As reported in the performance plan, a so-called "imputed model" is used for computing the costs of occupational pension schemes. This model aims at calculating a predictable and stable unit rate as well as a complete funding of pension.

It is based as much as possible on the IFRS standard and other IFRS norms but deviates from IFRS on the following points:

- The interest rate in the future will no longer be oriented to an abstract IFRS interest rate but rather to the prospective, expected, return on assets that can be achieved in the long term for the reserves underlying the occupational pension scheme ("imputed unit rate");
- Deviations between the assumed and actual interest rate reached are checked after each reference period. Pension obligations and plan assets are evaluated and netted with the "imputed unit rate", taking into account the conversion costs from the changeover of the external reporting from HGB to IFRS;
- Any differences are charged to the airspace users over a 15 year period in a rolling fashion. The period corresponds to the average remaining service time of DFS staff according to IFRS.

For RP3 the interest rate was lowered from 3.54% (RP2) to 2.85%, as a result of the general development of interest rates on the market, which leads to higher costs in RP3. As the pension costs were not disclosed separately during RP2, the quantification of this increase is not provided.

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 associated with pension costs, DFS's employees that joined this pension scheme after 2005 receive a pension based on their average salary, rather than on their final one.

4.3.B.4 PRB Key Points

- DFS pension costs are significantly higher than the Union-wide average.
- The pension costs identified separately in the reporting tables as pension costs only cover some costs associated with the defined benefit scheme. The costs (contributions) associated with the State pension scheme are recorded in the staff costs but not in the amounts identified separately as pension costs. In addition, costs relating to pensions are also recorded as exceptional items (up to 2021, linked to the IFRS conversion) and as cost of capital (as the asset base is adjusted to take account of the outstanding receivables from the conversion to IFRS, as well as the outstanding receivables for the difference between the obligation and planned assets of the pension scheme).

4.3.C Methodology for cost allocation between ER and TRM

Germany

4.3.C.1 Cost allocation overview

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

- Germany did not mention changing the cost allocation with respect to RP2.
- The costs are allocated according to the cost object, type of cost by nature, and type of cost by service. The costs are divided into staff costs, other operating costs, project costs and depreciation, and then allocated to en route or terminal to the relevant cost units.
- Cost centres are the accounting object of recording credit transactions, personnel and depreciation. Costs are allocated to a specific cost centre based on the area in which they were incurred and the respective cost object in the ERP system.
- The basis is quantity driven and the actual costs of the previous year form the basis for the allocation of costs in the next year.

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

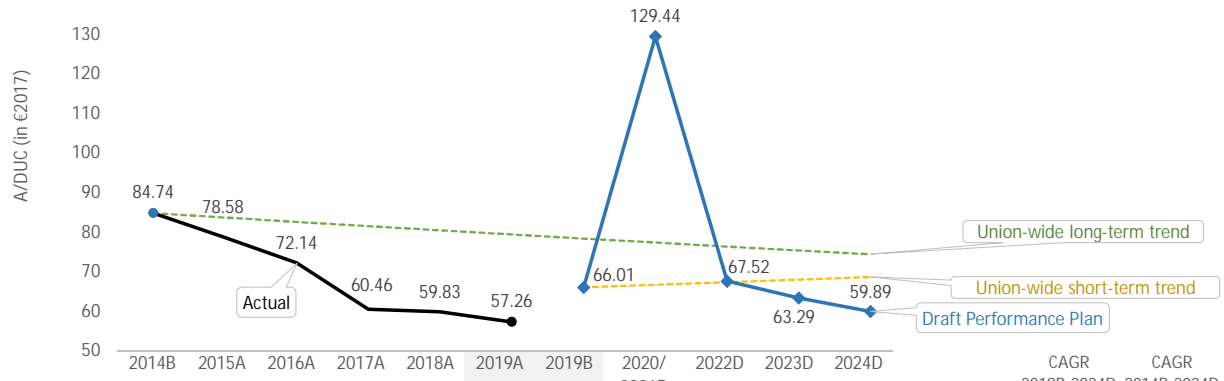
4.3.C.3 PRB Key Points ✓

- Germany did not mention changing the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

Germany - En route CZ

4.4.1 Overview and trends of the DUC



	€2017	2014B	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D
DUC		84.74	78.58	72.14	60.46	59.83	57.26	66.01	129.44	67.52	63.29	59.89
Annual Change	%		-7.3%	-8.2%	-16.2%	-1.0%	-4.3%	+10.3%	+96%	-47.8%	-6.3%	-5.4%
Union-wide target	%								+120%	-38.5%	-13.2%	-11.5%

	CAGR 2019B-2024D	CAGR 2014B-2024D
	-2.4%	-3.8%

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-2.4%	+1.0%	-3.4p.p.
Trend (CAGR 2014B-2024)	-3.8%	-1.3%	-2.5p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	66.01	58.33	+13.2%

- Germany adjusted the cost baselines, however some elements should not be included in the adjustments (4.3 of this document). Despite this, Germany would achieve the DUC trends also not including such adjustments.
- The DUC is planned to decrease on average by -2.4% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -3.8% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +13.2% higher than the average of the comparator group.
- Germany presents justifications for a deviation to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

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

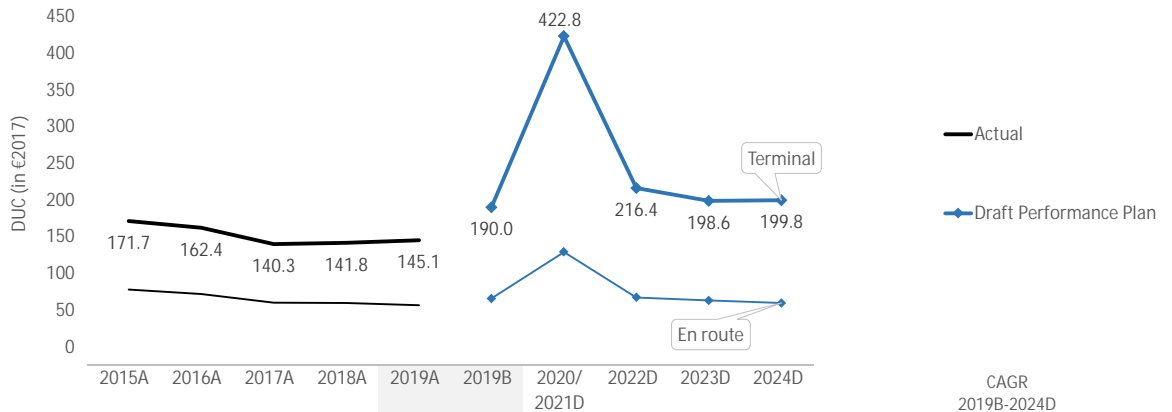
4.4.5 PRB Key Points ✓

- Germany is consistent with the RP3 DUC trend in terms of average reduction.
- Germany is consistent with the DUC long-term Union-wide trend.
- Germany is not consistent with the average DUC baseline of the comparator group.
- Germany presents justifications for a deviation to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

4.5 Terminal

Germany

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal	€2017	171.7	162.4	140.3	141.8	145.1	190.0	422.8	216.4	198.6	199.8	+1.3%
Annual Change	%		-5.4%	-13.6%	+1.1%	+2.3%	+33.9%	+123%	-48.8%	-8.2%	+0.6%	
DUC - En route	€2017	78.6	72.1	60.5	59.8	57.3	66.0	129.4	67.5	63.3	59.9	-2.4%
Annual Change	%		-8.2%	-16.2%	-1.0%	-4.3%	+10.3%	+96%	-47.8%	-6.3%	-5.4%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Berlin Brandenburg (formely Berlin)	GROUP III	166.6	-	-	234.2	259.4	+10.7%
Frankfurt (EDDF)	GROUP I	137.7	75.6	-44.1%	177.4	131.2	-24.1%
Hamburg (EDDH)	GROUP III	166.6	163.7	-1.7%	234.2	317.0	+35.3%
Cologne-Bonn (EDDK)	GROUP III	166.6	162.0	-2.7%	234.2	229.8	-1.9%
Dusseldorf (EDDL)	GROUP III	166.6	129.8	-21.1%	234.2	249.8	+6.7%
Munich (EDDM)	GROUP I	137.7	82.5	-40.1%	177.4	182.1	+2.6%
Stuttgart (EDDS)	GROUP III	166.6	199.2	+19.6%	234.2	348.9	+49.0%
Berlin/ Tegel (EDDT)	GROUP III	166.6	130.8	-21.5%	234.2	-	-
Dresden (EDDC)	GROUP IV	680.0	771.2	+13.4%	994.4	1127.4	+13.4%
Erfurt (EDDE)	GROUP IV	680.0	3403.5	+400.5%	994.4	7485.1	+652.7%
Muenster-Osnabrueck (EDDG)	GROUP IV	680.0	1187.7	+74.7%	994.4	1695.4	+70.3%
Nuremberg (EDDN)	GROUP IV	680.0	449.7	-33.9%	994.4	590.2	-40.7%
Leipzig-Halle (EDDP)	GROUP IV	680.0	197.3	-71.0%	994.4	194.0	-80.5%
Saarbruecken (EDDR)	GROUP IV	680.0	2127.0	+212.8%	994.4	3608.1	+262.8%
Hanover (EDDV)	GROUP IV	680.0	325.0	-52.2%	994.4	473.6	-52.4%
Bremen (EDDW)	GROUP IV	680.0	469.0	-31.0%	994.4	746.0	-24.0%

* 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 terminal charging zone of Germany includes 16 airports in RP3, two of which being in Group I.
- The DUC evolution for Germany TCZ is following a similar pattern than for en route but the traffic downturn due to the COVID-19 pandemic was more marked in terminal with a slower short-term recovery.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
2019 Traffic Baseline Adjustments	TCZ1	No	

Costs

Cost Baseline analysis		Δ M€2017	%	
2019B vs 2019A	TCZ1	67.0	+30.9%	
2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	M€2017
#1 - Change in the interest rate for the DFS pension scheme	TCZ1	ANSP	Staff	+11.7
#2 - Corporate action in RP2	TCZ1	ANSP	Excep. items	+55.2

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

The 2019 cost baseline has been adjusted for DFS in respect of pension costs and the corporate action programme (as for en route).

2019 baseline analysis

The proposed terminal 2019 cost baseline contains adjustments, which represent a significant increase compared to the 2019 actual costs (+30.9%). As is the case for en route, the proposed adjustment to the DFS pension costs should not be reflected in the 2019 cost baseline, whereas the adjustment relating to the DFS corporate action in RP2 should be reflected in the cost baseline for 2019.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Review of the PP traffic forecast

The selected forecast underlying the proposed cost-efficiency targets for RP3 is in line with STATFOR October 2021 base forecast, as is the case for the en route forecast.

Determined costs (terminal)

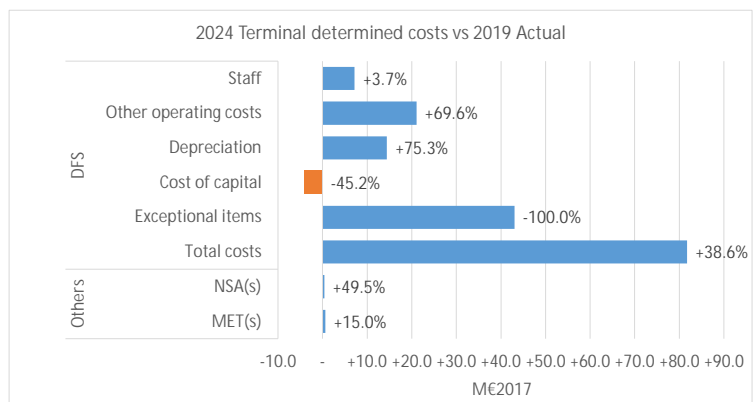
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1 p.p. in 2024

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	4.40%
Financial advantages/disadvantages from incentive scheme	
Maximum bonus (% of determined costs)	1.00%
Maximum penalty (% of determined costs)	1.00%
Additional incentives?	No



- The share of terminal investment costs (28%) is higher than the share of terminal total costs (23%).
- The terminal WACC and its parameters slightly differ from the ones for en route. Moreover, the capital structure appears to be different between en route and terminal despite the entity providing the services is the same. However, also for terminal no return on equity is planned for RP3.
- When removing the effects of the DFS corporate management programme in 2019, the 2024 determined costs for the terminal charging zone would be +10.1% higher than the actual amounts recorded for 2019. This is mainly due to increases in other operating costs, first in 2020 (by +37.6%) for which explanations are not provided in the performance plan, and further in 2023 and 2024, due to the implementation costs of the drone detection system project.
- Terminal service units are forecast to reach 2019 levels only in 2024, while terminal costs are already reaching the actual 2019 level in 2020.

4.5.4 PRB Key Points ✖

- The terminal RP3 DUC trend is +1.3%, which is worse than the en route RP3 DUC trend of -2.4%.
- The terminal RP3 DUC trend is +1.3%, which is worse than the terminal RP2 DUC trend of -4.1%.
- Frankfurt and Munich, the main airports, had a DUC lower than the median of their comparator group over RP2 (-45.1% and -40.1%). The difference is expected to be -26.1% and +2.6% over RP3. Erfurt and Saarbruecken airports will have a DUC significantly higher than the average of their comparator groups over RP3.
- Germany used the STATFOR October 2021 base forecast for terminal traffic, as for en route.

PRB Assessment

LUXEMBOURG

Draft Performance Plan

Context and scope

Luxembourg

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
Updated: 19/11/2021
Documents no: F4750, F4751, F4681, F4727, F4530, F4531, F4733, F4752

Relative weight compared to the SES area (2019):

% Flight-hours vs SES n/a
% Serv. Units vs SES n/a
% Costs vs SES n/a

Scope

FAB: FABEC

ANSPs: ANA LUX
MUAC

Other entities (as per Article 1(2) last para. of Regulation 2019/317): Luxembourg Civil Aviation Authority
Eurocontrol

ATM, MET
ATM

Competent authority
NM, CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges
En route (ER)	n/a	n/a	n/a	n/a	n/a
Terminal (TRM)	Luxembourg - TCZ	1	No	No	Yes
Changes in the CZs from RP2		Yes	Luxembourg changed some of the allocation keys (see details in section 4.3.C of this document).		

Comparator group: n/a Other States in the comparator group: n/a

Currency: € Exchange rate: 1.00000

1. Safety ✓

Safety PP targets

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

PRB assessment

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

- The EoS safety targets are consistent with the Union-wide performance targets.
- Some relevant measures are described, however, insufficiently to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

2. Environment n/a

3. Capacity ✓

Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.12	0.12	0.05	0.05	0.05

PRB assessment

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

- The incentive scheme defined by the performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency n/a

5. PRB recommendations

SAFETY

- Luxembourg should provide specific ANSP derived measures to demonstrate how ANSP will improve in all five management objectives over RP3.

CAPACITY

- Luxembourg should revise the incentive scheme so that it has a material impact on the revenues.

LUXEMBOURG

Safety KPA

1.1 Summary of safety key data and assessment results

Luxembourg

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 RP3 Union-wide safety targets, are planned to be attained in 2023.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes the measures established at ANSP, CAA and FABEC level. Considering the current safety levels, the measures are considered relevant but insufficient to improve and further ensure the required safety levels over RP3. Specific ANSP derived measures should be described demonstrating how ANSP will improve in all five management objectives over RP3.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the FABEC approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

The change management practices are defined and supported by the NSA. Considering the level of details provided in the performance plan, these practices, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient to control impacts on safety.

1.1.5 PRB conclusions



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

- The EoSM safety targets are consistent with the Union-wide performance targets.
- Some relevant measures are described, however, insufficiently to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.
- Luxembourg should provide specific ANSP derived measures to demonstrate how ANSP will improve in all five management objectives over RP3.

1.2 Targets for EoSM for ANSPs and Measures

Luxembourg

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
ANA	Safety policy and objectives	B	B	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	D	✓	
	Safety assurance	B	B	B	B	C	C	✓	
	Safety promotion	B	B	C	C	C	C	✓	
	Safety culture	B	B	B	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 2023. Luxembourg has to improve all five management objectives over RP3.

The performance plan describes the specific measures applied at the level of the ANSP, the CAA and the FABEC.

At ANSP level, the measures are planned to be implemented in the following areas:

- Establishment of a yearly rehearsal and update of all emergency procedures;
- Modernisation of ANSP's occurrence investigation processes.

At the level of the Competent Authority, the measures derived from compliance with Commission Implementing Regulation (EU) 2017/373, applicable to EoSM improvements are regularly reviewed and verified.

Furthermore, FABEC Authorities established a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to review the FABEC ANSPs' performance and to jointly determine if specific actions are necessary. Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach for all seven FABEC ANSPs.

Considering the current safety levels, the ANSP' measures are considered relevant but insufficient to improve and further ensure the required safety levels over RP3.

Specific ANSP derived measures should be described demonstrating how ANSP will improve in all five management objectives over RP3.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan confirms that changes will be required to achieve targets for other KPAs and that improvements under the safety KPA may affect other KPAs. The performance plan underlines that safety remains the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The impact of changes to the ATM functional system, including changes to the system needed to improve other KPAs, is assessed by the ANSPs through safety procedures compliant with Commission Implementing Regulation (EU) 2017/373, which ensures that safety levels are not compromised. Changes are also presented for approval by the Competent Authority to ensure that there are no unacceptable safety implications.

FABEC ANSPs have defined additional (K)PIs to monitor their performance (on all KPAs) in addition to those specified by Commission Implementing Regulation (EU) 2019/317. Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (safety, security, quality, environment). Indicators, issues and possible trade-offs are discussed, explained and addressed by board members under the leadership of the ANSPs' management. The approach provides confidence that the changes introduced to reach targets on other KPAs will not deteriorate safety levels.

1.3.2 Change Management Practices

ANA's change management practice is fully integrated into Project Management System and driven by a number of safety, cost-efficiency, environment and capacity indicators. Change management process considers the impact of the change on the operational systems, airspace users and partner organizations. Moreover, the process is regularly reviewed in a proactive manner by NSA.

LUXEMBOURG

Capacity KPA

3.1 Summary of capacity key data and assessment results

Luxembourg

3.1.1	En route ATFM delay	n/a
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3.1.2	Arrival ATFM Delay	
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Luxembourg is the only airport included in the performance plan. National targets are set lower than in RP2, and also represent an improvement compared to the average past performance in RP2.

The performance of Luxembourg airport is expected to be slightly worse than that of the group of similar airports, despite the planned improvements in the targets.

The performance plan includes capacity enhancement measures targeted at airport capacity.

3.1.3	Incentives	
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En route: not applicable

Terminal:

Luxembourg has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation is past performance, and the indicated pivot values are equal to the all-cause national targets.

Maximum penalty and bonus is set at 0.25%. The performance plan claims that the ANSP will waive any bonuses resulting from the incentive scheme as long as the amount of service units recovers to 2019 levels at the airport.

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	
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For en route capacity related information, please see the factbook of Belgium.

No investments are linked to PCP/CP1 ATM Functionalities.

Other investments related to communications, navigation and surveillance infrastructure contribute to resilience, scalability, and flexibility.

3.1.5	PRB conclusions	
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The PRB concludes that the capacity targets proposed by Luxembourg should be approved.

- The incentive scheme defined by the performance plan does not have a material impact on the revenue at risk.

- Luxembourg should revise the incentive scheme so that it has a material impact on the revenues.

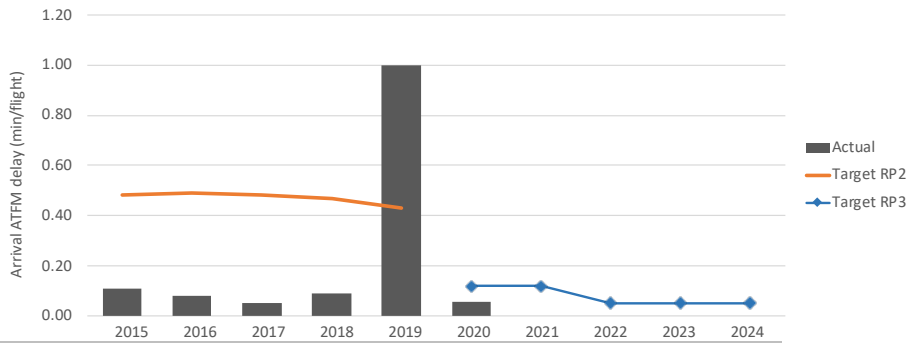
3.2 En route ATFM delay per flight (not applicable)

Luxembourg - ANA LUX

3.3. Arrival ATFM delay per flight

Luxembourg

3.3.1 Overview of arrival ATFM delay per flight



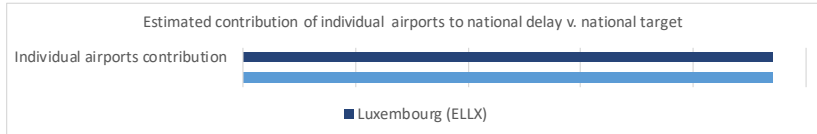
	Target (RP2/RP3)		Actual				
	RP2	RP3	2015	2016	2017	2018	2019
National level	0.11	0.08	0.48	0.49	0.48	0.47	0.43
Luxembourg (ELLX)	0.11	0.08	0.11	0.08	0.05	0.09	1.00

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

The proposed target for Luxembourg in 2022-2024 is constant and equal to 0.05 minutes per arrival, which is lower than the observed past delays during RP2 (0.28 minutes per arrival in average, driven by much higher delays in 2019). The terminal traffic forecast uses the STATFOR October 2021 base forecast that estimates a CAGR for 2019-2024 of 0.2%. Improvement in the layout at the airport, the taxi plan and follow-me services, together with APP director position with new associated sector are the measures that will be contributing to the national targets and European performance.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Luxembourg (ELLX)	0.07
National Target	0.07



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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Luxembourg (ELLX)	GROUP IV	0.00	0.28	+0.28	0.07	+0.21

* 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 was 0.28 minutes per arrival worse than the median of similar airports, that was zero. The target set for RP3 represents a significant improvement although still slightly worse performance than the observed during RP2 at similar airports.

3.3.5 PRB Key Points

- Luxembourg is the only airport included in the performance plan. National targets are set lower than in RP2, and also represent an improvement compared to the average past performance in RP2.
- The performance of Luxembourg airport is expected to be slightly worse than that of the group of similar airports, despite the planned improvements in the targets.
- The performance plan includes capacity enhancement measures targeted at airport capacity.

3.4 Capacity Incentive schemes

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%
	✔	⚠

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
Performance Plan targets			0.05	0.05	0.05
Pivot values for RP3			0.05	0.05	0.05

Threshold and pivot value 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. The pivot value is modulated to cover only CRSTMP causes, but is equal to the national target and represents no improvement with respect to observed performance in all RP2 years except 2019, when delays were higher.

Modulation review

Luxembourg has chosen to modulate the pivot values according to CRSTMP causes. The performance plan mentions that the chosen pivot value (0.05 minutes per arrival) has been calculated to be as close to present values as possible taking into account the evolution of the airport during RP. Nevertheless, this modulated pivot value coincides with the national targets, which means that 100% of the delays would be attributable to CRSTMP reasons when the actual CRSTMP share observed during RP2 was 19.7%. According to the past share and the national targets, these CRSTMP pivot values would be 0.06 minutes per arrival, which were the reported CRSTMP delays in the period 2015-2019.

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 does not seem to incentivise to improve or maintain the current performance.

Luxembourg states in the FABEC performance plan that during the COVID-19 crisis (as long as traffic in terms of service units stay below the level of 2019) ANA will waive any bonus which would result from the application of the incentive scheme.

3.4.3 Additional capacity incentive schemes n/a

3.4.4 PRB Key Points ⚠

En route: not applicable

Terminal:

- Luxembourg has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation is past performance, and the indicated pivot values are equal to the all-cause national targets.
- Maximum penalty and bonus is set at 0.25%. The performance plan claims that the ANSP will waive any bonuses resulting from the incentive scheme as long as the amount of service units recovers to 2019 levels at the airport.
- 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 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	2.1	2.4	3.5	3.5	3.6	15.1
En route	M€ (nominal)	0.6	0.7	1.0	1.1	1.0	4.5
Terminal	M€ (nominal)	1.5	1.7	2.5	2.5	2.5	10.6

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 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	TRM
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.	1.1	No	Yes	2.7	
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.	1.6	No	No	1.2	
3	Navigation systems: ILS/DME24	Implementation of a new Instrument Landing System (ILS) and distance metering equipment (DME) at RW24	0.5	No	No	0.2	
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;	2.6	No	No	0.3	
5	Radar / SUR: Mode S interrogator (TAR3)	TAR3 project is meant to overcome the increasing height and number of new windmills, the performance requirements for surveillance data (ESASSP reporting), the lack of detection at low levels of VFR flights in certain part of the TMA, the missing redundancy for TAR2 without TAR1, ATC project to go for 3 NM separation, the Continuity of Service requirements and the planning of new buildings at airport and its surroundings creating reflexion and shadowing of aircraft trajectories for arrival and departing.	3.0	No	No	0.4	
6	Radar / SUR: Surveillance chain evolution	ATC requested for a surveillance chain evolution in order to handle Mode S conspicuity code assignment (APP), make use the tool allowing flexible use of airspace (APP), go additional CWP customization (APP & TWR), enable Director sector for 3rd APP position (APP), to enable P BN management by FDP, enable TWR sector giving TWR the opportunity to request dedicated changes specially in VFR handling (TWR) and enable dedicated layout for DCL HMI at TWR (technically DCL is installed and ready to be used)	1.9	No	No	0.4	
7	Navigation systems: DVOR/DME DIK, DVOR/DME LUX	Renewing of DVOR/DME DIK (used for enroute) and the DVOR/DME LUX (used as backup for PBN)	1.3	No	No	0.1	
Total:						5.3	

Airspace user feedback regarding major investments

n/a

Review of investments

Luxembourg did not plan any new major investments as per the Regulation (value of the asset > 5M€). However, Luxembourg detailed the largest investments in the format of new major investments.

Luxembourg does not provide a breakdown of the cost allocation of the investments between en route and terminal in the performance plan. The determined costs of investment #1 exceed its total value as an asset over RP3.

New major investments represent 35% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 5% higher than the planned and the amount overspent was 0.9M€. In terms of depreciation and cost of capital, the actual costs of investments were 0.4M€ higher than determined.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Radar / SUR: A-SMGCS Level 2 and updates	None	Safety, Capacity	Use of A-SMGCS as a ground movement control system (Acft / vehicles) for safe airport OPS. Consultation and user support ensured.
2	Communication systems: VCS/VCR, emergency radio; ADD and AMHS	None	Safety	Continuity of voice communication service through a reliable system. The implementation of a voice recording system in ATC is a requirement (AET and DAC recommendation). TWR ADD replacement and upgrade to display relevant ATC info. User consultation planned during local AUC meeting.
3	Navigation systems: ILS/DME24	None	Safety, Cost-efficiency	Continuity of service and through replacement of existing systems after life-cycle. User consultation planned during local AUC meeting.
4	Aeronautical Systems: AIS/AIM, eTOD and MET	None	None	Availability of flight safety relevant terrain & obstacle data to ensure obstacle clearance in LU airspace and aerodrome. Digital aeronautical data handling.
5	Radar / SUR: Mode S interrogator (TAR3)	None	None	It has been presented to the users, but as the investments are carried by the state as it was done in the past, there was no reaction from the side of the users.
6	Radar / SUR: Surveillance chain evolution	None	None	It has been presented to the users, but as the investments are carried by the state as it was done in the past, there was no reaction from the side of the users.
7	Navigation systems: DVOR/DME DIK, DVOR/DME LUX	None	Safety	It has been presented to the users, but as the investments are carried by the state as it was done in the past, there was no reaction from the side of the users.

Additional information

Radar/SUR: A-SMGCS Level 2 and updates: New ATM system for ground surveillance and control. ATM Master Plan links: ESSIP: ESSIP AOP04.1, AOP04.2 (A-SMGCS); ENV01, ATM Masterplan.

Communication systems: VCS/VCR, emergency radio; ADD and AMHS: ATM system for basic VCS, data display and flight data and message handling. Replacement of VCS and installation of a new VCR, replacement of ADD and overhaul of AMHS. Basic VCS system compliant with ESSIP ITY-AGVCS objective for air-ground communication; availability of a stable emergency VCS; and ATC information (compliance with ICAO standards and EUROCONTROL recommendations).

Navigation systems: ILS/DME24: ATM system for basic navigation and landing system. Availability of navigation systems for all aircraft type.

Aeronautical Systems: AIS/AIM, eTOD and MET: ATM system for basic aeronautical data and information for ANS. Implementation of new digitalised AIS/AIM management and work-flow management and NOTAM system. Implementation of new eTOD management system. Replacement of RWY Visual Range (RVR) sensors for MET. ESSIP: INF07 (eTOD) and ITY-ADQ (Aeronautical Data Quality) compliance; compliance with ICAO requirements. Initial implementation steps in line with SESAR ATM MP to create a SWIM enabled aeronautical environment.

Radar/SUR: Mode S interrogator (TAR3): ATM system for basic surveillance. This system is not part of ATM MP nor PCP as it is an additional redundancy that Luxembourg wants to include on its territory.

Radar/SUR: Surveillance chain evolution: ATM system for basic surveillance and control. Overhaul of existing system and implementation of additional functionalities of the actual surveillance chain. ATC02.8 ITY-SPI, ITY-ACID, ATC02.9.

Navigation systems: DVOR/DME DIK, DVOR/DME LUX: ATM system for basic navigation for approach and en route. MON PBN Transition 3.7.

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 RP3 (M€)
Other new investments	16.2	6.2	0.1	0.3	0.5	0.6	0.7	2.1
Existing investments			1.9	1.7	1.5	1.3	1.2	7.6

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls? ✔

En route delay is not applicable to Luxembourg.

A-SMGCS Level 2 implementation may yield capacity benefits at Luxembourg airport. Several investments are being made to improve and upgrade the communication, navigation and surveillance infrastructure contributing to resilience, scalability, and flexibility at the TMA/airport level.

No investments are linked to PCP/CP1 ATM Functionalities, although A-SMGCS Level 2 investment could possibly be linked to AF2.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? ✔

A-SMGCS Level 2 implementation is expected to improve airport throughput under low visibility conditions.

c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? n/a

Not applicable.

3.5.4 PRB Key Points ①

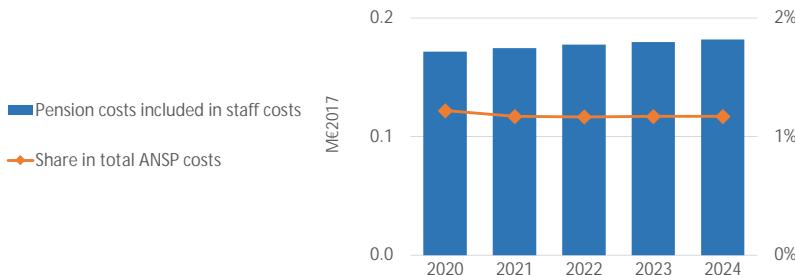
- The total determined costs of investment #1 (Radar / SUR: A-SMGCS Level 2 and updates) exceed its value as an asset over RP3.
- For en route capacity related information, please see the factbook of Belgium.
- No investments are linked to PCP/CP1 ATM Functionalities.
- Other investments related to communications, navigation and surveillance infrastructure contribute to resilience, scalability and flexibility.

LUXEMBOURG

Cost-efficiency KPA

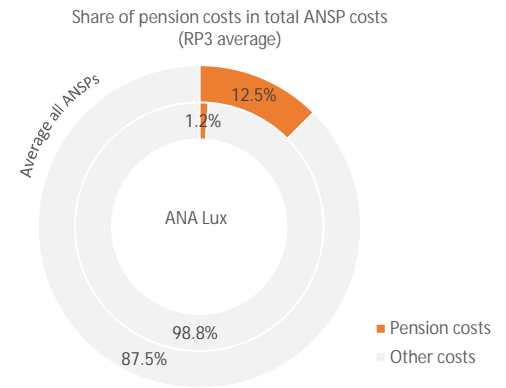
4.3.B Pensions

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	0.2	0.2	0.2	0.2	0.2
Year on year variation	% change		+1.7%	+1.8%	+1.2%	+1.2%
Share in total ANSP costs	%	1.2%	1.2%	1.2%	1.2%	1.2%
Year on year variation	p.p.		-0.1p.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 Union-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**

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

The pension costs depend on the status of the staff. There are two categories "public servant" and "salaried employees". For a "public servant" there is no employer's contribution, whereby for a "salaried employee", the employer's contribution is 8%.

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? **n/a**

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

No actions have been reported in the performance plan. ANA Lux indicates that regarding the employer's contribution there are no changes expected in RP3.

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C Methodology for cost allocation between ER and TRM

Luxembourg

4.3.C.1 Cost allocation overview

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

- Luxembourg changed some of the allocation keys, however the methodology and criteria remain similar to RP2. The changes in allocation keys are based on the actual allocation applicable for RP2 and reflect changes in the services provided and cost centres.
- Within the controlled airspace of Luxembourg, a limit of 20km 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 Lux.
- For the "APP ATCO's", services provided outside of the 20km cylinder represent an important part of their workload.

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

Luxembourg changed some of the allocation keys. The revised allocation keys are based on the actual allocation keys applicable for RP2, and reflect changes in the services provided and cost centres. Part of the staff and operational costs of AIS and MET services are carried by other authorities in Luxembourg. These costs are excluded of the cost base for ANSP services and therefore not charged to the airspace users.

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

Partially

If, not what are the identified issues?

The performance plan indicates that the changes of allocation keys impact several cost categories: staff costs, other operating costs, depreciation, and cost of capital. However, the justification provided for each cost category is the same.

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 allocation keys result in an increase of 0.7M€ of the terminal 2019 baseline costs. However, no change is reflected in the Belgium-Luxembourg en route baseline cost.

4.3.C.3 PRB Key Points

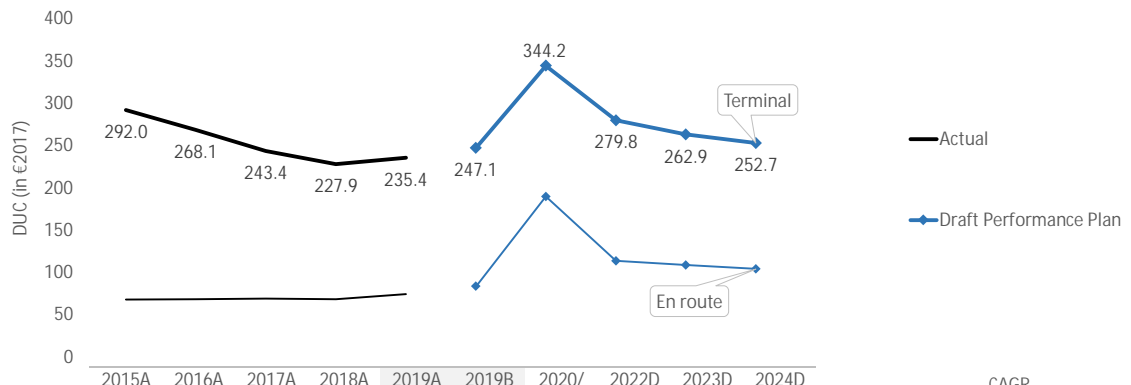


- Luxembourg changed some of the allocation keys.
- The changes in the allocation keys result in an increase of 0.7M€ of the terminal 2019 baseline costs. However, there is an inconsistency with the Belgium-Luxembourg en route cost baseline, which does not reflect any change.

4.5 Terminal

Luxembourg

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal		292.0	268.1	243.4	227.9	235.4	247.1	344.2	279.8	262.9	252.7	+0.6%
Annual Change	%		-8.2%	-9.2%	-6.4%	+3.3%	+8.4%	+39%	-18.7%	-6.0%	-3.9%	
DUC - En route*		67.6	67.8	68.8	68.1	73.9	83.3	189.5	113.3	108.5	103.8	+5.7%
Annual Change	%		+0.2%	+1.5%	-1.0%	+8.6%	+22.3%	+128%	-40.2%	-4.2%	-4.3%	

* Luxembourg is included in Belgium/Luxembourg en-route charging zone

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Luxembourg (ELLX)	GROUP IV	680.0	252.4	-62.9%	994.4	281.4	-71.7%

* 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 average unit cost for Luxembourg (ELLX) was significantly lower than the median of its comparator group during RP2 (-62.9%) and the difference with respect to the median of the comparator group stays even lower during RP3 (-71.7%).

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%

2019 Traffic Baseline Adjustments	TCZ1	No
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Costs

Cost Baseline analysis		Δ M€2017	%
2019B vs 2019A	TCZ1	0.65	+4.9%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	M€2017
#1 - Change of allocation keys - effect on staff costs	TCZ1	ANSP	Staff	+0.685
#2 - Change of allocation keys - effect on other operating costs	TCZ1	ANSP	Other ops.	+0.002
#3 - Change of allocation keys - effect on depreciation costs	TCZ1	ANSP	Depreciation	-0.024
#4 - Change of allocation keys - effect on cost of capital	TCZ1	ANSP	Cost of cap.	-0.009

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

The 2019 cost baseline has been adjusted for ANA Lux due to a change in the allocation keys. The new ones "are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres. Part of the staff and operational costs of AIS and MET services are carried by other authorities in Luxembourg. These costs are excluded of the cost base for ANSP services and therefore not charged to the users."

2019 baseline analysis

From the description above provided in the performance plan, the adjustment in 2019 baseline should be a negative amount and reduce the baseline costs, since it indicates that some costs are now excluded from the cost base charge to airspace users. Therefore the adjustment should be corrected or further explanations provided.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	Yes
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Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

The terminal traffic forecast presented in the performance plan of Luxembourg is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

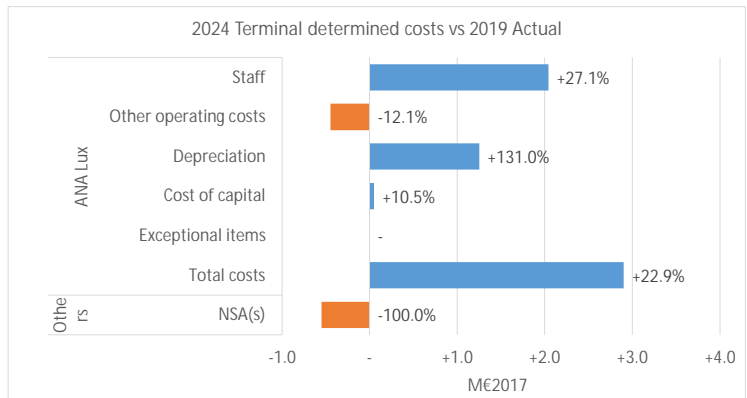
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

Cost elements - ANA Lux (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	4.40%
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 equivalent to the ones reported in the en route Belgium-Luxembourg charging zone, for the entire reference period.
- The terminal DUC trend over RP3 planned for Luxembourg TCZ (+0.6% p.a.) is higher than the one planned for en route Belgium-Luxembourg CZ (+5.7% p.a.).
- For ANA Lux, total costs in 2024 are planned to be above the 2019 actuals (+22.9%, or +2.9M€2017). The main driver is the staff costs, which are +27.1%, or 2.0M€2017 higher in 2024 and the depreciation costs (+131.0%, 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) is a clear increase driver;
 - Additional staff in ATC: third position in TWR and APP, anticipation of retirements of ATCOs (to increase capacity);
 - On the other side, the additional staff in AIS and CNS initially agreed upon for RP3, due to the pandemic, has been renounced to ANA Lux.
 - Regarding the depreciation costs, these are justified by: (i) the historical cost accounting method is used, with a linear depreciation, (ii) significant amount of ongoing projects to be operational during RP3 (>13M€), and (iii) new investment/projects amounting to 27M€ planned for RP3. "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."
 - The total terminal service units are forecasted to reach the 2019 value by 2023, according to the selected STATFOR October 2021 base forecast. On the contrary, terminal determined costs exceeded the 2019 actual amount already in 2020.

4.5.4 PRB Key Points ✗

- The terminal RP3 DUC trend is +0.6%, which is better than the en route RP3 DUC trend of +5.7%. The en route charging zone mentioned in this analysis is the Belgium-Luxembourg en route charging zone.
- The terminal RP3 DUC trend is +0.6%, which is worse than the terminal RP2 DUC trend of -5.2%.
- Luxembourg, the only airport included in the performance plan, had a DUC -62.9% lower than the average of its comparator group over RP2. The difference is expected to be -71.7% over RP3.
- Luxembourg used the STATFOR October 2021 base forecast for terminal traffic.
- 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 (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
 Updated: 17/11/2021
 Documents no: F4750, F4751, F4670, F4671, F4681, F4727, F4738, F4739, F4672, F4673, F4740, F4741, F4675, F4676, F4677, F4678, F4733, F4742, F4743, F4674, F4752

Relative weight compared to the SES area (2019):

% Flight-hours v. SES n/a
 % Serv. Units v. SES n/a
 % Costs v. SES n/a

Scope

FAB: FABEC

ANSPs: MUAC

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

ATM

-

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges
En route (ER)	n/a	n/a	n/a	n/a	n/a
Terminal (TRM)	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 PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
MUAC	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 MUAC should be approved.

- The EoS safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

2. Environment n/a

3. Capacity ✓

Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.95	0.13	0.19	0.19	0.19
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 MUAC should be approved.

- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, and the proposed capacity enhancement measures.
- 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

5. PRB recommendations

CAPACITY

- MUAC should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.
- MUAC should revise the incentive scheme so that it has a material impact on the revenues.

MUAC

Safety KPA

1.1 Summary of safety key data and assessment results

MUAC

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of RP3. The EoSM targets are set in accordance with the RP3 Union-wide safety targets. MUAC attained the target levels for all five safety management objectives in 2020.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes the measures established at ANSP, CAA and FABEC level. Considering the current safety levels, the measures are considered relevant and sufficient to maintain the required safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the FABEC approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

The change management practices are defined by MUAC. Considering the level of details provided in the performance plan, these practices, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient to control impacts on safety.

1.1.5 PRB conclusions



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

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
MUAC	Safety policy and objectives	C	C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	D	D	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3. The EoSM targets levels are set in accordance with the RP3 Union-wide safety targets. MUAC attained the target levels for all five safety management objectives in 2020.

The performance plan describes the specific measures applied at the level of the ANSP, the CAA and the FABEC.

At ANSP level, the following measures are planned to be implemented:

- Improving traceability between safety requirements;
- Creating an overall MUAC dashboard to steer the KPIs, including the safety aspect;
- Providing input to the FABEC working groups (SRAP and SPM).

At the level of the Competent Authority, the measures derived from compliance with Commission Implementing Regulation (EU) 2017/373, applicable to EoSM improvements are regularly reviewed and verified.

Furthermore, FABEC Authorities established a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to review the FABEC ANSPs' performance and to jointly determine if specific actions are necessary. Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach for all seven FABEC ANSPs.

Considering the current safety levels, the measures are considered relevant and sufficient to maintain the required safety levels over RP3.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan confirms that changes will be required to achieve targets for other KPAs and that improvements under the safety KPA may affect other KPAs. The performance plan underlines that safety remains the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The impact of changes to the ATM functional system, including changes to the system needed to improve other KPAs, is assessed by the ANSPs through safety procedures compliant with Commission Implementing Regulation (EU) 2017/373, which ensures that safety levels are not compromised. Changes are also presented for approval by the Competent Authority to ensure that there are no unacceptable safety implications.

FABEC ANSPs have defined additional (K)PIs to monitor their performance (on all KPAs) in addition to those specified by Commission Implementing Regulation (EU) 2019/317. Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (safety, security, quality, environment). Indicators, issues and possible trade-offs are discussed, explained and addressed by board members under the leadership of the ANSPs' management. The approach provides confidence that the changes introduced to reach targets on other KPAs will not deteriorate safety levels.

1.3.2 Change Management Practices

The change management procedure, applied by MUAC, is tailored depending on size, risk and/or exposure of the change into the ATM functional system. In case that a change would risk a negative impact on the network, the aim is to minimise the impact on Network Performance.

The procedure described, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient to control impacts on safety.

MUAC

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

ANSP breakdown values are consistent with the ANSP reference values and are higher than the scenario 1 delay forecast in 2022 and 2023 and fall within the range of the delay forecast in 2024.

Capacity plans indicate that MUAC will have a capacity surplus in 2022 and 2024 and may face a minor capacity gap of 1% in 2024.

There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs and the proposed capacity enhancement measures.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

3.1.3 Incentives

En route:

MUAC has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.

In addition to the ANSP level incentive scheme, a FAB-level incentive scheme also applies.

Maximum bonus and penalty is set at 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

There is a capacity surplus expected in Maastricht UAC in 2022, which is reduced to a capacity shortfall by 2024.

There are no capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities. Investments possibly directly contributing to capacity will not be implemented until 2029.

Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

3.1.5 PRB conclusions



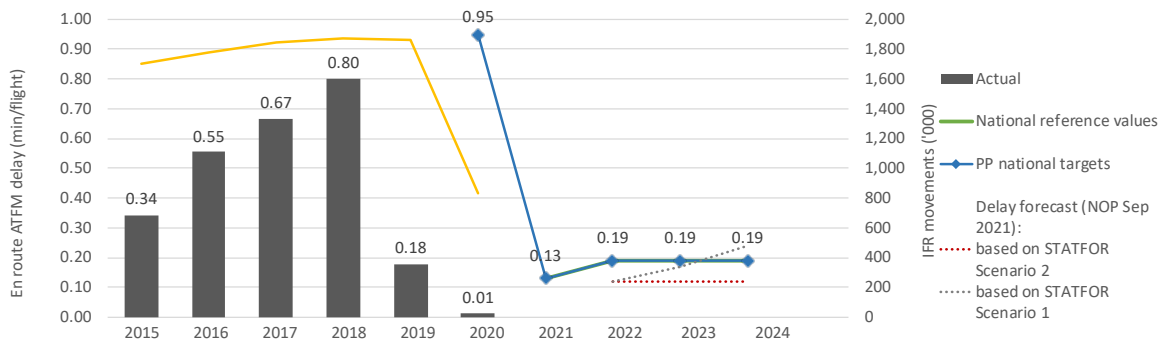
The PRB concludes, that the capacity breakdown values proposed by MUAC should be approved.

- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, and the proposed capacity enhancement measures.
- The incentive scheme defined in the draft performance plan does not have a material impact on the revenue at risk.
- MUAC should align capacity profile plans, capacity enhancement measures and proposed capacity breakdown values.
- MUAC should revise the incentive scheme so that it has a material impact on the revenues.

3.2 En route ATFM delay per flight

MUAC - MUAC

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+2%	+4.6%	+3.9%	+1.3%	-0.5%	-55.3%				
Actual delay/flight	0.34	0.55	0.67	0.80	0.18	0.01				
National reference values						n/a	0.13	0.19	0.19	0.19
PP national targets						0.95	0.13	0.19	0.19	0.19
Based on STATFOR Scenario 1							-	0.12	0.17	0.24
Based on STATFOR Scenario 2							-	0.12	0.12	0.12

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, MUAC experienced capacity constraints related mainly to staffing, ATM capacity and weather. MUAC missed the capacity targets throughout RP2 before significantly improving performance in 2019.

The performance plan contains the following capacity enhancement measures, which are in line with the NOP:

- 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 NM has proposed measures, which have been included in the performance plan.

The planned number of ATCO FTEs show a grow of 3% on average annually with the highest increase by 7% during 2022 to reach 9% higher levels than in 2019.

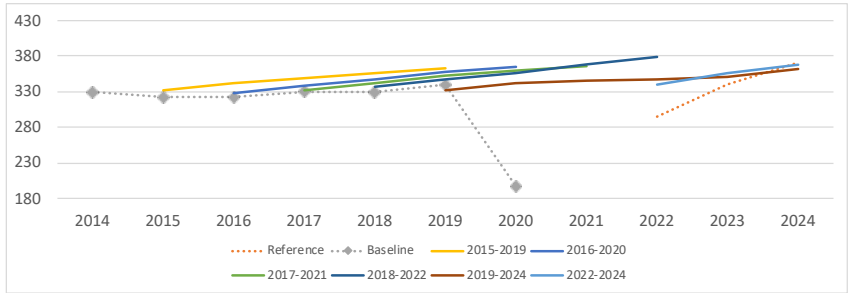
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Maastricht ACC (EDYY)	Additional ATCOs in OPS to start working in the OPS room	2	2.2	0.5	6.4	19	16.8	9.8
	ATCOs in OPS to stop working in the OPS room	2.5	2.5	6	3	0	10	8.5
	ATCOs in OPS to be operational at year-end	292	291.7	286.2	289.6	308.6	315.4	316.7
Total - MUAC (en route)	Additional ATCOs in OPS to start working in the OPS room	2	2.2	0.5	6.4	19	16.8	9.8
	ATCOs in OPS to stop working in the OPS room	2.5	2.5	6	3	0	10	8.5
	ATCOs in OPS to be operational at year-end	292	291.7	286.2	289.6	308.6	315.4	316.7

2024 (end) - 2020 (beg.)	
+25	
+25	

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Maastricht ACC (EDYY)



- Historical data shows a minor decrease in baseline values in 2015, followed by an increase in 2017 to reach 2014 values. In 2019, baseline values have been increased significantly compared to the previous year, addressing the closure of the capacity gap. Planned values were consistently higher than baseline values over the period.

- Latest planned capacity profiles show an average annual growth of 4% during 2022-2024. These plans result in a significant capacity surplus in 2022 and 2023 of 15% and 5% respectively and a minor capacity gap of 1% in 2024.

- There may be a minor inconsistency between the planned number of ATCO FTEs, capacity profile plans and the capacity enhancement measures.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									295	341	371
Baseline	329	322	322	330	329	340	197				
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
2022-2024									340	357	368
Latest vs Reference									15%	5%	-1%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

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

3.2.6 PRB Key Points !

- ANSP breakdown values are consistent with the ANSP reference values and are higher than the scenario 1 delay forecast in 2022 and 2023 and fall within the range of the delay forecast in 2024.
- Capacity plans indicate that MUAC will have a capacity surplus in 2022 and 2024 and may face a minor capacity gap of 1% in 2024.
- There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs and the proposed capacity enhancement measures.

3.3. Arrival ATFM delay per flight (not applicable)

MUAC

3.4 Capacity Incentive schemes

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			0.19	0.19	0.19
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.19	0.19	0.19
Pivot values for RP3			0.12	0.12	0.12

Threshold and pivot value review

The pivot value is the reference value from the NOP, modulated according to CRSTMP. A dead band of +/- 0.04 minutes is applied around modulated pivot value before any incentives apply. Maximum penalties or bonuses apply at +/- 0.05 minutes from pivot value.

Modulation review

The scope of the en route incentive scheme is modulated according to the ATFM delay codes C,R,S,T,M & P. The target is based on the average ratio of attributed CRSTMP delays during RP2, circa 60% of total en route ATFM delays. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect financial incentive

Review of financial advantages/disadvantages

A FAB-wide criteria is applied to determine if ANSPs are initially liable for bonuses or penalties, based on the overall FAB performance. The maximum potential bonus / penalty is fixed at 0.5% of determined costs.

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:

- MUAC has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation is the reference values for the ANSP.
- In addition to the ANSP level incentive scheme, a FAB-level incentive scheme also applies.
- Maximum bonus and penalty is set at 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 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	9.2	6.4	6.6	7.8	8.4	38.5
	En route	9.2	6.4	6.6	7.8	8.4	38.5
	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	TRM
1	New Voice Communication System	ED-137 compliant VoIP Voice Communication System, including test system. The system supports the FABEC concept for inter-centre sectorisation.	6.9	No	No	3.4	0.0
2	MeDUSA (MUAC Dual System Architecture)	The MUAC Dual System Architecture (MeDUSA) project will provide an upgraded fallback/system, which will support the necessary operational requirements for a safe transition from Primary high capacity to Fallback sustained capacity. Upgraded Fallback CWP-HMI with additional functionalities on top of the currently existing ones : identical look and feel as the PRI-CWP, datalink and outgoing OLDI. The project is currently in the initiation phase.	13.5	No	No	0.0	0.0
3	Back up Voice Communication System	Replacement of the current BVCS system introduced in 2008	8.7	No	No	0.0	0.0
4	Data Centre Modernisation	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.	7.1	No	No	1.0	0.0
5	IOP-G programme - First deployment	To comply with the Initial SWIM Implementing Rule 716/2014 of the Pilot Common Projects (PCP), 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.	21.0	Yes	No	0.0	0.0
6	PHOENIX - New ops building (previously called New ATCO Consoles project)	New operational building, flexibly locatable in a brighter OPS Room, including new consoles designed to modern ergonomic standards, improved training, test and locat contingency infrastructure, refurbished training, test & contingency environment. The Study Phase has been approved by the MCG; the outcome of the study will be presented in the MCG of Spring 2022.	34.4	No	No	0.0	0.0
Total:						4.5	0.0

Airspace user feedback regarding major investments

n/a

Review of investments

Investments #1 and #4 were included in the RP2 performance plan and will continue throughout RP3. New major investments represent 21% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 36% of the planned value and the amount underspent was 49.6M€. In terms of depreciation and cost of capital, the airspace users have financed 9M€ for investments that have not been materialised. It is unknown 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	New Voice Communication System	Network	Safety, Capacity, Cost-efficiency	Safety: Current safety levels are maintained or improved. Improved radio coverage. Capacity: The N-VCS can support more sectors than the old one and provides in addition more flexibility when switching from one sector configuration to another. Essential enabler for future CONOPS developments e.g. deeper integration with FDPS. Cost-efficiency: Reduced communication maintenance costs.
2	MeDUSA (MUAC Dual System Architecture)	Local	Capacity	Capacity: Positive impact as a) MEDUSA ensures that primary system capacity at MUAC can grow and b) When operating under fallback conditions, the new system will be able to cope with more flights than the current fallback system.
3	Back up Voice Communication System	Non-performance	Cost-efficiency	With the migration to IP technology, the phase out of legacy telephony will start.
4	Data Centre Modernisation	Non-performance	Safety, Environment, Capacity	Safety: Reduced risk of system interruptions. Environment: Improved energy consumption, fire protection and physical security. Capacity: Reduced risk of system interruptions.
5	PHOENIX - New ops building (previously called New ATCO Consoles project)	Local	Environment, Capacity	Environment: Sustainability will be a high priority for the new OPS building. Capacity: Additional CWPs will allow for a higher capacity and support the future CONOPS.

Additional information

New Voice Communication System: Joint investment in partnership with DSNA. Replacement of ATM system. Link to ATM Master Plan: Replacement of the Voice System, supporting VoIP for ground telephone; implementation objective COM11.1.

MeDUSA (MUAC Dual System Architecture): Overhaul of existing ATM system. The upgraded Fallback System will provide for a new Fallback CWP-HMI, as well as a replacement of the current MUAC Fallback Flight Server.

Back up Voice Communication System: Replacement of ATM system. Link to ATM Master Plan: Replacement of the Backup Voice System, supporting VoIP for ground telephone; implementation objective COM11.1.

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 RP3 (M€)
Other new investments	36.5	36.5	0.0	0.5	1.2	2.5	3.8	8.1
Existing investments			8.6	6.3	5.2	4.7	4.1	29.0

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	Data Centre operations	7.3	7.3	0.6	0.6	0.6	0.6	0.6	3.1	Obsolescence : replacement of servers and workstations NOTE: Although the total value of this line is more than €5mln, the line covers a significant number of smaller replacement investments which are grouped here for convenience. All individual investments
2	New Access Control System	2.8	2.8	0.0	0.0	0.0	0.1	0.2	0.3	obsolescence of the existing access control system, acquire a new and state of the art access control system based on an integrated security platform which interconnects all required applications within an open architecture meeting the present regulations
3	Automated/remote ATCO training, self training and scoring (MUSE)	1.7	1.7	0.0	0.0	0.0	0.0	0.6	0.6	Improvement of the real time simulation environment at MUAC and from home leading to workload reduction, self training for ab-initios

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? ✔
- Maastricht ACC is expected to have a capacity surplus in 2022 (15%), evolving to 5% for 2023 and a slight shortfall of -1% for 2024.
- The IOP-G programme - First deployment investment defined for RP3 can be a capacity contributor once the service is fully implemented and is linked with PCP/CP1 ATM Functionality AF5. Other investments contribute to resilience, scalability and flexibility, especially in the areas of infrastructure, communications and data services management.
- Of the other (non-major) investments, the Data Centre operations investment contributes to resilience.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? ✔
- The IOP-G programme - First deployment investment will enable access to common flight data benefitting coordination and flight data management especially in a user-preferred route environment.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? ⚠
- Investments contributing to Maastricht UAC capacity are limited during RP3. In RP2 performance planning, MUAC planned for a New Generation ATM: FDPS convergence investment, which is described as providing Flight Object management capabilities similar to those described in the RP3 IOP-G programme - First deployment investment. Based on the LSSIP MUAC documents, no significant new FDPS capabilities were implemented during RP2 and the IOP-G programme - First deployment investment is not expected to be implemented until 2029. Close monitoring of capacity evolution in MUAC is needed to ensure that the capacity shortfall expected at the end of RP3 does not deepen during RP4.

3.5.4 PRB Key Points

- Two investments from RP2 will continue throughout RP3.
- The actual CAPEX for RP2 was 36% of the planned value and the amount underspent was 49.6M€. In terms of depreciation and cost of capital, the airspace users have financed 9M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- There is a capacity surplus expected in Maastricht UAC in 2022 which is reduced to a capacity shortfall by 2024.
- There are no capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities, only investments possibly directly contributing to capacity will not be implemented until 2029.
- Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

PRB Assessment

THE NETHERLANDS

Draft Performance Plan

Context and scope

Netherlands

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4750, F4751, F4670, F4671, F4672, F4673, F4675, F4676, F4677, F4678, F4674, F4752

Relative weight compared to the SES area (2019):

- % Flight-hours vs SES 2.9%
- % Serv. Units vs SES 2.9%
- % Costs vs SES 4.2%

Scope

FAB: FABEC

ANSPs: LVNL
 Royal Netherlands Meteorological Institute (KNMI)
 MUAC

ATM
 MET
 ATM

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

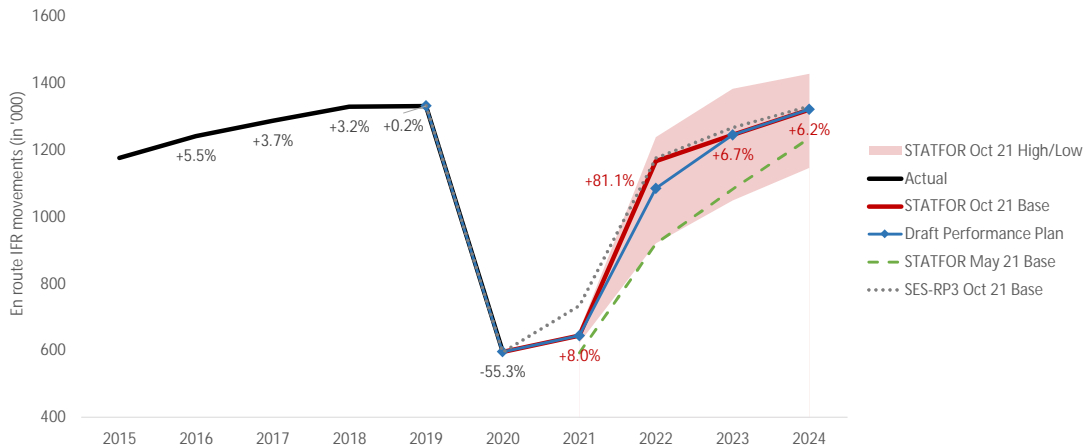
Competent Authority
 NM, CRCO

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Netherlands	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
LVNL	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 the Netherlands should be approved.

- The EoS safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	-	2.63%	2.62%	2.62%	2.62%

PRB assessment

The PRB concludes that the environment targets proposed by FABEC for the Netherlands should be approved.

- The Netherlands' horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that the Netherlands did not achieve the 2021 target of 2.63% in its performance plan. For this reason and taking into account performance from previous years, the Netherlands has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.13	0.06	0.09	0.09	0.10
National target for terminal and airport ANS ATFM arrival delay per flight (min)	2.00	1.40	1.60	1.60	1.40

PRB assessment

The PRB concludes that the capacity breakdown values proposed by the Netherlands should be approved.

- The Netherlands is expected to have a significant capacity surplus throughout 2022-2024.
- 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 PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	151.70	88.63	75.79	71.71	+0.7%	+0.7%
Target for determined unit cost (DUC) (€2017) - Terminal	298.57	221.58	189.69	179.88	n/a	-0.2%

PRB assessment

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

- The Netherlands is consistent with the RP3 DUC trend in terms of average reduction.
- The Netherlands is not consistent with the long-term Union-wide DUC trend.
- The Netherlands is consistent with the average DUC baseline of the comparator group.
- The Netherlands presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.
- Some elements in the adjustment of the baseline should not be included. However, the impact is minimal and not impacting the trend assessments. The Netherlands would also achieve the cost-efficiency trends without such adjustments.

5. PRB recommendations

CAPACITY

- The Netherlands should revise the incentive schemes so that they have a material impact on the revenues.

NETHERLANDS

Safety KPA

1.1 Summary of safety key data and assessment results

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of 2023. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained in 2023.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes in detail the FABEC approach to address the impact of changes into ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is claimed that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach described provides confidence that the implementation of changes into ATM functional system will not deteriorate safety levels.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the FABEC approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

The plan describes the change management practice at the ANSP level that if compliant with the Commission Implementing Regulation (EU) 2017/373, should 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 the Netherlands should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

1.2 Targets for EoSM for ANSPs and Measures

Netherlands

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
LVNL	Safety policy and objectives	C	C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	C	C	C	C	D	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

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 Netherlands already in 2020 met the RP3 safety targets in four out of five management objectives. Only safety risk management needs to be improved from level B to level C.

The performance plan describes the specific measures applied at the level of the ANSP, the CAA and the FABEC Authorities.

At ANSP level, the following measures are planned to be implemented:

- Annual update of SMS;
- Establishment of a risk-based Safety Plan;
- Update of Safety Risk Target document and corresponding Unit Safety Case.

At the level of Competent Authority, the measures derived from compliance with Commission Implementing Regulation (EU) 2017/373, applicable to EoSM improvements are regularly reviewed and verified.

Furthermore, FABEC Authorities established a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to review the FABEC ANSPs' performance and to jointly determine if specific actions are necessary.

Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach for all seven FABEC ANSPs.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan confirms that changes will be required to achieve targets for other KPAs and that improvements under the safety KPA may affect other KPAs. The performance plan underlines that safety remains the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The impact of changes to the ATM functional system, including changes to the system needed to improve other KPAs, is assessed by the ANSPs through safety procedures compliant with Commission Implementing Regulation (EU) 2017/373, which ensures that safety levels are not compromised. Changes are also presented for approval by the Competent Authority to ensure that there are no unacceptable safety implications.

FABEC ANSPs have defined additional (K)PIs to monitor their performance (on all KPAs) in addition to those specified by Commission Implementing Regulation (EU) 2019/317. Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (safety, security, quality, environment). Indicators, issues and possible trade-offs are discussed, explained and addressed by board members under the leadership of the ANSPs' management. The approach provides confidence that the changes introduced to reach targets on other KPAs will not deteriorate safety levels.

1.3.2 Change Management Practices

The plan describes the change management practice deployed for iCAS implementation, limiting the negative impact on the operations (the transition is based on shadow mode operations applied during night-time and over winter season, thus without negative effect on capacity).

The procedures described, if compliant with the Commission Implementing Regulation (EU) 2017/373, should provide assurance that the new implementation will be conducted in a manner that minimises any negative impact on the network performance.

NETHERLANDS

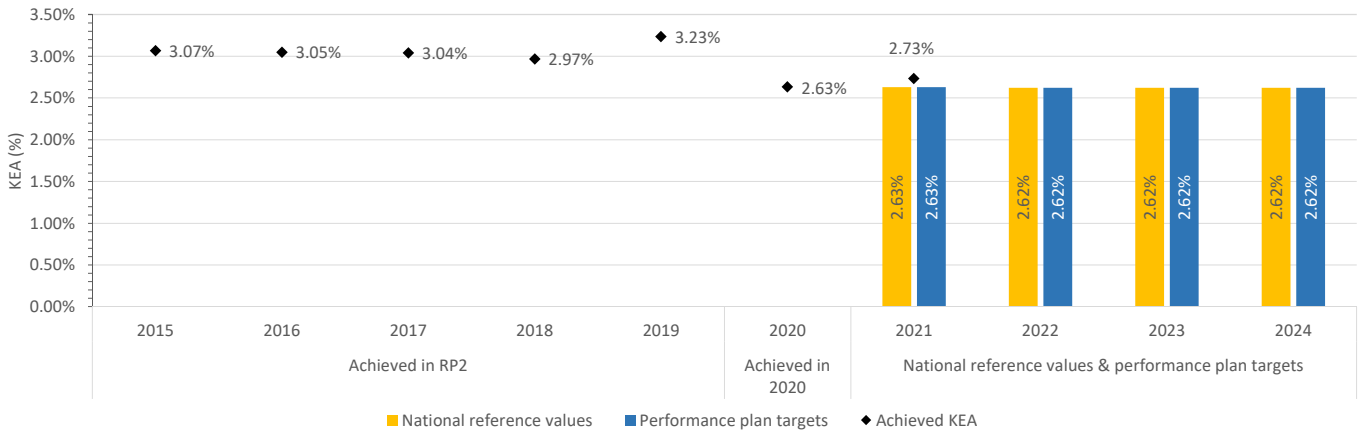
Environment KPA

2.1 Summary of Key Data and Assessment Results

Netherlands

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

	2020	2021	2022	2023	2024
National reference values	7.22%	2.63%	2.62%	2.62%	2.62%
Performance plan targets	0.00%	2.63%	2.62%	2.62%	2.62%
Comparison of draft performance targets with reference values	n/a	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



The PRB concludes that the environment targets proposed by FABEC for the Netherlands should be approved.

- The Netherlands' horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that the Netherlands did not achieve the 2021 target of 2.63% in its performance plan. For this reason and taking into account performance from previous years, the Netherlands has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

2.2 Measures of Achievement

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
No free route airspace (FRA) has been identified in the Amsterdam flight information region (FIR) below FL245 since it is not required by the PCP. MUAC control upper airspace above FL245 where 24-hour FRA is available from December 2019.			n/a	Page 39
Major ERNIP Recommended Measures:		2	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(a)	Page 175
Dutch Airspace Redesign Programme (DARP)		✓	3.2.1(a)	Page 187
ATS route improvement Amsterdam FIR		✓		
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that the Netherlands achieved a KEA of 2.63% in 2020. In 2021, the Netherlands reached a KEA of 2.73% which means it did not achieve the 2021 target of 2.63% in its performance plan.

The Netherlands suggested that horizontal flight efficiency is largely a function of airspace structure and the availability of airspace, i.e. temporary reserved areas (TRAs) and temporary segregated areas (TSAs). The Netherlands notes their ability to influence both of these factors and plans a national airspace redesign programme as well as proposing to move a military training area away from major traffic flows. The benefits of these initiatives will only be achieved at the end of RP3 following the implementation of this project in the winter of 2022/23.

Other initiatives planned during RP3 include the implementation of the iCAS harmonised air traffic control system, cross-border arrival manager (AMAN/XMAN), performance based navigation (PBN) and more effective civil-military co-ordination.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Netherlands plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

NETHERLANDS

Capacity KPA

3.1 Summary of capacity key data and assessment results

Netherlands

3.1.1 En route ATFM delay

ANSP breakdown values are consistent with the ANSP reference values and are higher than the scenario 1 delay forecast in 2022 and 2024, and fall within the range of the delay forecast in 2023.

Capacity plans indicate that the Netherlands will have a significant capacity surplus in 2022-2024.

The implementation of the new ATM system may introduce capacity constraints in 2023, however it is not foreseen to generate delays above the target values.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

The Netherlands included four airports in the performance plan, out of which the main driver for traffic and delays is Amsterdam Schiphol. National targets are set significantly lower than in RP2 and also represent a major improvement compared to the average past performance.

Amsterdam Schiphol generated the highest amount of delays in RP2 over the SES area, and despite the planned enhancement measures, performance is still expected to be significantly worse than that of the group of similar airports.

3.1.3 Incentives

En route:

The Netherlands has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.

In addition to the national incentive scheme, a FAB-level incentive scheme also applies.

Maximum bonus and penalty is set at 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.

Terminal:

The Netherlands has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.

Maximum bonus and penalty is set at 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.

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

Amsterdam ACC is expected to have a capacity surplus during RP3.

One major new investments targeting en route capacity is planned for implementation during RP3. This, and other major investments, are linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3, AF4 and AF5.

Other (non-major) investments contribute to both en route and airport/TMA capacity. Investments in general contribute to resilience, scalability and flexibility in line with the European ATM evolution.

3.1.5 PRB conclusions

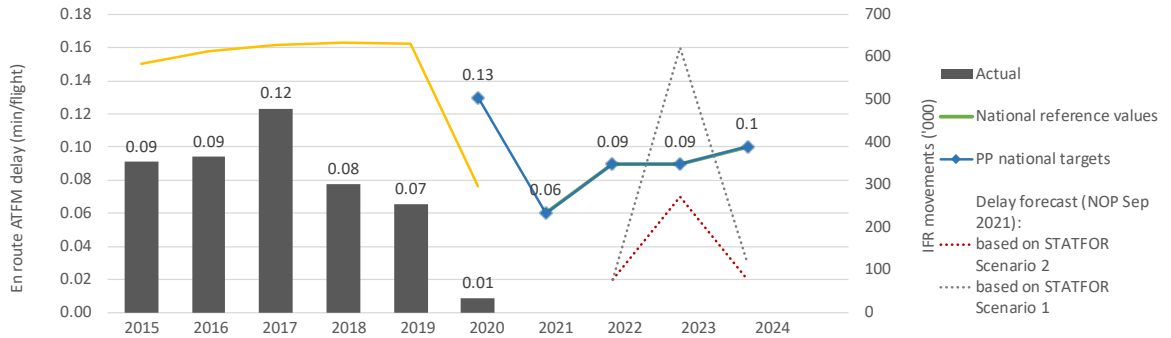
The PRB concludes that the capacity breakdown values proposed by the Netherlands should be approved.

- The Netherlands is expected to have a significant capacity surplus throughout 2022-2024.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.
- The Netherlands should revise the incentive schemes so that they have a material impact on the revenues.

3.2 En route ATFM delay per flight

Netherlands - LVNL

3.2.1 Overview of en route ATFM delay per flight



Traffic variation	+3%	+4.6%	+2.4%	+1.0%	-0.3%	-53.0%				
Actual delay/flight	0.09	0.09	0.12	0.08	0.07	0.01	0.13	0.06	0.09	0.09
National reference values						n/a	0.06	0.09	0.09	0.10
PP national targets						0.13	0.06	0.09	0.09	0.10
Based on STATFOR Scenario 1							-	0.02	0.16	0.03
Based on STATFOR Scenario 2							-	0.02	0.07	0.02

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, the Netherlands experienced capacity constraints related mostly to ATM capacity, weather, ASM and partially staffing (2017), registering only minor delays except for 2017.

The performance plan includes the following capacity enhancement measure, all in line with the NOP:

- LARA - FUA and airspace management tool,
- AOP-NOP Information sharing,
- Continuous recruitment and improved training,
- Additional activities to eliminate the bow-wave effect of COVID-19,
- AMAN,
- new ATM system iCAS (2023), including training (2022), new OPS room for iCAS (2023).

The plan is expected to support the achievement of the capacity targets in RP3 with the support of included capacity enhancement measures, although 2023 target might be more difficult to achieve without proper level of the change management.

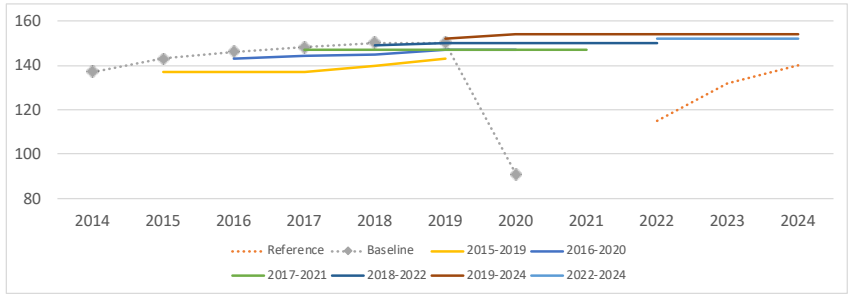
There is a -10% reduction in planned ATCO FTE numbers over RP3 at LVNL, however, considering the capacity enhancement measures and the planned capacity profiles, it is expected that this reduction will not generate a capacity gap, as LVNL is expected to have significant capacity surplus in all years of RP3.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Amsterdam ACC (EHAA)	Additional ATCOs in OPS to start working in the OPS room	3	4	1	2	4	4	4	
	ATCOs in OPS to stop working in the OPS room	0	0	0	7.4	2.9	5	7.9	
	ATCOs in OPS to be operational at year-end	85.4	89.4	90.4	85	86.1	85.1	81.2	-8
Total - LVNL (en route)	Additional ATCOs in OPS to start working in the OPS room	3	4	1	2	4	4	4	
	ATCOs in OPS to stop working in the OPS room	0	0	0	7.4	2.9	5	7.9	
	ATCOs in OPS to be operational at year-end	85.4	89.4	90.4	85	86.1	85.1	81.2	-8

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Amsterdam ACC (EHAA)



- Historical data shows that baseline values 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 are level over the period and are consistently well above the reference profiles, resulting in a capacity surplus of 32%, 15% and 9% in 2022, 2023, and 2024 respectively.

- The planned decrease in the number of ATCO FTEs seems to be balanced by capacity enhancement measures, as there is no decrease in the planned capacity profiles.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									115	132	140
Baseline	137	143	146	148	150	150	91				
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
2022-2024									152	152	152
Latest vs Reference									32%	15%	9%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events ✔

Review of the planned impact of special events in some years of RP3

Both the performance plan and the NOP identify the implementation of the new ATM system (iCAS) as a significant event in terms of possible capacity impact. The NOP estimates capacity impact induced by the project and associated activities higher than the performance plan.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The performance plan identifies measures to minimise the capacity impact of the planned ATM system implementation. It is to be noted that the special event is listed under capacity enhancement measures.

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

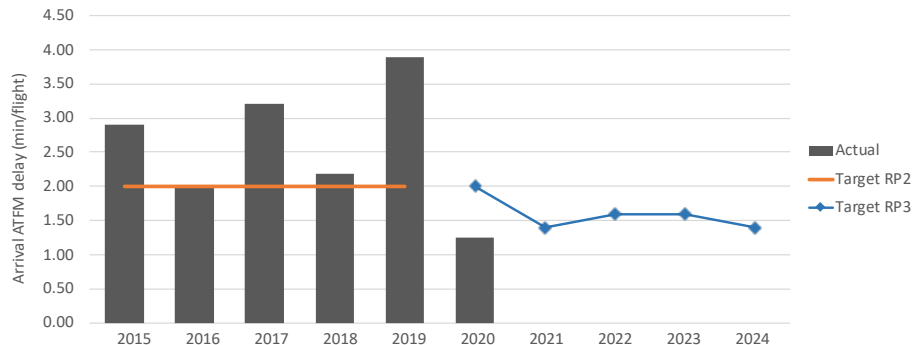
3.2.6 PRB Key Points ✔

- ANSP breakdown values are consistent with the ANSP reference values and are higher than the scenario 1 delay forecast in 2022 and 2024 and fall within the range of the delay forecast in 2023.
- Capacity plans indicate that the Netherlands will have a significant capacity surplus in 2022-2024.
- The implementation of the new ATM system may introduce capacity constraints in 2023, however it is not foreseen to generate delays above the target values.

3.3. Arrival ATFM delay per flight

Netherlands

3.3.1 Overview of arrival ATFM delay per flight



National level	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Actual	2.91	2.00	3.21	2.19	3.88	1.26	-	-	-	-
Amsterdam/ Schiphol (EHAM)		3.18	2.17	3.47	2.39	4.23	1.41	1.54	1.76	1.76	1.54
Maastricht-Aachen (EHBK)		0.03	0.00	0.02	0.03	0.01	0.00	0.00	0.00	0.00	0.00
Groningen (EHGG)		0.00	0.00	0.00	0.00	0.00	0.01	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	0.00

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

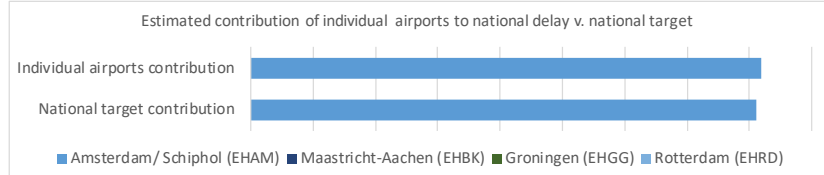
The Netherlands includes four airports in the performance plan. The absolute driver of the national performance in terms of movements and arrival ATFM delay is Amsterdam, while the other three airports registered very low delays during RP2 and are not expected to generate any during RP3. Amsterdam Schiphol 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 2015-2019.

The proposed targets for RP3 represent a reduction of delays with respect to RP2 targets but especially a significant improvement with respect to the observed past performance (2.84 minutes per arrival).

The performance plan explains that due to the impact of the COVID-19 pandemic, several foreseen measures have been delayed and as a result the performance improvement profile has also been delayed by one year. However, due to the lower traffic levels in 2021 and 2022, it should still be possible to perform at a better level and therefore the targets have been lowered with respect to the initial RP3 plan.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Amsterdam/ Schiphol (EHAM)	1.65
Maastricht-Aachen (EHBK)	0.00
Groningen (EHGG)	0.00
Rotterdam (EHRD)	0.00
National Target	1.50



Amsterdam Schiphol is the only airport in the Dutch performance plan expected to generate delays, and the breakdown for that airport with the traffic share is in line with the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Amsterdam/ Schiphol (EHAM)	GROUP I	0.65	3.10	+2.45	1.65	+1.00
Maastricht-Aachen (EHBK)	GROUP IV	0.00	0.02	+0.02	0.00	-0.00
Groningen (EHGG)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00
Rotterdam (EHRD)	GROUP IV	0.00	0.00	+0.00	0.00	-0.00

* 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 $< 80,000$

Amsterdam Schiphol registered the worst ATFM delays in Europe in the period 2015-2019, with an average value more than four times the median delays of similar airports. The targets for RP3 at Amsterdam Schiphol represent an important improvement, although are still more than double that reference value based on past performance for similar airports.

3.3.5 PRB Key Points

- The Netherlands included four airports in the performance plan, out of which the main driver for traffic and delays is Amsterdam Schiphol. National targets are set significantly lower than in RP2, and also represent a major improvement compared to the average past performance.
- Amsterdam Schiphol generated the highest amount of delays in RP2 over the SES area, and despite the planned enhancement measures, performance is still expected to be significantly worse than that of the group of similar airports.

3.4 Capacity Incentive schemes

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			0.09	0.09	0.10
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.09	0.09	0.10
Pivot values for RP3			0.06	0.07	0.07

Threshold and pivot value review

The pivot value is the reference value from the NOP, modulated according to CRSTMP. A deadband of +/- 0.02 minutes is applied around modulated pivot value before any incentives apply. Maximum penalties or bonuses apply at +/- 0.05 minutes from pivot value.

Modulation review

The scope of the en route incentive scheme is modulated according to the ATFM delay codes C,R,S,T,M & P. The target is based on the average ratio of attributed CRSTMP delays during RP2, circa 65% of total en route ATFM delays. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect financial incentive.

Review of financial advantages/disadvantages

A FAB-wide criteria is applied to determine if ANSPs are initially liable for bonuses or penalties, based on the overall FAB performance. The maximum potential bonus / penalty is fixed at 0.5% of determined costs.

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)			±0.185	±0.185	±0.155
Performance Plan targets			1.60	1.60	1.40
Pivot values for RP3			0.37	0.37	0.31

Threshold and pivot value review

The terminal incentive scheme includes a dead band of ±20% that should allow for small variations in the arrival ATFM delay with no resulting bonuses or penalties. The pivot values are CRSTMP modulated and do not seem to follow the same improvement trend as the national target, representing slightly higher CRSTMP attributed delays than in RP2.

Modulation review

The Netherlands has chosen to modulate the pivot values according to CRSTMP causes.

According to the plan, modulated pivot values have been determined using a stepwise improvement of CRSTMP-only targets from 0.37 minutes per flight, 0.37 minutes per flight and 0.31 minutes per flight respectively for 2022-2024.

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 worse than the average CRSTMP delay observed during 2015-2019 (0.29 minutes per arrival).

Review of financial advantages/disadvantages

The scheme is symmetric, with maximum bonus/penalty of 0.5%.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✘

En route:

- The Netherlands has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.
- In addition to the national incentive scheme, a FAB-level incentive scheme also applies.
- Maximum bonus and penalty is set at 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.

Terminal:

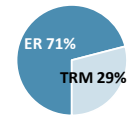
- The Netherlands has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.
- Maximum bonus and penalty is set at 0.5%.
- The maximum penalty defined 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.
- 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.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	23.5	22.4	23.4	26.3	36.4	132.0
	En route	17.4	15.8	16.5	18.5	25.5	93.7
	Terminal	6.1	6.6	7.0	7.8	10.9	38.3

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 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	TRM
1	Centralised Approach and remote tower Beek and Eelde	<i>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 at Schiphol's facilities. 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 2.5 of the performance plan.</i>	13.6	No	No	0.3	0.3
2	Common voice communication system (VCS)	<i>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. More details can be found in section 2.5 of the performance plan.</i>	18.2	No	No	0.9	0.8
3	Expansion facilities/ Polaris	<i>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/ML 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 the new ATC system iCAS and a trainings- and education centre for military and civil usage.</i>	50.4	No	No	0.1	0.0
4	LVNL office and sustainability	<i>During RP3 LVNL has to invest in renovating in a sustainable manner the existing HQ building at Schiphol Oost by investing in solar panels to generate green electricity, making the heating installations more energy efficient, insulation of the building, durable office furniture etc. As part of the renovation, the building will be prepared for other ongoing developments, in particular through the creation of offices for staff related to e.g. remote tower/centralised approach, and integration of civil and military service providers.</i>	56.4	No	No	2.0	0.2
5	Maintenance investments	<i>In order to maintain the normal level of service provision, several investments are needed with respect to the regular replacement and updating of the ATM systems, buildings and infrastructure, such as: - Replacing ILS systems; - Replacing VOR/DMEs; - Replacing direction finders (VDF); - Replacing TAR systems by WAM/ ADS-B systems - Replacement of monitoring and control systems; - Replacement of computers and ICT systems; Additionally, the introduction of new, modern systems as part of many of the other investments leads to the need to replace/modernise support systems.</i>	129.7	No	No	7.9	3.6
6	Replacement of AAA by iCAS and SESAR Deployment of Trajectory Based Operations	<i>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. More details can be found in section 2.5 of the performance plan.</i>	129.0	Yes	Yes	8.7	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 (Yellow profile). More details can be found in section 2.5 of the performance plan.	23.2	Yes	No	1.0	0.8
8	Tower system	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 Common Project 1 (CP1) in accordance with the SESAR deployment plan. Realisation of CP1 requirements in the TWR domain consists of: - Departure Management Synchronised with Pre-departure sequencing, including A-SMGCS 1 and 2 - Airport Safety Nets In addition: - A-SMGCS routing and planning function (to improve Airport Safety Nets) - Upgrade of the A-SMGCS Surveillance System - Interface for surface movement guidance More details can be found in section 2.5 of the performance plan.	23.0	Yes	Yes	0.0	2.0
Total:						21.0	7.7

Airspace user feedback regarding major investments

The airspace users did not comment on a specific investment, but noted a need for clearer view on the benefits, the underspending in RP2 compared to the high level of ambition, the feasibility of the portfolio and the practical effects of the COVID-19 pandemic.

Review of investments

Investments #5 and #6 were included in the RP2 performance plan and will continue throughout RP3. For both investments, the actual CAPEX delivery in RP2 was lower than planned, especially for investment #6 (the most significant underspending in RP2).

New major investments represent 22% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 22% higher than the planned and the amount overspent was 33.8M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total costs related to investments were 11.6M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Centralised Approach and remote tower Beek and Eelde	Network, Local	Cost-efficiency	The project will optimise the efficiency of the Air Traffic Control Service at the two concerned airports EHBK and EHGG. After commissioning the remote tower technology is scalable to more civil or military towers so more efficiency can be reached. This will most likely increase when the multiple tower concept is implemented.
2	Common voice communication system (VCS)	Network, Local	Safety, Capacity, Cost-efficiency	The three lane system is more stable, with a lower risk of overall VCS failure. The three lane system will prevent air traffic control from having to completely reduce air traffic in the Netherlands to zero in case of a failure of one of the VCS systems, thus preventing serious disruption of the operation and delay. By VoIP reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long term savings.
3	Expansion facilities/ Polaris	Network, Local	Capacity, Cost-efficiency	Improved contingency for ATM services in the Dutch airspace. Enabler for setting up a joint civil/military training school.
4	LVNL office and sustainability	Local	Cost-efficiency	Reduction of energy costs by solar panels to generate green electricity, more energy efficient heat installations and insulation of the buildings.
5	Maintenance investments	None	None, ensure continuity	n/a

Additional information

Centralised Approach and remote tower Beek and Eelde: New ATM system, linked to AOP14 – Remote Tower Services.

Common voice communication system (VCS): New ATM system, extension to a three-lane voice communication system shared with LVNL's military partner and using the Voice over Internet Protocol (VoIP). Link with the ATM Master Plan COM 11.1 – Voice over Internet Protocol (VoIP) in en route.




Expansion Facilities / Polaris: Joint development with the military, with the purpose of using the facility as a joint training school. Polaris is a building for a contingency centre for ATM services.

Maintenance investments: Replacement of ATM systems and overhaul of existing systems.

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 RP3 (M€)
Other new investments	40.7	32.6	0.0	0.3	1.4	2.6	2.9	7.3
Existing investments			19.2	20.8	19.4	18.4	18.2	96.0

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? 
- A significant capacity surplus can be expected in Amsterdam ACC in the beginning of RP3: 32% in 2022 reducing to 9% in 2024.
- Replacement of AAA by iCAS and SESAR Deployment of Trajectory Based Operations investment will contribute to enroute capacity towards the end of RP3 (2023) and are linked to PCP/CP1 ATM Functionalities AF1, AF3, AF4 and AF5. The Tower System investment will contribute to airport/TMA capacity at Schipol and is linked to PCP/CP1 ATM Functionality AF2. In addition, investment to SWIM will contribute to PCP/CP1 ATM Functionality, AF5.
- The abovementioned investments also contribute to resilience, flexibility and scalability together with the Common Voice Communication System investment.
- Other (non-major) investments detailed in Annex R to the FABEC / the Netherlands performance plan include en route capacity contributions from 1ATM: civil / military integration investment, PBN investment, Capacity Management investment and airport/TMA domain capacity contributions at Schipol airport from Extended Arrival Management (AMAN/XMAN) and Increasing peak hour capacity and sustainability investment.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 
- The iCAS investment will introduce 4D-trajectory capabilities enabling trajectory-based operations aligned with the ATM evolution in Europe. The system is a fully integrated CIV/MIL ATS system enabling improvements in A-FUA application for both civil and military stakeholders. It will introduce a new FDPS and CWP and will make use of improved MET information. The 1ATM investment aims to integrate the civil and military ANSPs' services and organisations below FL245 enabling capacity gains, the PBN investment will enable optimal use of airspace and the Capacity Management investment will introduce / improve various capacity management tools (workload model, decision support tools, CIFLO replacement, LARA, APOC, AMC).
- On airport level the Tower System investment will introduce departure management, safety net and A-SMGCS improvements, which are expected to contribute positively to airport capacity. Extended Arrival Management (AMAN/XMAN) investment will optimise inbound traffic flows at major hubs, and Increasing peak hour capacity and sustainability investment will introduce solutions to better manage multiple variables (e.g. decrease of Runway Occupancy Time, RECAT EU and RECAT PWS, TBS, 2.5NM separation on final, etc.) of Amsterdam Schipol airport traffic.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? 
- The iCAS implementation in the Netherlands has been delayed. FABEC RP2 performance plan envisaged the cut-over for iCAS operational deployment to be in 2020 but the RP3 performance plan has a deployment date of 2023. The iCAS project was already included in RP2 planning and no other major investments targeting capacity carry over from RP2. Possibly due to the delayed implementation, Annex R to the FABEC / Netherlands performance plan expects that the benefits from iCAS investment will only start to accrue during RP4 and that by the end of RP4, the system will deliver an estimated 11M€ in annual benefits due to delay reductions. However, based on the evidence ample capacity is available throughout RP3.

3.5.4 PRB Key Points

- Investments #5 and #6 were included in the RP2 performance plan and will continue throughout RP3. For both investments, the actual CAPEX delivery in RP2 was lower than planned, especially for investment #6 (the most significant underspending in RP2).
- The actual CAPEX for RP2 was 22% higher than the planned and the amount overspent was 33.8M€. Despite overspending on investments, the total costs related to investments were 11.6M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.
- Amsterdam ACC is expected to have a capacity surplus during RP3.
- One major new investments targeting en route capacity is planned for implementation during RP3. This, and other major investments, are linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3, AF4 and AF5.
- Other (non-major) investments contribute to both en route and airport/TMA capacity. Investments in general contribute to resilience, scalability and flexibility in line with the European ATM evolution.

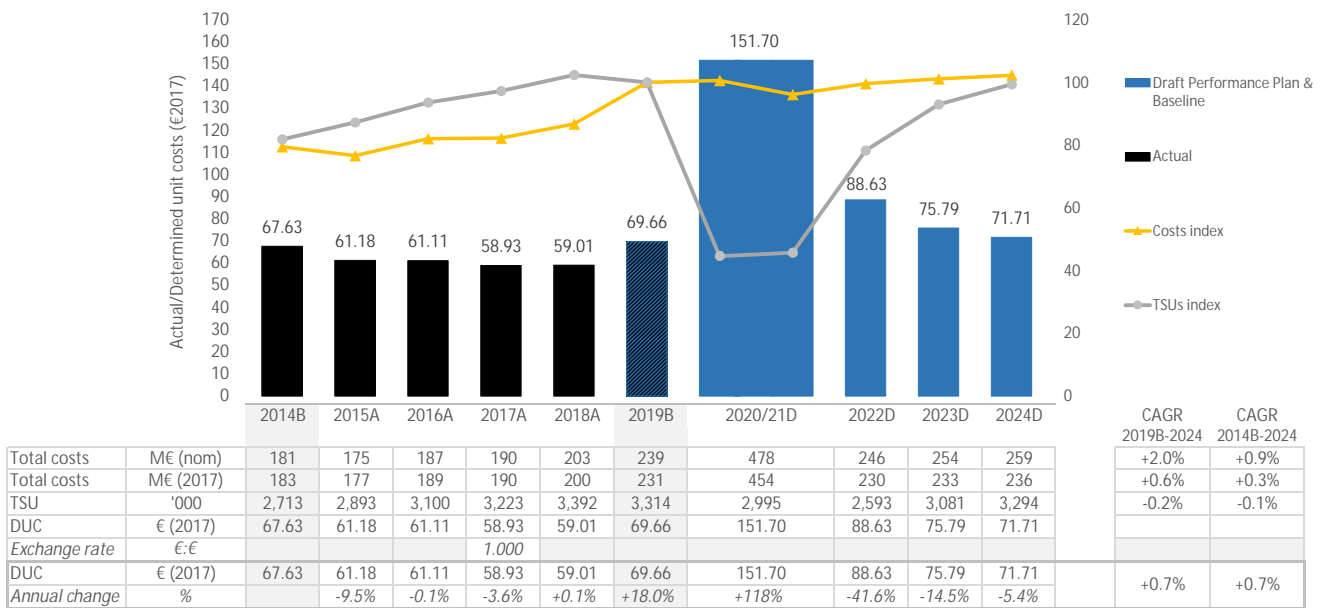
NETHERLANDS

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Netherlands - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 69.66 €2017 !

Some elements should not be included in the adjustments of the cost baseline, however the impact is minimal and not impacting the trend assessments.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? +0.7% ✓
 The DUC is planned to increase on average by +0.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? +0.7% ✗
 The DUC is planned to increase on average by +0.7% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- c) DUC level (2019 baseline) lower than the average of comparator group (E) average (78.10 €2017)? -10.8% ✓
 The 2019 DUC level is -10.8% lower 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 ✓

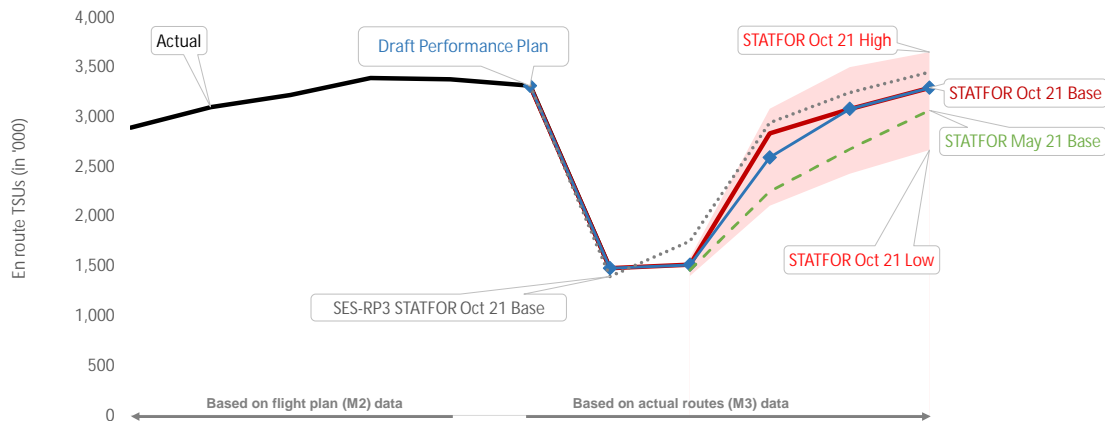
The PRB concludes that the cost-efficiency targets proposed by the Netherlands should be approved.

- The Netherlands is consistent with the RP3 DUC trend in terms of average reduction.
- The Netherlands is not consistent with the long-term Union-wide DUC trend.
- The Netherlands is consistent with the average DUC baseline of the comparator group.
- The Netherlands presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.
- Some elements in the adjustment of the baseline should not be included. However, the impact is minimal and not impacting the trend assessments. The Netherlands would also achieve the cost-efficiency trends without such adjustments.

4.2 Review traffic forecasts and baseline

Netherlands - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	2,893	3,100	3,223	3,392	3,381	3,314	1,480					
Annual change	%		+7.2%	+4.0%	+5.3%	-0.3%	-2.3%	-55.4%					
STATFOR Oct 21 Base	'000 TSUs								1,515	2,835	3,081	3,294	-0.6%
Annual change	%								+2.4%	+87.1%	+8.7%	+6.9%	
STATFOR May 21 Base	'000 TSUs								1,461	2,251	2,674	3,066	-7.5%
Annual change	%								-1.3%	+54.1%	+18.8%	+14.7%	
Performance Plan	'000 TSUs						3,314	1,480	1,515	2,593	3,081	3,294	-0.6%
Annual change	%						-2.3%	-55.4%	+2.4%	+71.2%	+18.8%	+6.9%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	3,314		2014B (PP baseline)	2,713	
2019A (as in the Reporting tables, M2)	3,381		2014A (as in the Reporting tables, M2)	2,767	
2019B/ 2019A	-1.97%	-1.97%	2014B/ 2014A	-1.97%	-1.97%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-1.97%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-1.97%). The coefficient decreases the amount of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

The Netherlands applied a deviation from the STATFOR October 2021 base forecast only for 2022. The deviation is justified by a significant risk of delays in traffic recovery due to recurrences of increasing infections leading to new travel restrictions and/or reduced passenger confidence, particularly in the short-term.

Review of the PP traffic forecast

- The service units forecast in the performance plan is consistent with the STATFOR October 2021 base forecast for all years of RP3 except for 2022.
- Identifying the risk of potential delays in traffic recovery, the Netherlands decided to diverge from the STATFOR October 2021 base forecast. However, following the consultation with airspace users, the deviation was reduced and applied only to 2022. The resulting forecast for 2022 is -8.6% lower than the STATFOR October 2021 base forecast, but +15.2% higher than the May 2021 base forecast and foresees a significant increase of +71.2% over 2021.
- Looking at the year-to-date traffic evolution (until November 2021), the Netherlands' en route charging zone records the lowest service units growth in 2021 (-6.6%) within the RP3 SES area.

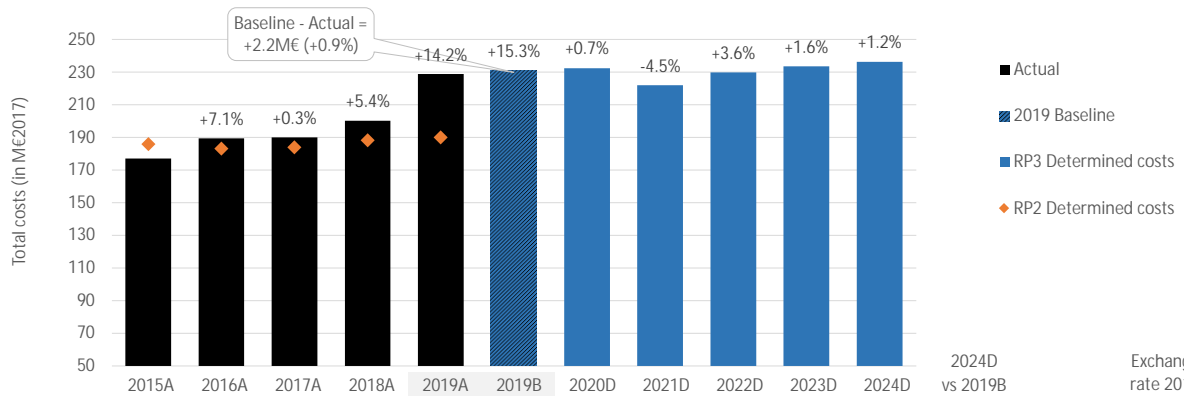
4.2.4 PRB Key Points

- The en route traffic forecast is in line with STATFOR October 2021 except for 2022.
- No major issues identified.

4.3 Review of determined costs and baseline

Netherlands - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	175	187	190	203	237	239	243	235	246	254	259	+8.3%
Annual change	%	-	+7.1%	+1.4%	+6.8%	+16.9%	+18.0%	+1.5%	-3.5%	+5.0%	+2.9%	+2.2%	+7.4%
Inflation index	2017 = 100	98.6	98.7	100.0	101.6	104.3	104.3	105.5	107.0	108.6	110.3	112.1	+2.3%
Total costs	M€ (2017)	177	189	190	200	229	231	232	222	230	233	236	+2.3%
Annual change	%	-	+7.1%	+0.3%	+5.4%	+14.2%	+15.3%	+0.7%	-4.5%	+3.6%	+1.6%	+1.2%	+2.3%

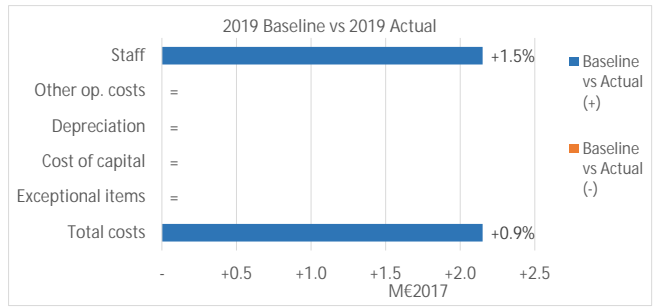
Exchange rate 2017	€:€
	1.00000

Is inflation in PP in line with IMF (April 2021 forecast)?	Deviation from index < 1 p.p. in 2024
Is inflation in PP in line with IMF (October 2021 forecast)?	No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast. Minor rounding differences are observed for inflation rates 2021 and 2022 leading to a deviation of only -0.05 p.p. by the end of RP3.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	4.0	+2.2%
2019B vs 2019A	2.2	+0.9%



2014 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Transfer of costs for tax compensation into MUAC cost	ANSP	Staff	+2.7
#2 - Transfer of costs for HQ costs into MUAC cost base	ANSP	Other ops.	+1.3

2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Integration of costs for tax compensation into MUAC cost base	ANSP	Staff	+2.2

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The adjustments to the 2014 and 2019 cost baselines relate to the transfer of costs for tax compensation and HQ support costs from the Eurocontrol cost base to the MUAC cost base.

2014/2019 baseline analysis

- The adjustments to the cost baselines relating to MUAC transfers slightly increase the actual costs recorded in 2014 and 2019 (+2.2% and +0.9%, respectively).
- These adjustments (two on 2014 and one on 2019) seem justified. However, they should be corrected to avoid double counting of the part of costs for the Netherlands, which are already included in the NSA costs. These minor amendments would only slightly increase the 2014 and the 2019 baseline costs without any significant impact on the DUC assessment.

4.3.3 Review of the RP3 determined costs and incentives

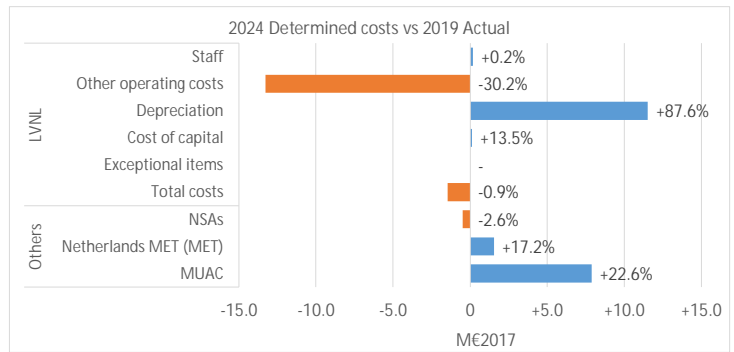
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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



The total costs of the Netherlands are planned to increase by +3.3%, or 7.5M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is MUAC (+22.6%, or +7.9M€2017 overall). Costs remained roughly stable during 2020 and 2021 compared to 2019 actual costs, with no substantial decreases in reaction to COVID-19.

For LVNL, total costs are planned to decrease by -0.9%.

- The planned decrease in costs is mainly driven by a reduction in other operating costs (-30.2%, or -13.3M€2017 between 2019 and 2024). According to the information in Annex A to the performance plan, the reduction is explained by the completion of several major investments programmes followed by a reduction of temporary staff and expertise and project related research and development costs, which are reported as other operating costs.
- A significant increase in depreciation costs (+87.6%, or +11.5M€2017 between 2019 and 2024) reflects mainly the entry into operation of the new iCAS system, the new Polaris building, the new voice communication system, and centralised base (remote tower operation).

MUAC shows a cost increase (+22.6%) mainly due to the staff costs. The main reasons are: the indexation of remunerations, the integration of costs for tax compensation, the additional ab initio intake, and the "General Condition of Employment package" negotiated with ATCOs in 2018 aiming at providing increased capacity through the increased ATCO working time.

KNMI (MET) costs increase by +17.2% between 2019 and 2024 mainly due to an increase in staff costs (additional staff and higher costs of staff) and other operating costs reflecting additional service provision and improved performance. The NSA costs are planned to decrease slightly (-2.6%) reflecting a reduction in Eurocontrol costs while the NSA supervision costs are planned to increase over RP3.

En route service units are forecasted to still be slightly below 2019 levels in 2024, while en route costs are planned to reach the 2019 actual level already in 2022 (in 2023 when considering the 2019 baseline value).

4.3.4 PRB Key Points

- The Netherlands includes adjustments to the cost baselines related to the MUAC cost base. The adjustments seem justified, however they should be corrected to avoid double counting (minor effect on the baselines).
- Between 2019 and 2024, the costs are planned to increase slightly by +3.3% due to the increase of MUAC costs (+22.6%, or +7.9M€2017).
- LVNL planned a decrease in costs, mostly due to a decrease in other operating costs.

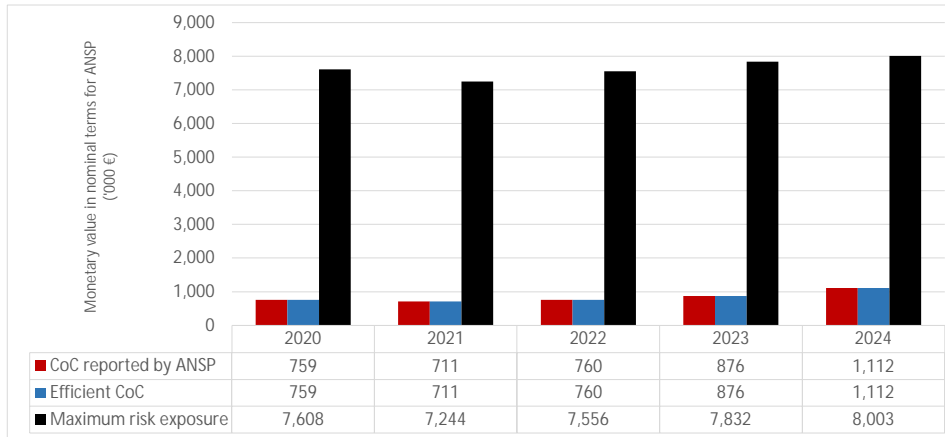
4.3.A Cost of capital

LVNL - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	172,918	164,641	171,717	178,005	181,888
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	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debts	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%
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%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%

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. While LVNL's equity capital is used to carry the financial consequences of the ANSPs share of traffic and cost risk and not to finance LVNL's assets.
- The interest rate assumptions and the explanation for the weighted average interest on debt used to calculate the cost of capital pre-tax rate are duly justified and in line with competitive market practices.
- As equity is not used to finance LVNL's assets, a return on equity of 0% has been reported in the performance plan. The efficient WACC has been calculated based on option 2.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	190,495	219,254	273,087	300,237	312,756
Net current assets	0	0	0	0	0
Adjustments total assets	28,759	53,833	27,150	12,520	4,327
Total asset base	219,254	273,087	300,237	312,756	317,083

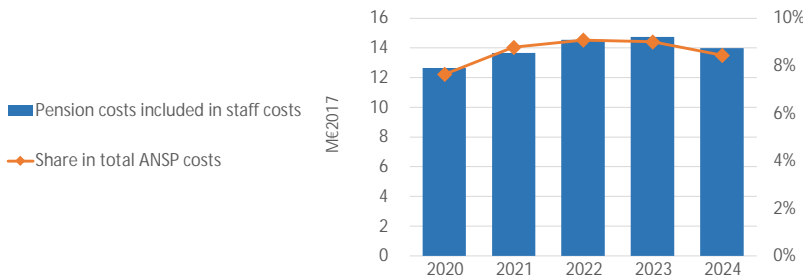
- The fixed asset base is planned to significantly increase over RP3. This is in line with the increase in investments described in section 3.5 of this document.
- The RAB does not include net current assets.
- The adjustments to the RAB include the sum of depreciation of assets, new investments, and if applicable useful life and impairment effects.
- The total asset base will increase over RP3, due to the increase in fixed asset base.

4.3.A.5 PRB Key Points

- The cost of capital does not present major issues.

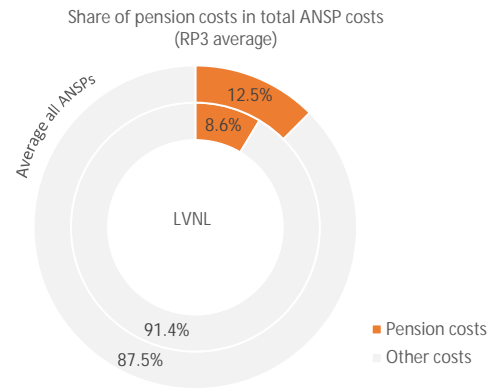
4.3.B Pensions

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		+8.0%	+6.5%	+1.4%	-5.2%
Share in total ANSP costs	%	7.6%	8.8%	9.1%	9.0%	8.4%
Year on year variation	p.p.		1.1p.p.	0.3p.p.	-0.1p.p.	-0.6p.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 Union-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
For occupational defined contribution schemes, are there planned changes in the contribution rate between 2020 and 2024?	Yes
LVNL is obliged by law to participate in the "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. Since ABP has difficulties to meet the mandatory coverage ratio (assets at least 104% of liabilities), the premium is expected to increase from 20.73% in 2020 to 22.95% in 2022, remain in place for two years, and then decrease.	
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 2020, the staff costs were computed based on the pension premium contribution of 20.73%. For the rest of RP3, the pension costs included in the staff costs increase due to the expected increase in the pension premium contribution.

"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 Methodology for cost allocation between ER and TRM

Netherlands

4.3.C.1 Cost allocation overview

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

- The Netherlands did not mention changing 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 (~3,000 feet) and outside 18 kilometres (12 nM) 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 flight level 30 and within 18 kilometres from the LVNL controlled airports are allocated to the terminal charging zone.
- For the main ANSP, the Netherlands calculated that about 69% of the total costs are attributed to en route, MET costs are allocated 82% en route, 18% terminal, and NSA costs are fully allocated to en route.

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

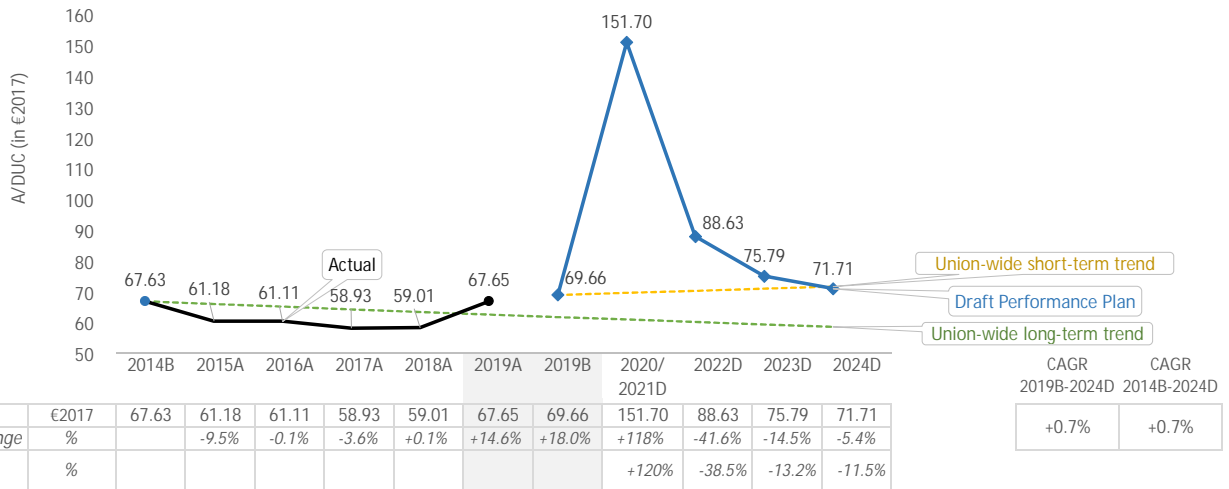


- The Netherlands did not mention changing the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

Netherlands - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+0.7%	+1.0%	-0.3p.p.
Trend (CAGR 2014B-2024)	+0.7%	-1.3%	+2.0p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	69.66	78.10	-10.8%

- The Netherlands adjusted the cost baseline, however some elements should not be included in the adjustments (4.3 of this document). Despite this, the Netherlands would achieve the DUC trends also not including such adjustments.
- The DUC is planned to increase on average by +0.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +0.7% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -10.8% lower than the average of the comparator group.
- The Netherlands presents justifications for a deviation to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.

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

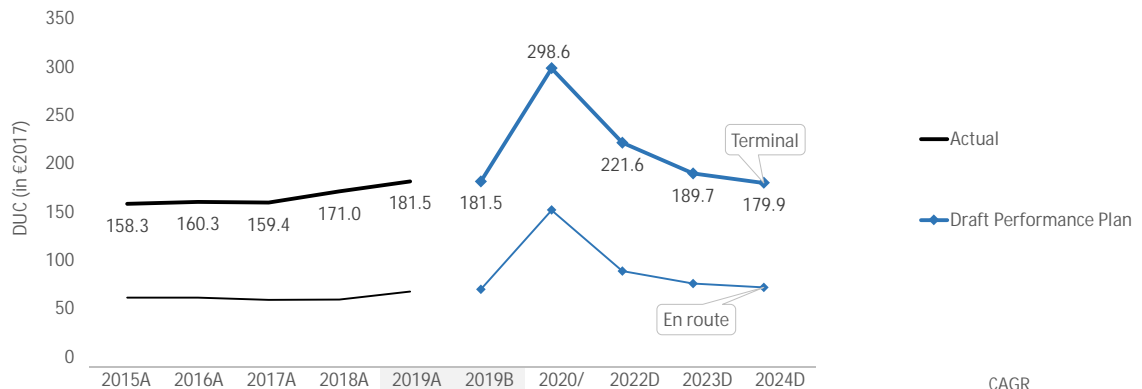
✓

- The Netherlands is consistent with the RP3 DUC trend in terms of average reduction.
- The Netherlands is not consistent with the DUC long-term Union-wide trend.
- The Netherlands is consistent with the average DUC baseline of the comparator group.
- The Netherlands presents justifications for a deviation from the cost-efficiency trends to achieve capacity targets. However, no deviation from cost-efficiency trends is identified.
- Some elements included in the adjustment of the baseline should not be considered. However, the impact is minimal and not impacting the trend assessments.

4.5 Terminal

Netherlands

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal	158.3	160.3	159.4	171.0	181.5	181.5	298.6	221.6	189.7	179.9		-0.2%
Annual Change	%	+1.3%	-0.6%	+7.3%	+6.2%	+6.2%	+64%	-25.8%	-14.4%	-5.2%		
DUC - En route	61.2	61.1	58.9	59.0	67.7	69.7	151.7	88.6	75.8	71.7		+0.7%
Annual Change	%	-0.1%	-3.6%	+0.1%	+14.6%	+18.0%	+118%	-41.6%	-14.5%	-5.4%		

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Amsterdam/ Schiphol (EHAM)	GROUP I	135.0	137.7	+2.0%	179.8	177.4	-1.3%
Maastricht-Aachen (EHBK)	GROUP IV	698.0	515.6	-24.1%	1002.2	369.9	-63.1%
Groningen (EHGG)	GROUP IV	698.0	1312.8	+88.1%	1002.2	2081.1	+107.7%
Rotterdam (EHRD)	GROUP IV	698.0	744.0	+6.1%	1002.2	946.6	-5.5%

* 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 average unit cost of Amsterdam Schiphol, the main airport, was slightly higher (+2.0%) than the comparator group median over RP2. The difference is expected to be -1.3% over RP3.

- With respect to other airports included in the Netherlands terminal charging zone, it is noticeable that the RP2 average unit cost of Groningen airport was significantly higher than its comparator group median (+88.1%). This gap is expected to further increase to +107.7% over RP3.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP
n/a

2019 baseline analysis

The 2019 traffic and cost baselines are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

As for en route, the Netherlands has applied a deviation from the STATFOR October 2021 base forecast only for 2022 justifying it with a significant risk of delays in traffic recovery due to recurrences of increasing infections.

Review of the PP traffic forecast

The terminal service units forecast in the performance plan is consistent with the STATFOR October 2021 base forecast for all years except for 2022. The selected forecast for 2022 is +10.0% higher than the May 2021 base forecast and foresees a significant traffic increase of +28.4% over 2021.

Determined costs (terminal)

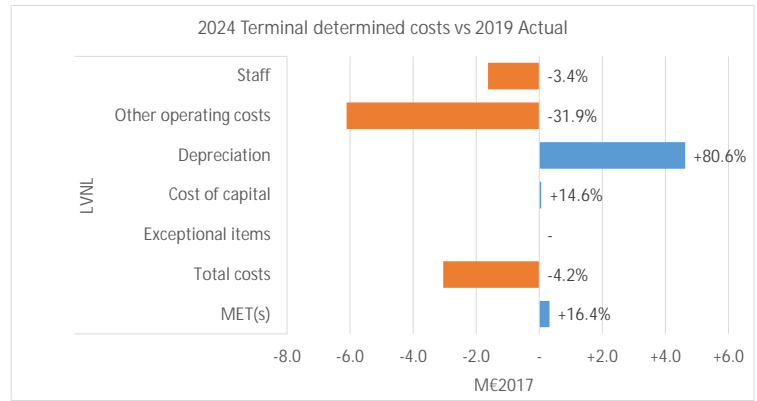
Is inflation in PP in line with IMF (April 2021 forecast)?	Deviation from index < 1 p.p. in 2024
Is inflation in PP in line with IMF (October 2021 forecast)?	No

Cost elements - LVNL (terminal)

- ① Investments (see details in 3.5)
- ① 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)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal pension costs (31%) is slightly higher than the share of terminal total costs (29%).
- The WACC and its parameters are different from the ones applied for en route. No justification has been provided.
- Changes in the different cost items and for different entities follow a similar pattern as for en route.
- For LVNL, the terminal costs are planned to decrease (-4.2% or -3.1M€2017), between 2019 and 2024, mainly due to the completion of several major investments programmes and reduction of associated other operating costs. It is noticeable that LVNL terminal staff costs will also be lower in 2024 (-3.4% or -1.6M€2017) even though a higher pension premium contribution of 21.74% is used to compute terminal pension costs compared to 2019 (14.76%).
- Both terminal service units and terminal costs are not forecast to reach 2019 actual levels in RP3.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is -0.2%, which is better than the en route RP3 DUC trend of +0.7%.
- The terminal RP3 DUC trend is -0.2%, which is better than the terminal RP2 DUC trend of +3.5%.
- Amsterdam Schiphol airport, the main airport, had a DUC +2.0% higher than the median of its comparator group over RP2. The difference is expected to be -1.3% over RP3. The other airports included in the performance plan range from a DUC -26.1% lower to +88.1% higher over RP2. The difference is expected to range from -63.1% lower to +107.7% higher over RP3.
- The Netherlands used the STATFOR October 2021 base forecast, with the exception of 2022.
- Terminal costs decrease over the period, mainly due to a decrease in other operating costs.

PRB Assessment

SWITZERLAND

Draft Performance Plan

PRB assessment

Switzerland - Draft Performance Plan

1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
skyguide	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 Switzerland should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	-	3.95%	3.95%	3.95%	3.95%

PRB assessment

The PRB concludes that the environment reference values proposed by FABEC for Switzerland should be approved.

- Switzerland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.47	0.12	0.19	0.19	0.19
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	1.94	1.03	1.15	1.28	1.42

PRB assessment

The PRB concludes that the capacity breakdown values proposed by Switzerland should be approved.

- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, and the proposed capacity enhancement measure.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk. There is a trigger mechanism defined by the performance plan in the terminal capacity incentive scheme which practically renders the incentive scheme a bonus only scheme.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	203.64	103.11	93.10	86.04	-0.5%	-1.2%
Target for determined unit cost (DUC) (€2017) - Terminal	777.80	380.28	343.36	330.10	n/a	+2.7%

PRB assessment

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

- Switzerland is consistent with the RP3 DUC trend in terms of average reduction.
- Switzerland is not consistent with the long-term Union-wide DUC trend. However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- Switzerland is not consistent with the average DUC baseline of the comparator group.

5. PRB recommendations

ENVIRONMENT

- Switzerland should ensure it implements all relevant project outlined in the June 2021 ERNIP.

CAPACITY

- Switzerland should revise the incentive schemes so that they have a material impact on the revenues.
- Switzerland should ensure that the terminal capacity incentive scheme does not include a trigger mechanism which renders the incentive scheme a bonus only scheme, and that the terminal incentive scheme is compliant with Implementing Regulation (EU) 2019/317.

COST-EFFICIENCY

- Switzerland should detail the changes in the cost allocation.
- Switzerland should ensure that the overspent determined costs related to the RP2 investments are not recovered during RP3.
- Switzerland should detail how the capitalisation rules applied are impacting the reimbursement of potential underspent RP3 determined costs related to investments.

SWITZERLAND

Safety KPA

1.1 Summary of safety key data and assessment results

Switzerland

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 RP3 Union-wide safety targets, are planned to be attained in 2023.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes the measures established at ANSP, CAA and FABEC level. Considering the current safety levels, the measures are considered sufficient and adequate to improve and further ensure the required safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the FABEC approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

Switzerland describes the change management practices are defined by Skyguide. Considering the level of details provided in the performance plan, these practices, if compliant with Commission Implementing Regulation (EU) 2017/373, should be sufficient to control impacts on safety.

1.1.5 PRB conclusions

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

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- The ongoing cooperation at FAB level aims to improve the overall safety management approach by identifying best practices and harmonising procedures.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
skyguide	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	D	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	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 2023. Switzerland has already in 2020 met the RP3 safety targets in four out of five management objectives. Only safety risk management needs to be improved from level C to level D.

The performance plan describes the specific measures applied at the level of the ANSP, the CAA and the FABEC.

At the ANSP level, the following measures are planned to be implemented:

- Integration of all risk management activities together with business continuity and crisis management;
- Implementation of the RMIS (Risk Management Information System) combining all risk information in one single, cloud-based IT tool;
- Development of external supplier monitoring activities;
- Conduct of a safety culture survey together with other ANSPs;
- Legally anchoring of external Just Culture in the Swiss law;
- Application of data science to systematically learn from safety II data;
- Detection and management of interdependencies of complex operations.

At the level of Competent Authority, the measures derived from compliance with Commission Implementing Regulation (EU) 2017/373, applicable to EoSM improvements are regularly reviewed and verified.

Further, FABEC Authorities established a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to review the FABEC ANSPs' performance and to jointly determine if specific actions are necessary. Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach for all seven FABEC ANSPs.

Considering current safety levels, the safety roadmap described in the performance plan gives confidence that the ANSP will achieve the safety levels at the end of RP3.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan confirms that changes will be required to achieve targets for other KPAs and that improvements under the safety KPA may affect other KPAs. The performance plan underlines that safety remains the highest priority and cannot be compromised by adverse interdependencies with other key performance areas. The impact of changes to the ATM functional system, including changes to the system needed to improve other KPAs, is assessed by the ANSPs through safety procedures compliant with Commission Implementing Regulation (EU) 2017/373, which ensures that safety levels are not compromised. Changes are also presented for approval by the Competent Authority to ensure that there are no unacceptable safety implications.

FABEC ANSPs have defined additional (K)PIs to monitor their performance (on all KPAs) in addition to those specified by Commission Implementing Regulation (EU) 2019/317. Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (safety, security, quality, environment). Indicators, issues and possible trade-offs are discussed, explained and addressed by board members under the leadership of the ANSPs' management. The approach provides confidence that the changes introduced to reach targets on other KPAs will not deteriorate safety levels.

1.3.2 Change Management Practices

Skyguide applies an innovative and flexible change management framework, applying Lean Portfolio management techniques for the selection and approval of changes, and a hybrid approach to individual change delivery. Skyguide's change management framework sits aside and integrates with various management processes, with especial focus on safety, but also strategy, finance and compliance.

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

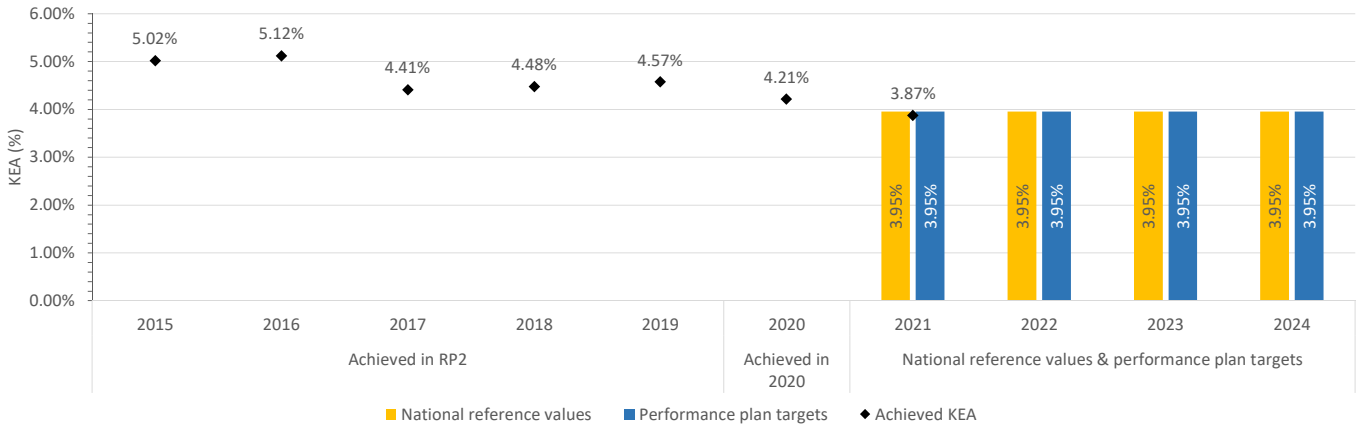
Environment KPA

2.1 Summary of Key Data and Assessment Results

Switzerland

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

	2020	2021	2022	2023	2024
National reference values	4.62%	3.95%	3.95%	3.95%	3.95%
Performance plan targets	0.00%	3.95%	3.95%	3.95%	3.95%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.2.2 PRB Conclusions



The PRB concludes that the environment targets proposed by FABEC for Switzerland should be approved.

- Switzerland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Switzerland should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Switzerland

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 that will allow airspace users to plan and fly direct routes (DCTs) is in progress and should become effective in 2022. An ATS route network is still in place in lower airspace (GND to FL195) and upper airspace (FL195 to FL660).	✓	3.2.1(a)	Page 39
Major ERNIP Recommended Measures:	6	Reference in PP	Reference in ERNIP
Measure included within performance plan?		n/a	Page 67
PBN transition plan	✗	Implemented	Page 104
Deletion of operational flight level	✓	Implemented	Page 127
Flight Level Orientation/ FLOS change Switzerland	✓	Implemented	Page 113
RAD suspension Switzerland	✓	3.2.1.(a)	Page 195
Free Route Airspace Switzerland - FRACH	✓	n/a	Page 196
Cross-border FRA CHE/ DEU	✗		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Switzerland achieved a KEA of 4.21% in 2020. In 2021, Switzerland reached a KEA of 3.87% which means it achieved the 2021 target of 3.95% in its performance plan.

Switzerland believes that free route airspace (FRA) implementation cannot improve performance given most of the inefficiency is at the interfaces over which skyguide has little control. While this is the case, skyguide is able to influence this by cooperating with its neighbours and initiating cross-border FRA (CB FRA) and collaborative airspace design to improve the interfaces. Switzerland committed to offering FRA in 2022, but did not include cross-border FRA operations.

Other measures planned include the use of local and sub-regional airspace management support system (LARA) to manage military airspace and arrival manager (AMAN) extended to the en route airspace that should improve horizontal and vertical flight efficiency. Switzerland plans to use an air traffic flow control management (ATFCM) optimisation tool to enable planning and flying more direct routes and optimal flight levels.

2.3.1 Annex IV 2.1(f): Measures for achievement of targets

Does Switzerland plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

SWITZERLAND

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

ANSP breakdown values are consistent with the ANSP reference values. The target is higher than the scenario 1 delay forecast in 2022, it is equal to the scenario 1 delay forecast in 2023 and it falls within the range of the delay forecast in 2024.

Capacity plans indicate that Geneva ACC may face a minor capacity gap in 2023 and 2024. Zürich ACC is expected to have a capacity surplus in all remaining years of RP3. There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs and the proposed capacity enhancement measures.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Switzerland includes two airports in the performance plan. The proposed targets are set lower than in RP2, however, the trend of the targets is increasing from 2021 until 2024. Targets represent an improvement to average past performance.

The performance of both airports is expected to be worse than that of the group of similar airports.

The performance plan includes several measures to improve airport capacity, which are expected to enable the achievement of the targets.

3.1.3 Incentives

En route:

Switzerland has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.

In addition to the national incentive scheme, a FAB-level incentive scheme also applies.

Maximum bonus and penalty is set at 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.

Terminal:

Switzerland has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.

Maximum bonus and penalty is set at 0.5%. However, a trigger mechanism is set at 1.94 minutes per arrival, essentially rendering the incentive scheme a bonus only scheme.

The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, plus the trigger mechanism practically excludes the possibility of inducing penalties, thus the incentive scheme does not have a material impact on the revenue at risk.

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

Switzerland has a capacity surplus throughout RP3.

One major new investments targeting en route capacity is planned for implementation during RP3. Major investments are not linked to PCP/CP1 ATM Functionalities although based on the investment descriptions they will contribute to achieving some of the AFs.

Investments has been slightly delayed but are being implemented in phases with intermediate capacity benefits. Investments contribute to resilience, scalability and flexibility in line with European ATM evolution.

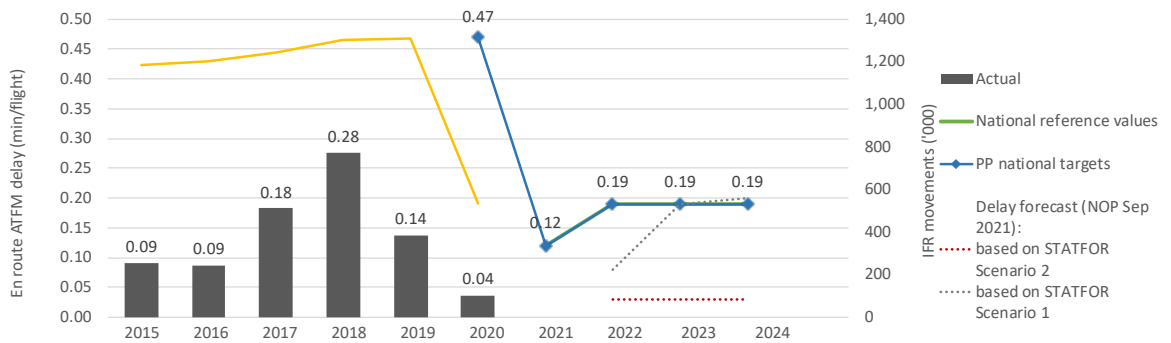
3.1.5 PRB conclusions

The PRB concludes that the capacity breakdown values proposed by Switzerland should be approved.

- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, and the proposed capacity enhancement measure.
- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk. There is a trigger mechanism defined by the performance plan in the terminal capacity incentive scheme which practically renders the incentive scheme a bonus only scheme.
- Switzerland should revise the incentive schemes so that they have a material impact on the revenues.
- Switzerland should ensure that the terminal capacity incentive scheme does not include a trigger mechanism which renders the incentive scheme a bonus only scheme, and that the terminal incentive scheme is compliant with Implementing Regulation (EU) 2019/317.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+2%	+1.8%	+3.1%	+4.9%	+0.5%	-59.2%				
Actual delay/flight	0.09	0.09	0.18	0.28	0.14	0.04				
National reference values						n/a	0.12	0.19	0.19	0.19
PP national targets						0.47	0.12	0.19	0.19	0.19
Based on STATFOR Scenario 1							-	0.08	0.19	0.20
Based on STATFOR Scenario 2							-	0.03	0.03	0.03

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, Switzerland experienced capacity constraints related mostly to ATM capacity, staffing and weather, registering increasing delays in 2017 and 2018.

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),
- Free route airspace FRA CH,
- Improved ATFCM/ASM CDM procedures,
- Crystal TWR/APP – Traffic and complexity prediction tool,
- Recruitment as necessary to maintain the required staffing levels,
- Implementation of the new CPDLC human machine interface (HMI),
- flexible rostering,
- CAPAN Study to improve sectorisation and capacity of the Switzerland airspace.

The planned number of ATCO FTEs will be maintained at approximately the 2020 levels. The plan represents a slight increase of ATCO FTEs in Geneva ACC and a -10% reduction in Zürich ACC. The performance plan provides that the numbers will change according to the actual traffic trends and that the numbers for each year may change.

Only high-level description of the measures is provided in the FABEC performance plan. Additionally, Switzerland complements all the measures with notes that all implementations including ATCO recruitment is highly dependable on the traffic recovery. Furthermore, the plan provides that if the traffic reaches scenario 1 levels, the delays will increase and the targets will be difficult to achieve.

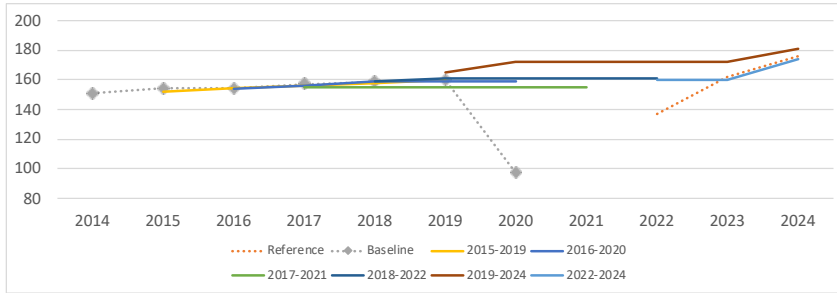
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Geneva ACC (LSAG)	Additional ATCOs in OPS to start working in the OPS room	0	5	10	6	13	8	10
	ATCOs in OPS to stop working in the OPS room	0	8	7	5	6	13	14
	ATCOs in OPS to be operational at year-end	121	118	121	122	129	124	120
Zurich ACC (LSAZ)	Additional ATCOs in OPS to start working in the OPS room	0	7	4	6	10	10	6
	ATCOs in OPS to stop working in the OPS room	0	4	12	6	10	11	9
	ATCOs in OPS to be operational at year-end	118	121	113	113	113	112	109
Total - Skyguide (en route)	Additional ATCOs in OPS to start working in the OPS room	0	12	14	12	23	18	16
	ATCOs in OPS to stop working in the OPS room	0	12	19	11	16	24	23
	ATCOs in OPS to be operational at year-end	239	239	234	235	242	236	229

2024 (end) - 2020 (beg.)	
	+2
	-12
	-10

3.2.3 Review of previous and existing capacity profile plans per ACC

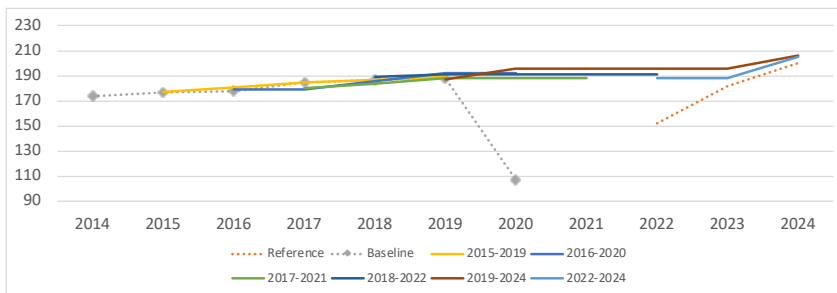
Geneva ACC (LSAG)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									137	162	176
Baseline	151	154	154	157	159	160	97				
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
2022-2024									160	160	174
Latest vs Reference									17%	-1%	-1%

- Historical data shows a minor increase of baseline capacity profiles in RP2. Planned profiles were mostly consistent or lower than the baseline values.
- Latest planned capacity plans show an average annual growth of 4.3%, following a flat period between 2021-2023. The planned profiles indicate a significant capacity surplus in 2022, and a minor capacity gap of -1% in 2023 and 2024.
- Based on the planned number of ATCO FTEs, the increase in capacity profiles may be due exclusively to capacity enhancement measures, or there may be a minor inconsistency between the planned number of ATCO FTEs, capacity profile plans and capacity enhancement measures.

Zurich ACC (LSAZ)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									152	182	200
Baseline	174	177	178	185	187	188	107				
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
2022-2024									188	188	205
Latest vs Reference									24%	3%	3%

- Historical data shows a 7.8% growth in RP2 baseline profiles. Planned profiles were largely in line with baseline values in RP2. Zurich ACC managed to maintain the capacity without significant gaps resulting in higher delays only in 2018 due to major increase of traffic levels and weather situation.
- Latest planned capacity plans show an average annual growth of 4.4%, which includes a flat period between 2021-2023. The latest plans are expected to result in a significant capacity surplus of 24% in 2022, which is reduced to a 3% surplus in 2023 and 2024.
- Based on the planned number of ATCO FTEs, the increase in capacity profiles may be due exclusively to capacity enhancement measures, or there may be a minor inconsistency between the planned number of ATCO FTEs, capacity profile plans and capacity enhancement measures.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

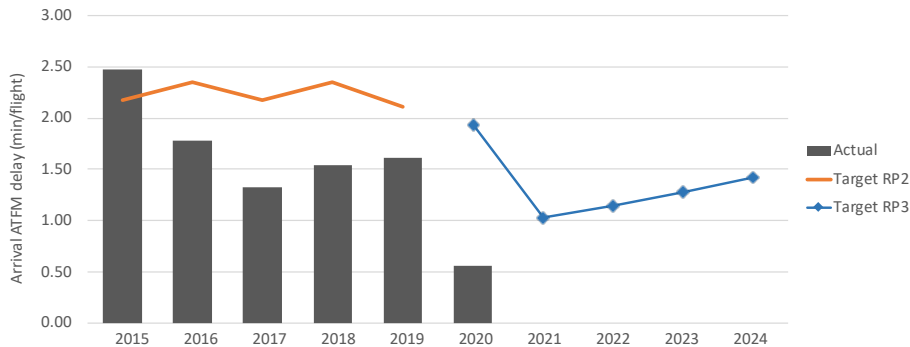
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✓

- ANSP breakdown values are consistent with the ANSP reference values. The target is higher than the scenario 1 delay forecast in 2022, it is equal to the scenario 1 delay forecast in 2023 and it falls within the range of the delay forecast in 2024.
- Capacity plans indicate that Geneva ACC may face a minor capacity gap in 2023 and 2024. Zürich ACC is expected to have a capacity surplus in all remaining years of RP3.
- There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs and the proposed capacity enhancement measures.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



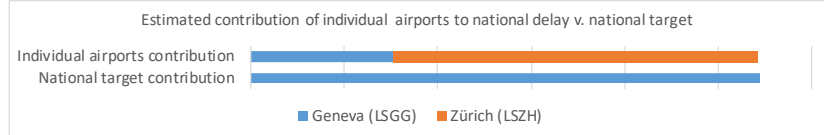
	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	Actual	2.18	2.35	2.18	2.35	2.11	1.94	1.03	1.15	1.28	1.42
Geneva (LSGG)		1.85	1.11	0.88	1.14	1.04	0.49	0.71	0.79	0.88	0.98
Zürich (LSZH)		2.92	2.25	1.65	1.80	1.99	0.60	1.25	1.39	1.54	1.71

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

Switzerland presents a target for RP3 at national level that starts at 1.03 minutes per arrival in 2021 and then increases linearly until reaching 1.42 minutes per arrival in 2024. These targets represent a significant improvements with respect to RP2 targets and the average observed RP2 performance (1.75 minutes per arrival). Switzerland has used the STATFOR October 2021 base forecast. This forecast estimates a CAGR (in IFR movements) for the 2019-2024 period at the TCZ of -0.7%. Several measures are planned to improve the delay situation along RP3, the main one being the recruitment of ATCOs at both approach services.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Geneva (LSGG)	0.84
Zürich (LSZH)	1.47
National Target	1.22



Zurich 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 coincides with the performance associated to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Geneva (LSGG)	GROUP III	0.12	1.20	+1.08	0.84	+0.36
Zürich (LSZH)	GROUP I	0.65	2.12	+1.47	1.47	+0.82

* 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 are an improvement, but still represent higher delays than similar airports during RP2.

3.3.5 PRB Key Points

- Switzerland includes two airports in the performance plan. The proposed targets are set lower than in RP2, however, the trend of the targets is increasing from 2021 until 2024. Targets represent an improvement to average past performance.
- The performance of both airports is expected to be worse than that of the group of similar airports.
- The performance plan includes several measures to improve airport capacity, which are expected to enable the achievement of the targets.

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±23.0%	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			0.19	0.19	0.19
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.19	0.19	0.19
Pivot values for RP3			0.13	0.13	0.13

Threshold and pivot value review

The pivot value is the reference value from the NOP, modulated according to CRSTMP. A dead band of +/- 23% is applied around modulated pivot value before any incentives apply. Maximum penalties or bonuses apply at +/- 0.05 minutes from pivot value.

Modulation review

The scope of the en route incentive scheme is modulated according to the ATFM delay codes C,R,S,T,M & P. The target is based on the average ratio of attributed CRSTMP delays during RP2, circa 65% of total en route ATFM delays. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect financial incentives.

Review of financial advantages/disadvantages

A FAB-wide criteria is applied to determine if ANSPs are initially liable for bonuses or penalties, based on the overall FAB performance. The maximum potential bonus / penalty is fixed at 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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)			±0.040	±0.045	±0.045
Performance Plan targets			1.15	1.28	1.42
Pivot values for RP3			0.08	0.09	0.09

Threshold and pivot value review

The terminal incentive scheme includes a dead band of 5% of the CRSTMP pivot value (dead band: 0.076 - 0.084 minutes per arrival). The 5% dead band might be too small to allow for small variations in performance with no associated bonuses/penalties.

The pivot values are CRSTMP modulated and are in line with past CRSTMP share and the national targets.

Modulation review

Switzerland has chosen to modulate the pivot values according to CRSTMP causes. The chosen pivot values correspond to a similar share of CRSTMP delays as reported during RP2 (approx 6.5%), applied to the new national targets (all causes) for RP3.

Review of financial advantages/disadvantages

The scheme is symmetric. The bonus / penalty is only 0.5%.

In addition, Switzerland adds a trigger for the application of the incentives, set at a national performance of 1.94 minutes per arrival. This means that a bonus is computed only if the total arrival ATFM delay is below 1.94 minutes per arrival and a penalty is computed only if the total arrival ATFM delay is above 1.94 minutes per arrival movement. This trigger is significantly higher than the proposed national targets (1.15 minutes per arrival in 2022 to 1.42 minutes per arrival in 2024) and than past observed performance (average in RP2: 1.75 minutes per arrival), turning this incentive scheme in virtually a bonus-only scheme, given the very low chance of penalties.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✗

En route:

- Switzerland has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.
- In addition to the national incentive scheme, a FAB-level incentive scheme also applies.
- Maximum bonus and penalty is set at 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.

Terminal:

- Switzerland has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The indicated pivot values are higher than the average CRSTMP delays during RP3.
- Maximum bonus and penalty is set at 0.5%. However, a trigger mechanism is set at 1.94 minutes per arrival, essentially rendering the incentive scheme a bonus only scheme.
- The maximum penalty defined by the incentive scheme is less than 1% of the determined cost of the ANSP, plus the trigger mechanism practically excludes the possibility of inducing penalties, thus the incentive scheme does not have a material impact on the revenue at risk.
- 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.

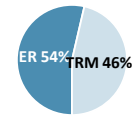
3.5 Investments

Switzerland - Skyguide

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	47.0	42.9	45.1	42.0	39.6	216.6
	En route	26.7	24.0	24.1	21.6	19.7	116.2
	Terminal	20.3	18.8	21.0	20.5	19.9	100.4

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 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	TRM
1	Virtual Center	From a local and disconnected set-up to a horizontal service structure: - A dynamic and networked airspace configuration - Scalable, connected, highly resilient and location-independent air traffic services - A virtual, network-centric, open and service-oriented architecture - Rationalised auxiliary services through strategic partnerships	57.5	No	Yes	22.2	5.0
2	NSG	Replacement of end of life asset and also includes new voice recognition features to automate Pilot voice responses for specific training modules, thus allow trainees to practice some modules without the need for a human Pilot, thus ultimately reduce the instructor to learner ratio.	6.5	No	No	1.1	0.9
3	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.	5.0	Yes	No	0.7	0.4
4	WAM	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. As demanded by Eurocontrol Bluebook.	7.2	Yes	No	0.6	0.3
5	SAMAX	SAMAX SMR ZRH Renewals: The project aims at renewing the two legacy SMR (Surface Movement Radars) of Zürich airport, used for our A-SMGCS application SAMAX. Benefits: Continuous SMR service as sensor for the safety net functions Rimcas and ARSI / Use of modern technology with equal performances / Ensure a safe, available, performing and compliant SMR service beyond 2020 for a 15 years' time frame / to meet OPS and AMS airport surface requirements as they are today.	4.7	Yes	No	0.0	1.5
6	PAGE 1	The PAGE-1 project aims to reduce the TWR ATCOs workload to harmonise their working methods and to simplify their training by deploying a more efficient and safer working environment that will replace the currently paper strip-based one. It also aims to develop the basis for Approach improvements in view of the global TWR/APP improvement in terms of safety, capacity and cost-efficiency.	8.9	Yes	Yes	0.0	4.6
7	SkyC@T	Skyguide Communication at TWR/APP: Following the bankruptcy of the VCS supplier Schmid Telecom (SZ), who was foreseen to support various mid-life upgrades at regional TWRs and ZRH TWR/APP, a new voice communication solution is being implemented. A harmonized VCS product through all civil skyguide OPS units / Simplification of controller working position by replacing several HMI (TEL, RAD, VOBIS, Intercom) by one integrated solution ; Implement the "any controller, any frequency, any site" concept for the first VCS and thereby enable remote TWR and VC concepts	7.1	No	No	0.2	0.1
8	AMAN CH	Replace the 17 year old current Arrival Manager (AMAN) in ZRH, known as CALM. In GVA, a new AMAN is required to complete the PAGE-1 stripless concept for Approach planners. The project also delivers a required pre-requisite for a future planned project (Future: PAGE-2 - which supports the airport development plan to improve capacity and efficiency), and AMAN is a prerequisite for XMAN Zurich.	5.4	Yes	Yes	1.1	1.1
Total:						25.9	13.9

Airspace user feedback regarding major investments

The airspace users made several comments with respect to the investment plan of Switzerland:

- Inquired about the tangible benefits of the Virtual Center project. Switzerland noted that the investment will benefit the ability to adapt to volatile air traffic demand, higher cost-efficiency, reduce the impact on environment, cyber security, safety and efficiency, also providing the results of the business case study.
- Cost-benefit analysis to understand the realised/planned investments to cope with current lack of traffic and future increase. Switzerland noted that non-strategic investments have been postponed and that the current traffic pattern does not impact the cost-benefit analyses performed. No significant reduction of ATCO numbers is foreseen.

Review of investments

New major investments represent 34% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 10% higher than the planned and the amount overspent was 20.4M€. In terms of depreciation and cost of capital, Switzerland overspent 8.3M€. Switzerland mentioned in Annex C of the performance plan that "Skyguide explains that the overspending was prefunded, and Skyguide has lost money over RP2. This is a definitive loss. One part will not be charged, and the other part will come through additional depreciation in RP3. This explains the trend and the cost.". No further explanation was provided.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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, Environment, Capacity, Cost-efficiency	Split in 3 phases, expected to bring significant benefits in multiple areas.
2	NSG	Local	Safety, Cost-efficiency	Benefits in safety: obsolescence; Cost-efficiency: reduction of simulation pilots.
3	SkyC@T	Local	Safety, Environment, Capacity	Main benefit is linked to service continuity. The investment is an enabler for cost-efficiency.

Additional information

Virtual Center: new ATM system, a mixture of new systems and improving processes, overhauling old systems, and replacing old systems, linked to the ATM Master Plan.

NSG: overhaul of simulator, linked to the ATM Master Plan.

SkyC@T: overhaul of ATM system, linked to the ATM Master 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 RP3 (M€)
Other new investments	115.5	100.5	1.9	6.1	8.7	10.9	13.2	40.9
Existing investments			54.1	44.7	38.6	31.1	25.0	193.4

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? ✔
- Geneva ACC has a significant capacity surplus in the beginning of RP3 (17%) but this is reduced to -1% in 2023 and 2024. Similarly, Zurich ACC has a capacity surplus of 24% in 2022, reducing to 3% for 2023 and 2024.
- The main investment contributing to improving capacity is the Virtual Centre implementation which will be done in a phased manner throughout RP3. Additional capacity improvements can be expected in the airport domain by the PAGE1 and AMAN CH investments.
- No investment has been linked to PCP/CP1 ATM Functionalities.
- The Virtual Centre and various COM and SUR infrastructure related investments all contribute to resilience, flexibility, and scalability in line with the European ATM evolution.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? ✔
- The Virtual Centre investment will introduce system improvements by removing flight progress strips, enabling air/ground data link capabilities and procedural improvements as well as enabling airspace improvements (route management, dynamic airspace management). Virtualisation will also enable location-independent service provision and is aligned with the overall ATM evolution in Europe. First phase of the Virtual Centre investment was performed in RP2 and was shown to contribute to capacity improvements (LSSIP Switzerland 2018)
- On airport level the PAGE1 investment will enable transition to stripless environment in towers facilitating improvements in TWR/APP interoperability and the complementing AMAN CH investment enables future developments improving capacity (PAGE2 project and XMAN development).
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? ✔
- Some of the Virtual Centre phases and associated systems have been delayed, e.g. FDPS replacement pushed to 2024 (LSSIP Switzerland 2020) while the original timeline called for completion of the Virtual Centre initiative in 2021 (LSSIP Switzerland 2014). However due to the phased approach, some Virtual Centre milestones have been implemented already with capacity gains. First phase of the Virtual Centre investment was performed in RP2 and was shown to contribute to capacity improvements (LSSIP Switzerland 2018). As there is a capacity surplus in Switzerland during RP3, there does not seem to be any significant timing issues.

3.5.4 PRB Key Points !

- The actual CAPEX for RP2 was 10% higher than the planned and the amount overspent was 20.4M€. In terms of depreciation and cost of capital, Switzerland overspent 8.3M€. Switzerland noted in Annex C of the performance plan that the overspending was prefunded and that part of depreciation overspent in RP2 will not be charged, while another part will be included as additional depreciation in RP3.
- Switzerland has a capacity surplus throughout RP3.
- One major new investments targeting en route capacity is planned for implementation during RP3. Major investments are not linked to PCP/CP1 ATM Functionalities, although based on the investment descriptions they will contribute to achieving some of the AFs.
- Investments have been slightly delayed but are being implemented in phases with intermediate capacity benefits. Investments contribute to resilience, scalability and flexibility in line with European ATM evolution.

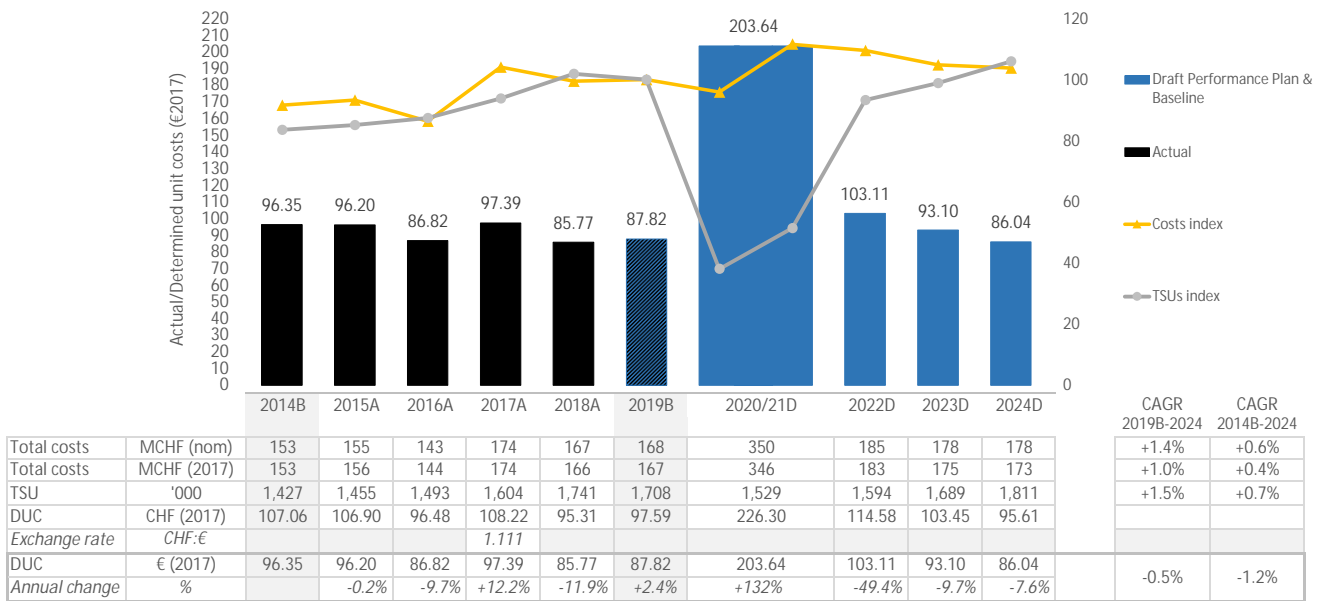
SWITZERLAND

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Switzerland - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 87.82 €2017 !

Switzerland includes adjustments to the cost baseline due to an exceptional reimbursement in 2019 and a change in MET cost allocation criteria, the adjustments seem justified. However, not enough details are provided with respect to the change in the key allocation for MET costs in en route.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? -0.5% ✓
The DUC is planned to decrease on average by -0.5% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -1.2% ✓
The DUC is planned to decrease on average by -1.2% between 2019 and 2024, which is slightly worse than the RP3 Union-wide trend (-1.3%). However, the difference is negligible and the trend can be considered consistent with the Union-wide one.
- c) DUC level (2019 baseline) lower than the average of comparator group (E) average (72.05 €2017)? +21.9% ✗
The 2019 DUC level is +21.9% 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 ✓

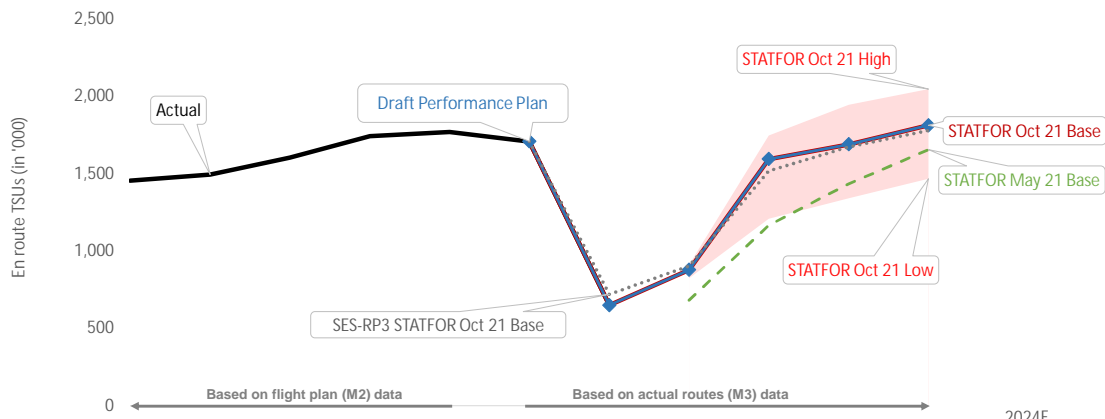
The PRB concludes that the cost-efficiency targets proposed by Switzerland should be approved.

- Switzerland is consistent with the RP3 DUC trend in terms of average reduction.
- Switzerland is not consistent with the long-term Union-wide DUC trend. However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- Switzerland is not consistent with the average DUC baseline of the comparator group.
- Switzerland should detail the changes in the cost allocation.
- Switzerland should ensure that the overspent determined costs related to the RP2 investments are not recovered during RP3.
- Switzerland should detail how the capitalisation rules applied are impacting the reimbursement of potential underspent RP3 determined costs related to investments.

4.2 Review traffic forecasts and baseline

Switzerland - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	1,455	1,493	1,604	1,741	1,769	1,708	650					
Annual change	%		+2.6%	+7.4%	+8.6%	+1.6%	-1.9%	-61.9%					
STATFOR Oct 21 Base	'000 TSUs								879	1,594	1,689	1,811	+6.0%
Annual change	%								+35.1%	+81.3%	+6.0%	+7.2%	
STATFOR May 21 Base	'000 TSUs								682	1,165	1,435	1,654	-3.2%
Annual change	%								+4.8%	+70.8%	+23.2%	+15.2%	
Performance Plan	'000 TSUs						1,708	650	879	1,594	1,689	1,811	+6.0%
Annual change	%						-1.9%	-61.9%	+35.1%	+81.3%	+6.0%	+7.2%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	1,708	
2019A (as in the Reporting tables, M2)	1,769	
2019B/ 2019A	-3.44%	-3.44%

2014	'000 TSUs	CRCO 12-month coefficient
2014B (PP baseline)	1,427	
2014A (as in the Reporting tables, M2)	1,427	
2014B/ 2014A	0.00%	-3.44%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- The 2019 traffic baseline was adjusted by the CRCO 12-month M2/M3 coefficient (-3.44%).
- No adjustment has been applied to the 2014 traffic baseline.

Review of 2014 and 2019 traffic baseline

- The application of the M2/M3 coefficient to the 2019 traffic baseline is as expected, increasing the DUC baseline.
- The M2/M3 coefficient calculated by the CRCO over 12 months is -3.44% and applying it to the 2014 baseline would have meant raising the baseline values for the DUCs, but no adjustment for 2014 traffic baseline has been reported.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Switzerland is in line with the STATFOR October 2021 base scenario.

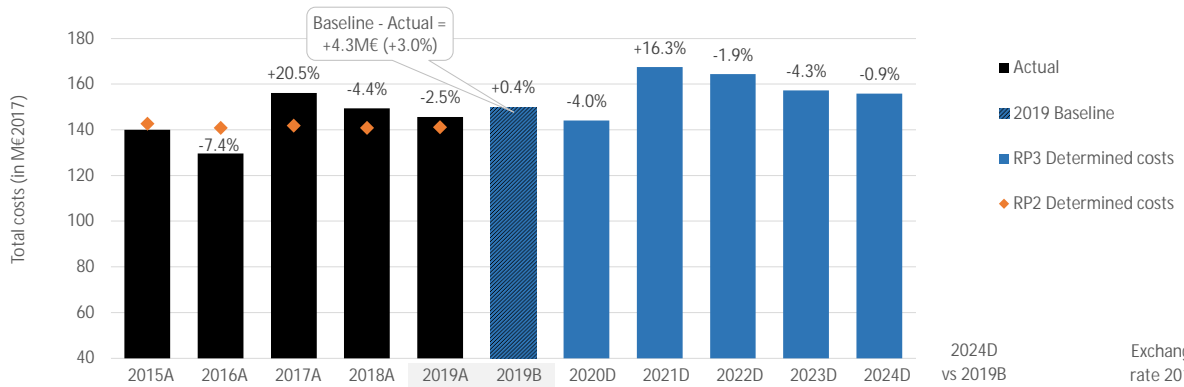
4.2.4 PRB Key Points

- Switzerland en route traffic forecast is in line with STATFOR October 2021.
- The 2014 traffic baseline has not been adjusted. The traffic baseline would have been lower, increasing the DUC baseline.

4.3 Review of determined costs and baseline

Switzerland - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	MCHF (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	MCHF (nom)	155	143	174	167	163	168	162	188	185	178	178	+5.7%
Annual change	%		-7.7%	+21.0%	-3.7%	-2.2%	+0.7%	-4.0%	+16.4%	-1.6%	-3.7%	-0.2%	
Inflation index	2017 = 100	99.9	99.4	100.0	100.9	101.3	101.3	101.3	101.4	101.7	102.5	103.4	+2.1%
Total costs	MCHF (2017)	156	144	174	166	162	167	160	186	183	175	173	+3.9%
Annual change	%		-7.4%	+20.5%	-4.4%	-2.5%	+0.4%	-4.0%	+16.3%	-1.9%	-4.3%	-0.9%	
Total costs	M€ (2017)	140	130	156	149	146	150	144	167	164	157	156	+3.9%

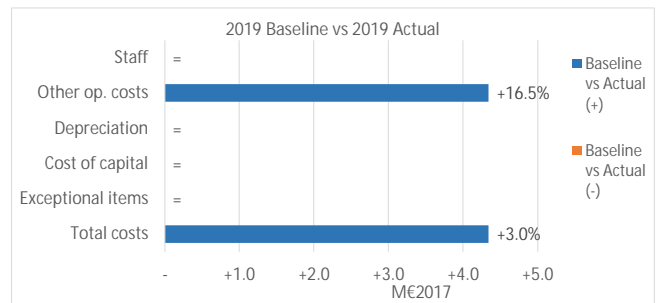
Exchange rate 2017
CHF:€
1.11124

- Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- Is inflation in PP in line with IMF (October 2021 forecast)? **Deviation from index < 1p.p. in 2024**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	4.3	+3.0%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - MET costs extraordinary reimbursement 2019	MET	Other ops.	+5.2
#2 - MET costs change in allocation key as of 2020	MET	Other ops.	-0.9

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- No adjustments applied to the 2014 cost baseline.
- Two adjustments applied to the 2019 cost baseline. The adjustments are due to an exceptional reimbursement in 2019 (+5.2M€2017), and a shift of cost allocation of MET costs between 2019 and 2020 (-0.9M€2017). "In 2019, the reimbursement of MET costs has been provisioned which artificially decreased the MET costs for 2019 (extraordinary one-off effect)".

2014/2019 baseline analysis

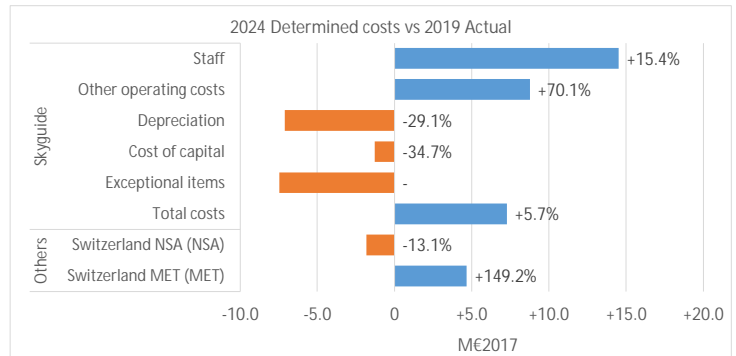
- The 2019 MET actual costs were outstandingly low compared with previous years. This was the result from an extraordinary, one-time effect, after a financial audit performed by the Swiss NSA. This led to a one-time deduction of the actual costs in 2019. If the actual 2019 figures have to be compared with the 2020 figures and the trend in RP3, and if conclusions are made regarding effective cost increases/decreases, this extraordinary effect must be corrected, therefore the baseline increase related to MET costs is well justified.
- Not enough details are provided with respect to the change in the key allocation for MET costs in en route. However, the increase in terminal cost for this effect (+2.0M€2017) is higher than the deduction applied in the en route baseline under this item (-0.9M€2017). The cost variation in terminal can not be fully related to a cost allocation change between en route and terminal.

4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	-20.7	-12.6%

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



Total determined costs in 2024 are planned to be +7% (or +10.1M€2017) higher than actuals 2019.

Skyguide costs in 2024 are planned to be +5.7% (or +7.3M€2017) higher than in 2019 overall.

- The differences by nature of costs are largely driven by a change in the capitalisation rules, resulting in a shift from CAPEX to OPEX as of 2021 in order to stimulate the purchase of external services, support new development methods and ease the choice of the relevant projects to implement. Hence a large part of the increases in staff costs and other operating costs between 2019 and 2024 are attributable to the change in the capitalisation rules (+6.3M€2017 of the +14.5M€2017 increase for the staff costs and +7.7M€2017 of the +8.8M€2017 increase for the other operating costs). On the other hand, depreciation and cost of capital in 2024 are lower than in 2019 due to the changes in the capitalisation rules (-5.0M€2017 of the -7.1M€2017 decrease for the depreciation and -1.0M€2017 of the -1.3M€2017 decrease for the cost of capital).

Overall, the additional costs relating to the new capitalisation rules in 2024 amount to +7.5M€2017. This amount is deducted as exceptional items so as not to be billed to airspace users.

The same approach has been followed by Skyguide for 2021 to 2024. In 2020, the amounts deducted as exceptional items correspond to the decrease of financing for the delegated airspace (Germany/Italy/Austria).

However, overall, total costs of Skyguide still result in an increase of 5.7% between 2019 actuals and 2024 planned costs.

- Skyguide indicates that they obtained a State capital injection of 150MCHF (around 135M€) to cover the transitory losses for delegated airspace in 2020 and capitalisation rules, as well as a loan of 350MCHF (around 315M€) for the accrued revenues for 2020 and 2021 that are planned to be invoiced as of 2023. It is indicated in the performance plan that "As a counterpart of the recapitalization by the CH Confederation, Skyguide has to implement a 120MCHF (around 108M€) savings in 2020-2024 (reflected in current submission) and to raise the retirement age of ATCOs to at least 60 years (having as consequence a transition phase with additional costs)."

The NSA costs in 2024 are planned to be -13.1% (or -1.8M€2017) lower than in 2019.

The MET costs for 2024 are planned to be +149.2% (or +4.7M€2017) higher than in 2019. This is due to an exceptional reimbursement in 2019 and a change in allocation key as of 2020. These are presented as adjustments to the baseline value for 2019 (see 4.3.2 of this document). After adjustment, the 2024 MET costs are planned to be +0.3M€2017 higher than in 2019 (or +4.5%).

Total en route service units are forecast to reach 2019 levels in 2024, according to the selected STATFOR October 2021 base forecast. On the other hand, en route costs are planned to exceed by far (+20M€2017) the 2019 adjusted baseline level already in 2023.

4.3.4 PRB Key Points

- Switzerland includes adjustments to the cost baseline due to an exceptional reimbursement in 2019 and a change in MET cost allocation criteria. However, not enough details are provided with respect to the change in the key allocation for MET costs in en route.

- Between 2019 and 2024, the total costs for Skyguide are planned to increase by +5.7% (or +7.3M€2017).

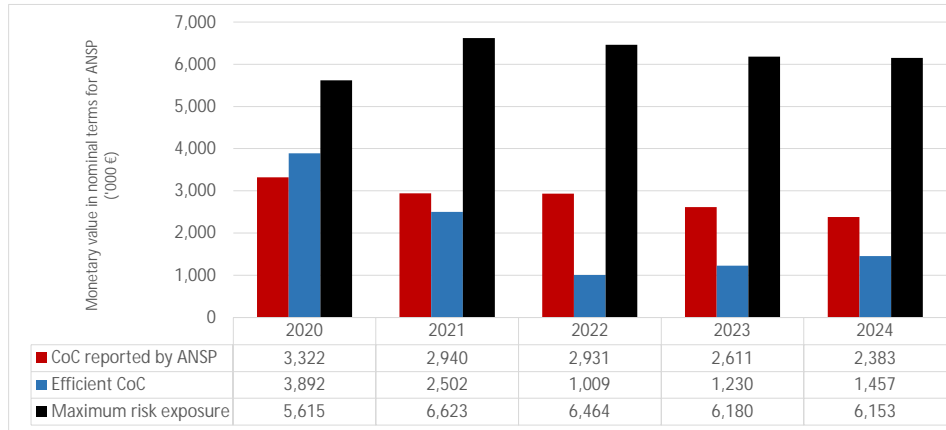
- Differently from the previous submission, it seems that the change in the capitalisation rules is mostly covered by a State injection. However, it should be noted that moving CAPEX to OPEX potentially shifts the investments risks to the airspace users given the RP3 reimbursement rules.

4.3.A Cost of capital

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	127,620	150,532	146,910	140,454	139,839
Monetary value of Return on Equity	1,745	1,350	2,671	2,394	2,199
Ratio RoE/DC (%)	1.4%	0.9%	1.8%	1.7%	1.6%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	-570	438	1,922	1,381	925

Total 2020-2024	4,097
-----------------	-------

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	2.8%	3.7%	5.1%	3.5%	12.9%	3.6%	9.9%	4.1%	8.1%	4.3%
Interest on debts	2.2%	2.2%	1.7%	1.7%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%
Capital structure (% debt)	53.1%	53.1%	77.5%	77.5%	82.3%	82.3%	76.9%	76.9%	71.4%	71.4%
WACC	2.5%	2.9%	2.5%	2.1%	2.5%	0.9%	2.5%	1.2%	2.5%	1.5%

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 are duly justified and in line with competitive market practices.
- The efficient WACC has been calculated based on option 3.
- Over RP3, the reported cost of capital is 4.1M€ above the efficient cost of capital. Despite this and the remarkably high return on equity for 2022-2024, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 0.9% and 1.8%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	132,873	117,583	117,249	104,444	95,300
Net current assets	0	0	0	0	0
Adjustments total assets	0	0	0	0	0
Total asset base	132,873	117,583	117,249	104,444	95,300

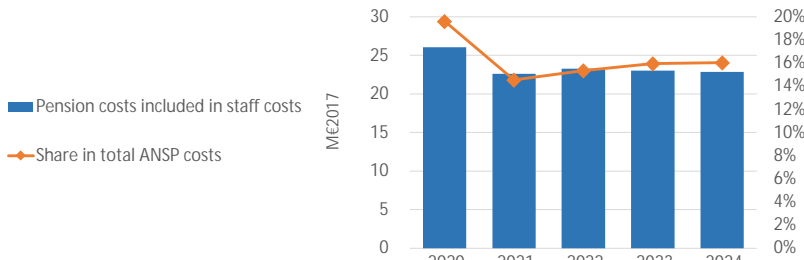
- The fixed asset base is planned to decrease over RP3. This is in line with the decrease in investments as described in section 3.5 of this document.
- The RAB does neither include net current assets, nor adjustments to the total asset base.
- The total asset base is therefore equal to the fixed asset base and will decrease over RP3 accordingly.

4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is 4.1M€ above the efficient cost of capital. Despite this and the remarkably high return on equity for 2022-2024, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 0.9% and 1.8%).

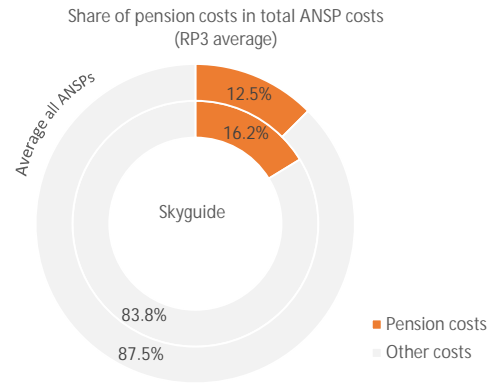
4.3.B Pensions

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	26.0	22.6	23.3	23.0	22.9
Year on year variation	% change		-13.2%	+3.0%	-1.1%	-0.7%
Share in total ANSP costs	%	19.6%	14.5%	15.4%	16.0%	16.0%
Year on year variation	p.p.		-5.1p.p.	0.8p.p.	0.6p.p.	0.1p.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 Union-wide average? **Higher**

4.3.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? **Yes**

The change is relatively minor. In 2020 the contribution rate was 5.275% and 5.3% for the rest of the period.

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

Skyguide has five defined contribution pension schemes for different staff categories. The employer contribution rates to the defined contribution pension schemes are planned to decrease for two categories (ATCOs from 34.8% to 31.8% and ATCOs regional/military from 18.9% to 17.7%). For the other three categories the contributions are planned to increase (managers from 25.6% to 27.9%, AOT from 15.9% to 17.5% and auxiliaries from 5.1% to 5.5%).

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, as the full liability of the scheme is assumed by Skycare. Skyguide is only liable for making contributions to the scheme and so the contributions are assessed on a defined contribution basis.

4.3.B.4 PRB Key Points



- No major issues identified.

4.3.C Methodology for cost allocation between ER and TRM

Switzerland

4.3.C.1 Cost allocation overview

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

- The performance plan does not explain the overall cost allocation methodology or criteria in detail. The explanation only states that: 1) dedicated services are directly allocated to en route or terminal services, and 2) services common to en route and terminal are allocated based on the respective key of the service. The keys are not explained.

- In relation to MET costs, Switzerland states that it applies the "Guide to Aeronautical Meteorological Services Cost Recovery" of the World Meteorological Organisation (WMO-No. 904), and the Manual on Air Navigation Services Economics, Appendix 2 (ICAO Doc. 9161).

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

Partially

If not, what are the issues identified?

The methodology and criteria for cost allocation are not explained in detail.

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

Annex C on the stakeholder consultation states that there have been two changes in cost allocation between 2019 and 2020:

- 1) a change in indirect OPEX costs having an impact on en route of 1.6MCHF (around 1.44M€) and on terminal of 2.7MCHF (around 2.43M€); and
- 2) a change in MET costs having an impact on en route of -0.9M€2017 and on terminal of 2M€2017.

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

No

If, not what are the identified issues?

The performance plan did not describe or justify the change in en route/terminal cost allocation of indirect OPEX costs.

The performance plan justifies that the change in the costs allocation of MET is in order to comply with applicable ICAO and WMO rules. In particular, Switzerland states that, in order to comply with regulatory requirements, it must increase the terminal MET cost for category I airports (Zurich and Genf) covered by the performance scheme and reduce the terminal MET costs for regional airports. No further details on the specific changes in the cost allocation methodology or criteria are provided. Switzerland notes that this is solely a cost reallocation and it has not increased the terminal MET costs at a national level.

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 reported changes in the allocation key of MET costs result in a decrease of the en route 2019 costs baseline of 0.9M€2017 and, at the same time, an increase of the terminal 2019 costs baseline of 2M€2017.

4.3.C.3 PRB Key Points

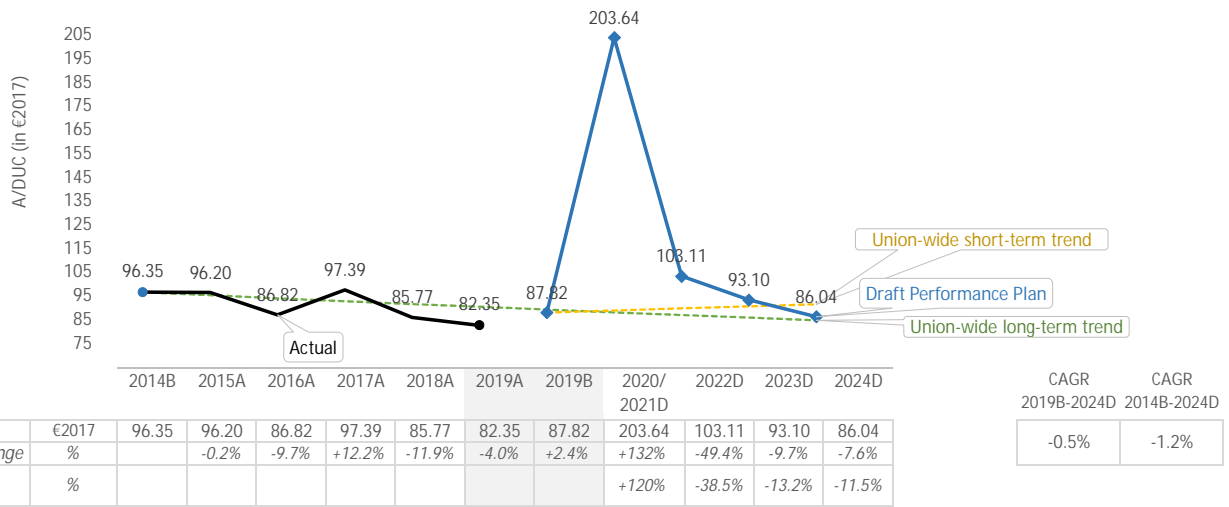


- Annex C on the stakeholder consultation states that there have been two changes in en route/terminal cost allocation in: indirect OPEX costs and MET costs.
- The performance plan does not describe or justify the change in cost allocation of indirect OPEX costs.
- The performance plan justifies the change in the allocation methodology for MET costs in order to comply with applicable ICAO and WMO requirements.
- There is no record of stakeholders opposing the proposed changes in cost allocation.
- The plan indicates different impacts on the en route and terminal 2019 baseline costs, which should be further explained.

4.4 Determined unit costs (DUC)

Switzerland - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

	Trend (CAGR 2019B-2024)	Performance Plan	Union-wide	Difference
✓ DUC consistency with the Union-wide RP3 DUC trend		-0.5%	+1.0%	-1.5p.p.
✓ DUC consistency with the Union-wide long-term DUC trend		-1.2%	-1.3%	+0.1p.p.
✗ DUC level consistency				

	Performance Plan	Average comparator group	Difference
2019 baseline	87.82	72.05	+21.9%

- The DUC is planned to decrease on average by -0.5% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -1.2% between 2014 and 2024, which is slightly worse than the long-term Union-wide trend (-1.3%). However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- The 2019 DUC level is +21.9% higher than the average of the comparator 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

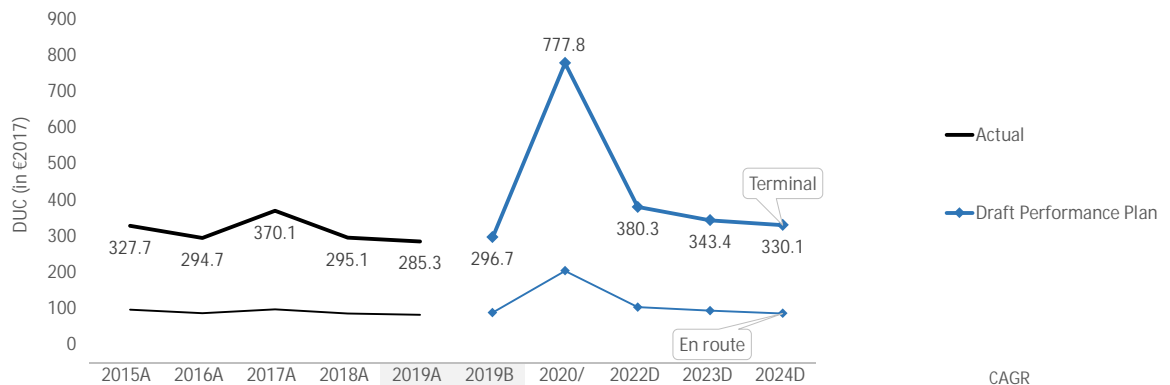
✓

- Switzerland is consistent with the RP3 DUC trend in terms of average reduction.
- Switzerland is not consistent with the DUC long-term Union-wide trend. However, the difference is negligible therefore the trend can be considered consistent with the Union-wide one.
- Switzerland is not consistent with the average DUC baseline of the comparator group.

4.5 Terminal

Switzerland

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal	327.7	327.7	294.7	370.1	295.1	285.3	296.7	777.8	380.3	343.4	330.1	+2.7%
Annual Change	%		-10.1%	+25.6%	-20.2%	-3.3%	+0.5%	+162%	-51.1%	-9.7%	-3.9%	
DUC - En route	96.2	96.2	86.8	97.4	85.8	82.3	87.8	203.6	103.1	93.1	86.0	-0.5%
Annual Change	%		-9.7%	+12.2%	-11.9%	-4.0%	+2.4%	+132%	-49.4%	-9.7%	-7.6%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Geneva (LSGG)	GROUP III	166.6	371.9	+123.3%	234.2	578.4	+146.9%
Zürich (LSZH)	GROUP I	137.7	284.0	+106.2%	177.4	383.6	+116.2%

* 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 average unit costs for Geneva (LSGG) and Zurich (LSZH) were significantly higher than the median of their comparator group during RP2, the difference is planned to be even higher during RP3.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
2019 Traffic Baseline Adjustments	TCZ1	No	

Costs

Cost Baseline analysis		Δ M€2017	%	
2019B vs 2019A	TCZ1	3.3	+4.0%	
2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	M€2017
#1 - MET costs extraordinary reimbursement 2019	TCZ1	MET	Other ops.	+1.3
#2 - MET costs change in allocation key as of 2020	TCZ1	MET	Other ops.	+2.0

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

Two adjustments are described in the 2019 terminal baseline: the increase is explained by an exceptional reimbursement in 2019 (+1.3 M€2017), and a change of cost allocation for MET costs between 2019 and 2020 (+2.0 M€2017).

2019 baseline analysis

- Regarding the first element of the adjustments, the 2019 MET actual costs were outstandingly low compared with previous years. This was the result from an extraordinary one-time effect, after a financial audit performed by the Swiss NSA. This led to a one-time deduction of the actual costs in 2019. This adjustment related to MET costs is well justified.

- As for the second adjustment in en route, no much detail has been provided in the performance plan and in its Annexes. However, the increase in terminal (+2.0 M€2017) is higher than the deduction applied in the en route baseline under this item (-0.9 M€2017) and therefore the costs variation in terminal can not be fully related to a cost shift between en route and terminal.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The selected TNSU forecast underlying the proposed cost-efficiency targets for RP3 is in line with STATFOR October 2021 base forecast.

Determined costs (terminal)

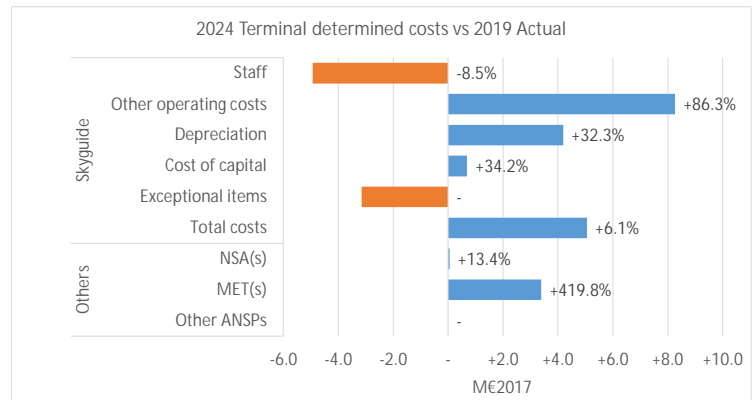
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1 p.p. in 2024

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	4.40%
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 (46%) is higher than the share of terminal total costs (38%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The share of terminal pension costs in total pensions costs (30%) is lower than the share of terminal costs in total determined costs (38%).
- The terminal DUC trend over RP3 planned for Switzerland (+2.3% p.a.) is higher than planned for en route (-0.5% p.a.).
- Skyguide total costs in 2024 are planned to be above the 2019 level (+6.1%, or +5.1M€2017). The main drivers are the other operating costs which are +86.3% higher in 2024, and higher depreciation costs (+34% or +4.2M€2017). This is only partially compensated by the exceptional items, that report a negative amount for each year. This amount corresponds to the adjustment for not invoicing of the impact of capitalisation rules from 2021 to 2024.
- For incentives, refer to section 3.4 of this document.
- The total terminal service units are forecast no to reach the 2019 level in RP3, reaching -4.7% in 2024 according to the selected STATFOR October 2021 base forecast. While terminal costs are planned to exceed, 2019 actual costs and even baseline costs by 2020.
- The MET costs are planned to increase by +419.8% (or +3.4M€2017) mainly due to the elements included in the 2019 baseline adjustment explained in section 4.5.3 of this document.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is +2.7%, which is worse than the en route RP3 DUC trend of -0.5%.
- The terminal RP3 DUC trend is +2.7%, which is worse than the terminal RP2 DUC trend of -3.4%.
- Zürich, the main airport, had a DUC +106.2% higher than the median of its comparator group over RP2. The difference is expected to be +116.2% over RP3. Geneva airport had a DUC +123.3% higher than the median of its comparator group over RP2. The difference is expected to be +146.9% over RP3.
- Switzerland used the STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs increase over the period, mainly due to an increase in other operating costs and depreciation.

PRB Assessment

FINLAND

Draft Performance Plan

Context and scope

Finland

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4458, F4459, F4460, F4461, F4473, F4420, F4462, F4463, F4474, F4423, F4464, F4465, F4466, F4467, F4468, F4469, F4470, F4471, F4472

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 0.9%
 % Serv. Units vs SES 0.9%
 % Costs vs SES 0.8%

Scope

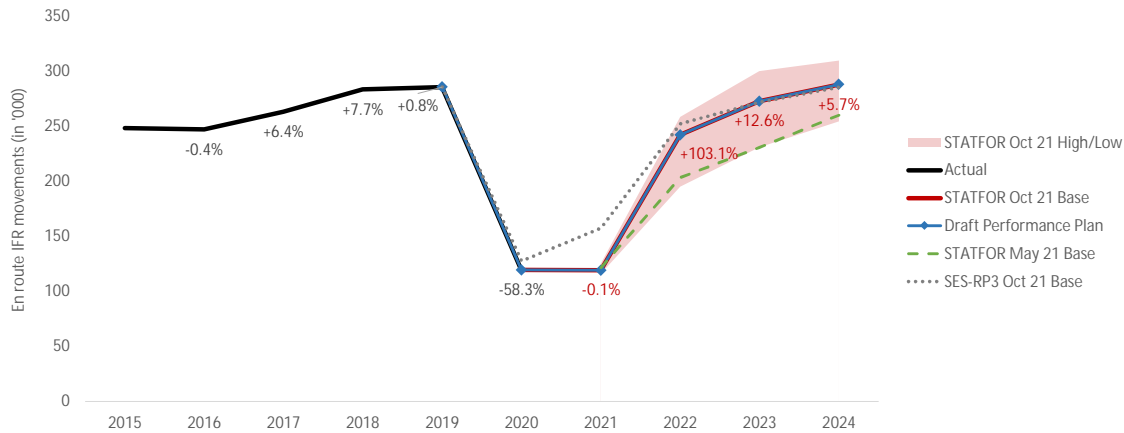
FAB:	NEFAB
ANSPs:	Fintraffic ANS Finnish Meteorological Institute (FMI)
Other entities (as per Article 1(2) last para. of Regulation 2019/317):	EUROCONTROL Finnish Transport and Communications Agency

ATS, CNS, AIS, ASM, ATFM
MET
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 (ER)	Finland	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Fintraffic ANS	Safety policy and objectives	C	C	C	C	C
	Safety risk management	D	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 Finland should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The mechanism of establishing safety measures is described, demonstrating that ANSP will achieve the safety targets at the end of RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	0.97%	0.88%	0.88%	0.88%	0.88%

PRB assessment

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

- Finland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.09	0.03	0.05	0.05	0.05
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.39	0.21	0.28	0.32	0.77

PRB assessment

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

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- The modulation mechanism defined for the en route incentive scheme is not entirely clear.
- 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 PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	81.42	48.63	41.43	40.22	-0.3%	-3.6%
Target for determined unit cost (DUC) (€2017) - Terminal	367.09	157.04	145.92	143.03	n/a	+1.3%

PRB assessment

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

- Finland is consistent with the RP3 DUC trend in terms of average reduction.
- Finland is consistent with the long-term Union-wide DUC trend.
- Finland is consistent with the average DUC baseline of the comparator group.

5. PRB recommendations

SAFETY

- Finland should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.
- Finland should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Finland should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

FINLAND

Safety KPA

1.1 Summary of safety key data and assessment results

Finland

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of RP3.
The EoSM target levels are set in accordance with the RP3 Union-wide safety targets.

1.1.2 Measures planned to reach the target (if applicable)

No specific measures are provided, however, the ANSP has achieved the 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 major changes to the ATM functional system required to satisfy other KPAs is addressed by a standard safety assessment process which is compliant the current regulation.

1.1.4 Change Management

Specific change management procedures are applied by the NSA to minimise the impact on network performance. The procedures are compliant 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 mechanism of establishing safety measures is described, demonstrating that ANSP will achieve the safety targets at the end of RP3.
 - The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
 - The change management practices ensure that any negative impact on network performance is reduced.
- Finland should define explicit measures to improve maturity levels over RP3 to specifically address Safety Risk Management area.
 - Finland should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Finland

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
ANS Finland	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	C	D	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

The EoSM targets levels are set in accordance with the RP3 Union-wide safety targets. ANS Finland has attained the target levels for four out of five safety management objectives. Safety Risk management area requires improvement from level C to D. ANS Finland should not decrease the safety level for safety risk management over RP3.

The 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 progress towards 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. Moreover, the NSA derived measures should be provided.

However, considering the current maturity of the safety level, it is probable that the RP3 safety targets will be achieved earlier than 2024.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The major changes to Fintraffic ANS's existing functional systems planned to be implemented within the RP3 timeframe are the FINEST cross-border service provision program and the deployment of remote tower operations. These changes are subject to normal safety assessments (as defined in the safety management system) and mitigated as any other ATM functional changes, compliant with the current regulation.

Additionally, the NSA ensures the regular reviews of safety levels and resources related to safety activities by long term planning.

1.3.2 Change Management Practices

Safety related changes to the service provider's 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) 2017/373.

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

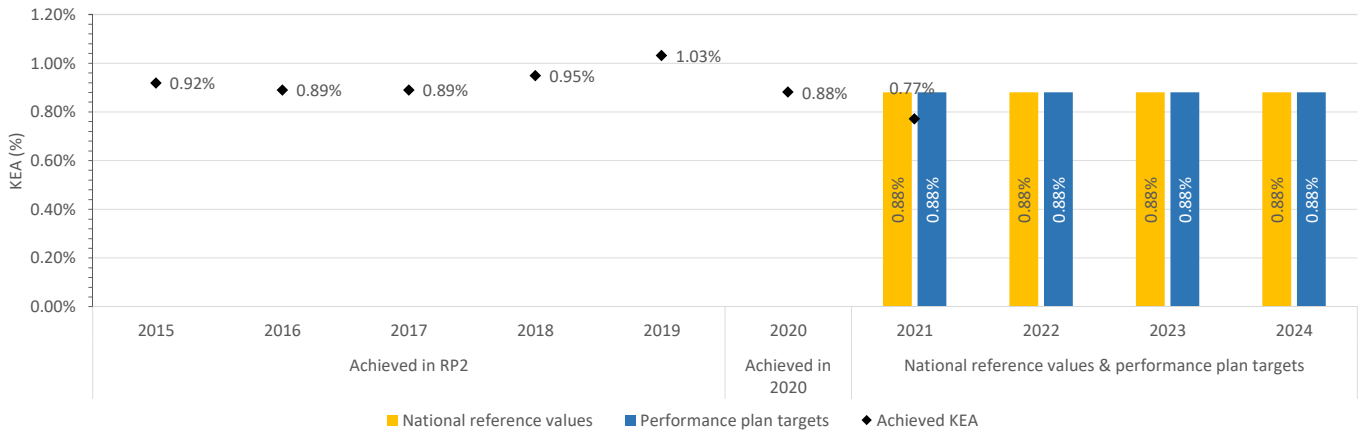
Environment KPA

2.1 Summary of Key Data and Assessment Results

Finland

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

	2020	2021	2022	2023	2024
National reference values	0.97%	0.88%	0.88%	0.88%	0.88%
Performance plan targets	0.97%	0.88%	0.88%	0.88%	0.88%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Finland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Finland should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Finland

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 free route airspace (FRA) was implemented in November 2015. Finland's free route airspace (FRA) was established between FL095 and FL660.			3.2.1(c)	Page 44
Major ERNIP Recommended Measures:		3	Reference in PP	Reference in ERNIP
Measure included within performance plan?			n/a	Page 68
PBN transition plan		✗	n/a	Page 154
ATS route and airspace structure improvement between Finland FIR and Russian Federation		✗	n/a	Page 180
FINEST - Cross-border sectorisation		✗		
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Finland achieved a KEA of 0.88%. In 2021, Finland reached a KEA of 0.77% which means it achieved the 2021 target of 0.88% in its performance plan.

Finland has established free route airspace (NEFRA), together with NEFAB and DK-SE FAB states. This allows airspace users to use optimal routes in Finnish airspace, but which might not always be the great circle route. Airspace users overflying Finnish airspace may still be re-routed due to airspace restrictions, so Finland should seek to minimise these where possible.

There is further room for improvement by making the ATS route and airspace structure near the border with Russia more efficient, although no explanation of impact of this improvement was provided in the performance plan.

The innovative Finland/Estonia free route airspace (FINEST) program was not included in the performance plan. The PRB encourages Finland to analyse the estimated impact on environmental performance.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

FINLAND

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Finland proposes capacity targets which are equal to the national reference values, and are above the range of the delay forecast. Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Helsinki is the only airport included in the performance plan. National targets are set higher than in RP2, and largely in line with average past performance.

The performance at Helsinki is expected to be worse than that of the group of similar airports in RP3.

The national target is built from three components: weather related delays, CRSTMP delays and delays associated with the renovation of the runway at the airport. Out of the three components, the delays associated with airport renovation works are the drivers behind the planned deterioration of the performance.

3.1.3 Incentives

En route:

Finland has chosen to modulate the pivot values and update them based on the NOP updates, however it is not entirely clear what the methodology of the modulation is.

There are no bonuses possible, maximum penalty is set at 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.

Terminal:

Finland has chosen to modulate the pivot values for CRSTMP-only delays. The indicated pivot values are set at the maximum annual CRSTMP delay observed in RP2 (0.02 minutes per arrival).

There are no bonuses possible, and maximum penalty is set at 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.

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

Finland does not plan any new major investments in RP3. The core of the investments costs consist of existing investments, that represent 51% of the total costs of investments.

No new investments targeting enroute capacity or linked to PCP/CP1 ATM Functionalities are planned for implementation during RP3.

Other new and existing investments contribute to capacity, resilience, flexibility and scalability.

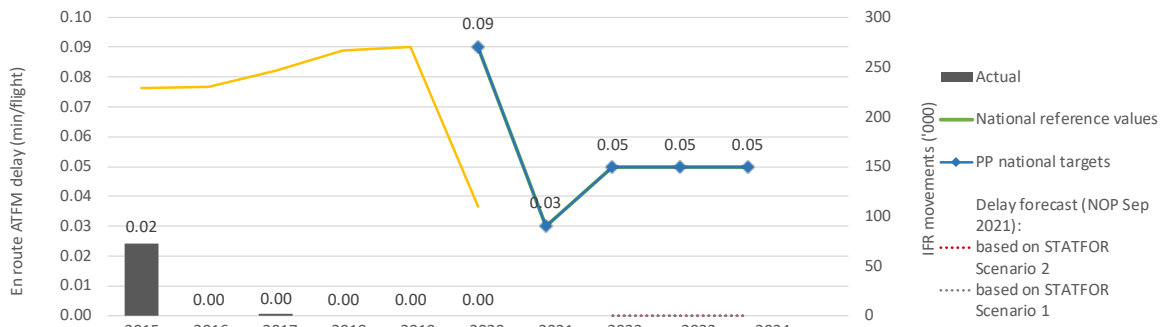
3.1.5 PRB conclusions

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

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- The modulation mechanism defined for the en route incentive scheme is not entirely clear.
- 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 ✓



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Traffic variation	-0%	+0.4%	+6.9%	+8.4%	+1.4%	-59.4%				
Actual delay/flight	0.02	0.00	0.00	0.00	0.00	0.00				
National reference values						0.09	0.03	0.05	0.05	0.05
PP national targets						0.09	0.03	0.05	0.05	0.05
Based on STATFOR Scenario 1							-	0.00	0	0.00
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, Finland experienced no capacity gap or constraints, registering zero minutes en route ATFM delays and meeting the capacity targets well below the planned values.

The performance plan contains generic identification of the capacity enhancement measures that are implicitly linked to activities, initiatives and investments described further in the plan. All the measures are in line with current NOP and include:

- Dynamic sectorisation based on actual traffic,
- Datalink for whole Finland to FL195+, Wide Area Multilaterate (WAM) and FINEST dynamic sectorisation and full FRA with Estonia,
- Dynamic ATCO planning including sharing and common rostering with Estonia,
- ATM system upgrade (Thales) including common FDP with Estonia, VCS, software upgrades, infrastructure improvements,
- FINEST programme (Finland/Estonia) including airspace redesign, LARA, cross-border operations enhancements, common procedures, ATCO sharing, common technology and all the measures above.

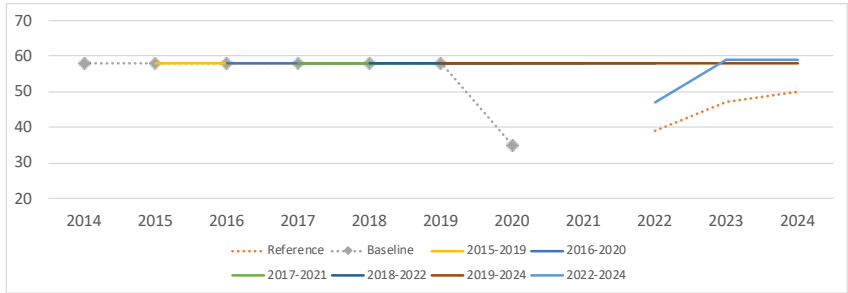
The number of ATCO FTEs will be planned flexibly according to the traffic demand. In 2020, the numbers dropped (temporary layoffs and tasks re-assignment). The number will start to increase in 2022 to slightly higher levels than in RP2. Common rostering and planning with Estonia is also referenced.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Tampere ACC (EFIN)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	12	2	1	+4
	ATCOs in OPS to stop working in the OPS room	0	0	8	3	0	0	0	
	ATCOs in OPS to be operational at year-end	0	51	43	40	52	54	55	
Total - Fintraffic ANS (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	12	2	1	+4
	ATCOs in OPS to stop working in the OPS room	0	0	8	3	0	0	0	
	ATCOs in OPS to be operational at year-end	0	51	43	40	52	54	55	

3.2.3 Review of previous and existing capacity profile plans per ACC

Tampere ACC (EFIN)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									39	47	50
Baseline	58	58	58	58	58	58	35				
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
2022-2024									47	59	59
Latest vs Reference									21%	26%	18%

- The ACC has been relocated to Helsinki.
- Historical data shows no changes in the baseline values over RP2. Planned values were also consistent with the baseline during RP2.
- Latest planned capacity profile shows an average annual growth of 12%, and will result in profiles slightly higher than the baseline in 2019. Helsinki ACC is expected to have a major capacity surplus throughout RP3: 21% in 2022, 26% in 2023 and 18% in 2024.
- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

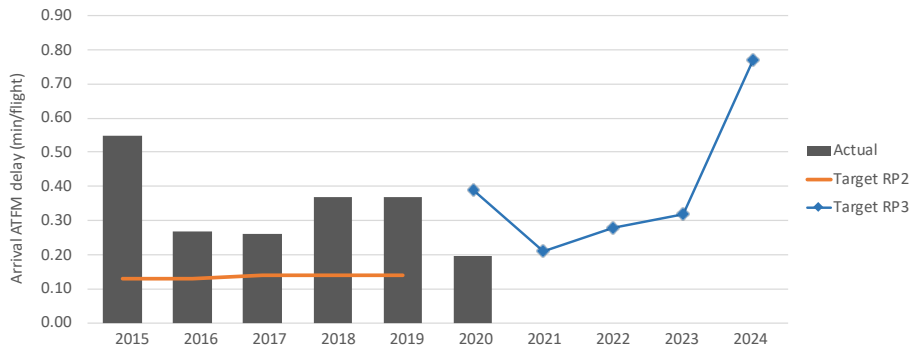
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- Finland proposes capacity targets, which are equal to the national reference values and are above the range of the delay forecast.
- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	Actual	0.13	0.13	0.14	0.14	0.14	0.39	0.21	0.28	0.32	0.77
Helsinki/ Vantaa (EFHK)	Actual	0.55	0.27	0.26	0.37	0.37	0.20	-	-	-	-

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

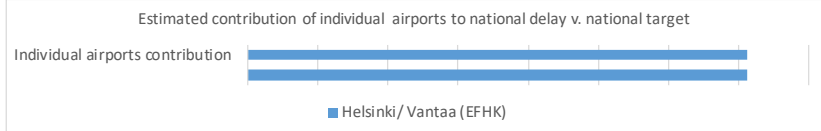
Finland has built the targets for RP3 based on 3 components: estimated weather delay (constant 0.19 minutes per arrival for each year of RP3), estimated CRSTMP delay (adding a constant 0.02 minutes per arrival for each year of RP3) and estimated delay due to programmed renovation works on the runway 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 targets significantly higher than the targets during RP2 and close to the observed performance (RP2 average: 0.36 minutes per arrival). The target for 2024 represents much higher delays (0.77 minutes per arrival) due to the planned renovation of the runway by the airport operator.

The Finnish performance plan uses the STATFOR October 2021 base forecast, which estimates a CAGR in IFR movements of 0.2% in 2019-2024.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Helsinki/ Vantaa (EFHK)	0.40
National Target	0.40



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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Helsinki/ Vantaa (EFHK)	GROUP III	0.12	0.36	+0.25	0.40	+0.28

* 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

Helsinki's performance during RP2 was 0.25 minutes per arrival 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

- Helsinki is the only airport included in the performance plan. National targets are set higher than in RP2, and largely in line with average past performance.
- The performance at Helsinki is expected to be worse than that of the group of similar airports in RP3.
- The national target is built from three components: weather related delays, CRSTMP delays and delays associated with the renovation of the runway at the airport. Out of the three components, the delays associated with airport renovation works are the drivers behind the planned deterioration of the performance.

3.4 Capacity Incentive schemes

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	0.05
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.05	0.05	0.05
Pivot values for RP3			0.01	0.01	0.01

Threshold and pivot value review

The information provided is not completely consistent. From the table (5.2.1.1) the pivot value is modulated annually and a deadband of 0.05 minutes will be added to the pivot value before any penalties are triggered. No bonuses are possible.

Modulation review

The rationale (5.2.1.2) explains that modulation of the pivot value will be "commensurate with actual expected performance", there will be a penalty at 0.01 minutes above the target - and that the target will be set at the NOP reference values. The pivot value should not be set according to expected performance since the intention is to drive performance. Although it is not clearly stated, it appears that the pivot value will be set at updated NOP reference value plus 0.01 minutes minus the deadband (0.05 minutes).

Review of financial advantages/disadvantages

No bonus is possible and the maximum penalty is fixed at 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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
Performance Plan targets			0.28	0.32	0.77
Pivot values for RP3			0.02	0.02	0.02

Threshold and pivot value 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. The CRSTMP modulated pivot value is commensurate with the historical performance.

Modulation review

Finland has chosen to modulate the pivot values according to CRSTMP causes. The pivot value chosen is the constant CRSTMP component considered when building the national targets. This was the maximum annual CRSTMP delay observed in RP2: 0.02 minutes per arrival in 2015 and 2018.

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 dead band results in an incentive scheme that will unlikely have any financial impact.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✘

En route:

- Finland has chosen to modulate the pivot values and update them based on the NOP updates, however it is not entirely clear what the methodology of the modulation is.
- There are no bonuses possible, maximum penalty is set at 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.

Terminal:

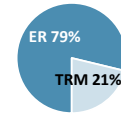
- Finland has chosen to modulate the pivot values for CRSTMP-only delays. The indicated pivot values are set at the maximum annual CRSTMP delay observed in RP2 (0.02 minutes per arrival).
- There are no bonuses possible and maximum penalty is set at 0.25%.
- The maximum penalty defined by the incentive 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.
- 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.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	6.1	7.1	6.7	7.2	8.3	35.3
	En route	4.6	5.5	5.2	5.8	6.7	27.8
	Terminal	1.5	1.6	1.5	1.4	1.5	7.5

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.

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	TRM
Total:						0.0	0.0

Airspace user feedback regarding major investments

Finland did not plan any new major investments for RP3, however the airspace users commented on the overall investment plan. The airspace users noted that investments need to be reviewed carefully and the plan should only include necessary investments with explanations on how to measure the success rate.

The airspace users supported the digitalisation of Air Traffic Control and increased capability of data sharing, however noted the importance of measuring the implications and justification of the priority of these investments.

Review of investments

The actual CAPEX for RP2 was 44% of the planned for the same period and the amount underspent was 33.5M€. In terms of depreciation and cost of capital, the airspace users have financed 14.3M€ for investments that have not been materialised. Finland mentioned that a total of 1.2M€ will be reimbursed to the airspace users over RP3 through a reduction of the unit rate.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 RP3 (M€)
Other new investments	67.4	47.1	0.8	1.7	3.6	4.9	6.3	17.2
Existing investments			5.3	5.5	3.0	2.3	2.0	18.2

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	Surveillance domain	22.5	14.6	0.3	0.4	0.9	1.4	1.7	4.8	SUR domain investments consists of: WAM MLAT, PSR and MSSR lifecycle upgrades and new MSSR investments. The SUR leasing value investments (FINAVIA) consists of: PSR lifecycle upgrade, SMR, MLAT and ADS-B investments.
2	ATM domain	30.8	21.3	0.4	0.8	1.7	2.3	3.2	8.4	ATM domain investments consists mainly of: TopSky system SW/HW regulative, safety, capacity lifecycle and cybersecurity evolution. ASM, AMHS and FMP both system and cyber security. The ATM investments are essential from capacity and safety aspect in the future dynamic cross-border FRA environment.
3	COM domain	8.2	6.5	0.0	0.3	0.7	0.8	0.8	2.7	COM domain investments consists of: Procurement of new VoIP VCS system. SWIM and DLS service extension. Part of the COM investments can be seen jointly from the FINEST cross-border cooperation perspective. FINEST cooperation requires investments in the DLS message handling in the ATM systems.
4	NAV domain	4.3	3.1	0.0	0.1	0.1	0.3	0.3	0.8	NAV main investments consists of: ENR DME renewals. The leasing investments (Finavia) are ILS and DME renewals.
5	Support systems	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.3	Support system investments consists of data management and info-systems required for centralised service provision on FINEST dynamic cross-border environment.
6	Training domain	1.6	1.4	0.0	0.0	0.0	0.1	0.1	0.2	TRG domain investments consists of: System lifecycle renewal and upgrades of ATM and COM systems used for ATCO training. Lifecycle upgrades and system updates to support ATCO training.

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls? 

Finland has a significant (18% - 26%) capacity surplus during RP3.

No new major investments are planned for RP3, and no investments are linked to PCP/CP1 ATM Functionalities.

The main other (non-major) investment contributing to capacity is the FINEST investment, which is in line with the European ATM evolution and digitalisation. Other investments to ATM system lifecycle upgrades, surveillance and communications systems upgrades can contribute to resilience, flexibility, and scalability.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 

While the FINEST investment does not qualify as a major investment it should be highlighted as a cross-border initiative between Finland and Estonia enabling dynamic cross-border sectorisation and unlocking additional capacity (3% increase according to LSSIP Estonia 2019).

FINEST is fully aligned with the European ATM evolution and will contribute to resilience, flexibility and scalability.

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

As there is no shortage of capacity in Finland it can be argued that the timing of FINEST (planned operational April 2022) and other investments is non-critical vis-à-vis capacity and no issues are identified.

3.5.4 PRB Key Points

- Finland does not plan any new major investments in RP3. The core of the investments costs consist of existing investments, that represent 51% of the total costs of investments.

- During RP2, the actual CAPEX was only 44% of the planned for the same period. The airspace users have financed 14.3M€ for investments that have not been materialised. Finland mentioned that a total of 1.2M€ will be reimbursed to the airspace users over RP3 through a reduction of the unit rate.

- No new investments targeting en route capacity or linked to PCP/CP1 ATM Functionalities are planned for implementation during RP3.

- Other new and existing investments contribute to capacity, resilience, flexibility and scalability.

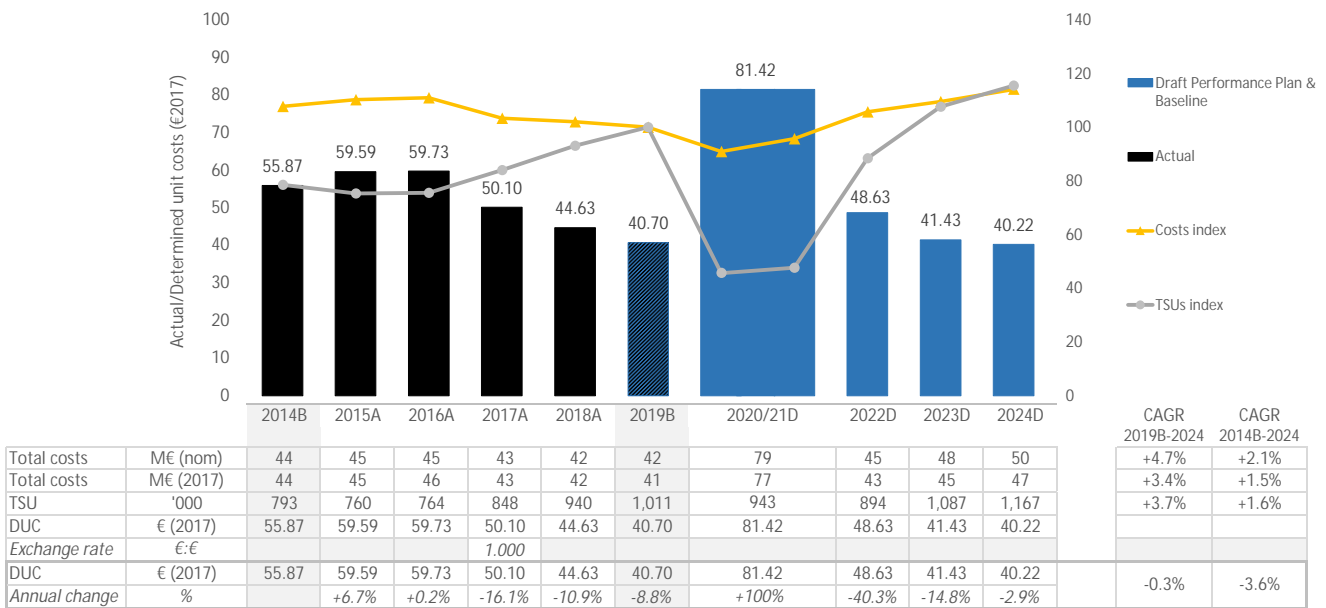
FINLAND

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Finland - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 40.70 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? -0.3% ✓

The DUC is planned to decrease on average by -0.3% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).

b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -3.6% ✓

The DUC is planned to decrease on average by -3.6% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).

c) DUC level (2019 baseline) lower than the average of comparator group (B) average (49.28 €2017)? -17.4% ✓

The 2019 DUC level is -17.4% lower 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 ✓

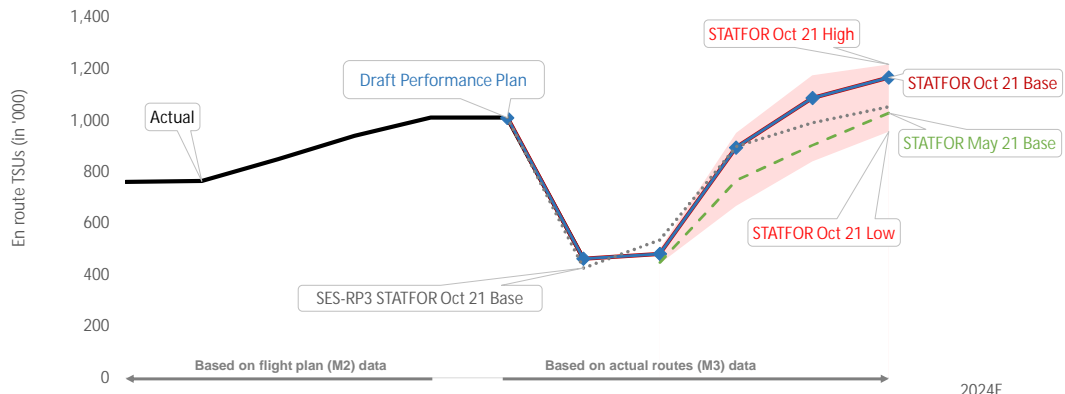
The PRB concludes that the cost-efficiency targets proposed by Finland should be approved.

- Finland is consistent with the RP3 DUC trend in terms of average reduction.
- Finland is consistent with the long-term Union-wide DUC trend.
- Finland is consistent with the average DUC baseline of the comparator group.

4.2 Review traffic forecasts and baseline

Finland - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	760	764	848	940	1,011	1,012	462					
Annual change	%		+0.5%	+11.1%	+10.8%	+7.5%	+7.6%	-54.3%					
STATFOR Oct 21 Base	'000 TSUs								481	894	1,087	1,167	+15.3%
Annual change	%								+4.1%	+86.0%	+21.5%	+7.4%	
STATFOR May 21 Base	'000 TSUs								448	766	904	1,029	+1.7%
Annual change	%								-3.0%	+71.1%	+18.0%	+13.8%	
Performance Plan	'000 TSUs						1,011	462	481	894	1,087	1,167	+15.4%
Annual change	%						+7.5%	-54.3%	+4.1%	+86.0%	+21.5%	+7.4%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	1,011		2014B (PP baseline)	793	
2019A (as in the Reporting tables, M2)	1,011		2014A (as in the Reporting tables, M2)	793	
2019B/ 2019A	0.00%	+0.10%	2014B/ 2014A	0.00%	+0.10%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 For both the 2014 traffic baseline and the 2019 traffic baseline, there is no adjustment corresponding to the CRCO M2/M3 correction factor (+0.10%).

Review of 2014 and 2019 traffic baseline
 There are no adjustments to account for the new distance factor (M3) for either the 2014 traffic baseline or the 2019 traffic baseline. However the CRCO M2/M3 correction factor is relatively small (+0.10% corresponding to some 1,000 TSUs). The justification provided for not adjusting the 2014 traffic baseline is as follows: "The calculation change has had a very marginal effect on the service units in Finland's airspace". The justification for not adjusting the 2019 traffic baseline is as follows: "The calculation change has had a very marginal effect on the service units due to the use of the FRA concept since 2015 and already effective routes".

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
 n/a

Review of the PP traffic forecast
 The selected forecast is in line with STATFOR October 2021 base scenario for all years of RP3 with a traffic level +15.4% higher in 2024 than in 2019 baseline/actual (+15.3% if the baseline is adjusted by the CRCO M2/M3 coefficient).

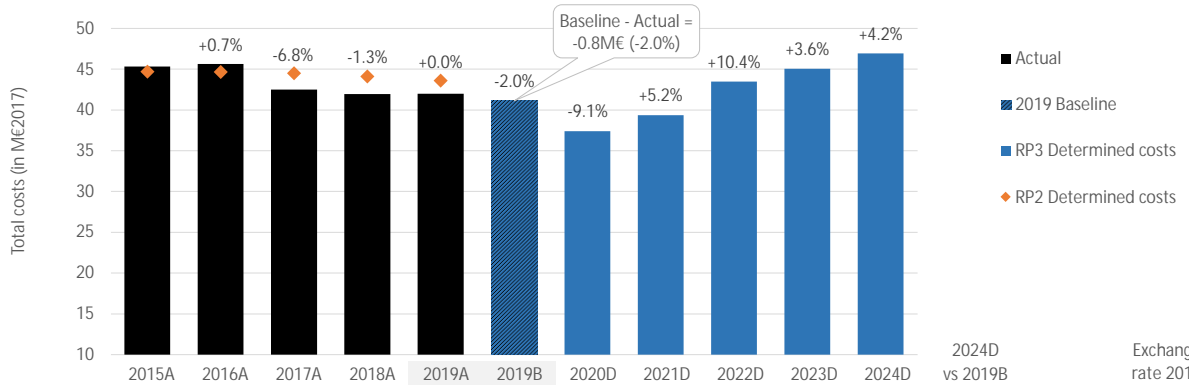
4.2.4 PRB Key Points

- Finland did not adjust the traffic baseline.
- En route traffic forecast is in line with STATFOR October 2021.

4.3 Review of determined costs and baseline

Finland - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



Total costs	M€ (nom)	45	45	43	42	43	42	38	41	45	48	50	2024D vs 2019B
Annual change	%		+1.0%	-6.3%	-0.3%	+1.0%	-1.1%	-8.8%	+6.4%	+11.9%	+4.9%	+5.6%	
Inflation index	2017 = 100	98.8	99.2	100.0	101.2	102.3	102.3	102.7	104.2	105.7	107.4	109.3	+6.9%
Total costs	M€ (2017)	45	46	43	42	42	41	37	39	43	45	47	+14.1%
Annual change	%		+0.7%	-6.8%	-1.3%	+0.0%	-2.0%	-9.1%	+5.2%	+10.4%	+3.6%	+4.2%	
Total costs	M€ (2017)	45	46	43	42	42	41	37	39	43	45	47	+14.1%

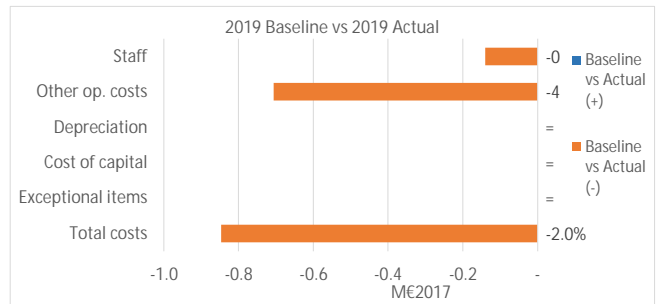
Exchange rate 2017	€:€	1.00000
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- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ⓘ Is inflation in PP in line with IMF (October 2021 forecast)? **Deviation from index < 1p.p. in 2024**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review ✓

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	-0.8	-2.0%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Adjustment on staff costs	ANSP	Staff	-0.1
#2 - Adjustment on other operating costs	ANSP	Other ops.	-0.7

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- There is no adjustment proposed to the 2014 cost baseline.
- There are two main adjustments proposed for the 2019 cost baseline, for a total of -0.8M€2017 for en route:
 - A correction of 2019 actual staff costs reported to be -0.1M€2017.
 - A correction of 2019 actual other operating costs reported to be -0.7M€2017.

2014/2019 baseline analysis

The 2019 cost baseline is 41.1M€2017, which is -0.8M€2017 (or -2.0%) lower than the 2019 actual costs. Finland explains that the difference is due to some correction to Fintraffic ANS actual costs in 2019, namely:

- A correction of 2019 actual staff costs reported to be -0.1M€2017 for en route. The ANSP corrected the 2019 actual staff costs for the following reasons: 1) a mistake in the training cost calculations and 2) clarifications in the cost allocation ratios.
- A correction of 2019 actual other operating costs reported to be -0.7M€2017 for en route. The ANSP corrected and provided a new calculation on 2019 actuals for the following reasons: 1) some of the costs which were already reported in the NSA costs were also reported in the ANSP costs; 2) a mistake in the training cost calculations, and 3) clarifications in the cost allocation ratios.
- Both seem to be just a correction of 2019 actual values and reduce slightly the 2019 cost level.

4.3.3 Review of the RP3 determined costs and incentives



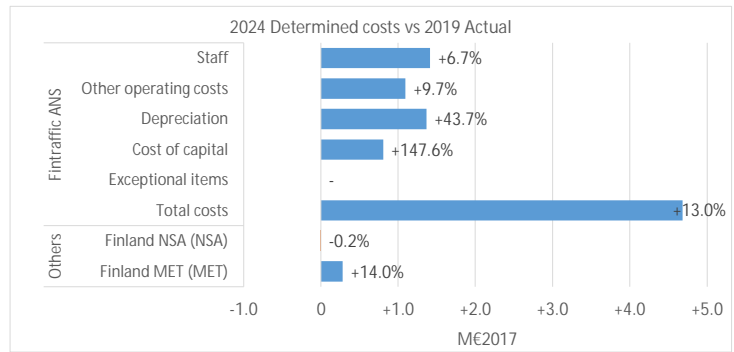
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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



The total costs of Finland are planned to increase by +11.8%, or 5.0M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is Fintraffic ANS (+13.0%, or +4.7M€2017 overall).

For Fintraffic ANS, the main ANSP, the total 2024 determined costs are +4.7M€2017 (or +13.0%) higher than the 2019 actual costs. The difference is explained by higher costs in all items as compared to 2019, namely:

- Higher staff costs (+6.7%, or +1.4M€2017) mainly due to traffic increase and aging population (bonuses are awarded and increase salaries after four, eight, 11, 15 and 20 years of employment). In addition Finland reports that the "collective bargaining for years 2023-2024 is still ongoing and there is not exact information for the general salary increases available yet".
- Higher other operating costs (+9.7%, or +1.1M€2017) mainly due to increases in travelling costs, payments to airport operator at Helsinki-Vantaa APP, cyber security and IT-security development costs. The costs of communication lines are increasing due to CPDLC enlargement to northern part of Finland. The management fee of Fintraffic ANS is also expected to increase. Also the expansion of Datalink (SITA+ARINC) increases significantly deployment and maintenance costs.
- Significantly higher depreciation costs (+43.7%, or +1.4M€2017) are reported to be mainly Fintraffic ANS planned investments for capacity, safety, and regulatory requirements (such as Regulation No 1207/2011 - requirements for the performance and the interoperability of surveillance for the Single European Sky; and Regulation No 2150/2005 - Implementation and Application of the Flexible Use of Airspace). Improvement of cross border cooperation with Estonia (FINEST project).
- Higher cost of capital (+147.6%, or +0.8M€2017) due to an increasing asset base in RP3 based on the planned new investments.

For other entities: the NSA level of costs in 2024 is stable compared to 2019, while the level of costs is planned to be higher for the MET provider (+14.0%, or +0.3M€2017).

Total en route service units are forecasted to reach the 2019 actual level by 2023, while en route costs are planned to reach the 2019 actual level in 2022.

4.3.4 PRB Key Points



- There are adjustments to the 2019 cost baseline related to corrections to the 2019 actual costs.
- The 2024 total determined costs are planned to be +14.1% higher than the 2019 baseline level. All the cost categories of the main ANSP are planned to increase.

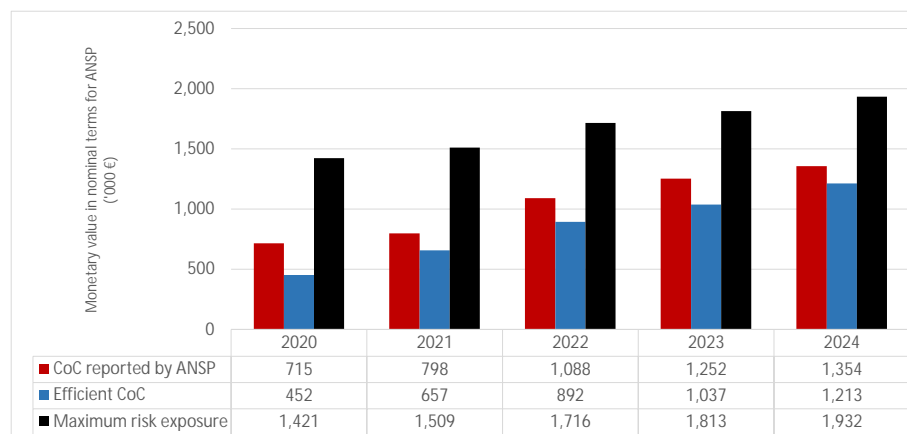
4.3.A Cost of capital

Fintraffic ANS - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	32,289	34,298	38,991	41,200	43,913
Monetary value of Return on Equity	715	798	1,088	1,252	1,354
Ratio RoE/DC (%)	2.2%	2.3%	2.8%	3.0%	3.1%

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



Total 2020-2024	956
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Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	262	141	196	214	141

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	4.3%	3.6%	4.3%	4.5%	4.3%	4.5%	4.3%	4.5%	4.3%	4.9%
Interest on debts	0%	0.1%	0%	1.1%	0%	1.2%	0%	1.3%	0%	1.4%
Capital structure (% debt)	0.0%	25.6%	0.0%	28.8%	0.0%	29.3%	0.0%	29.1%	0.0%	29.1%
WACC	4.3%	2.7%	4.3%	3.5%	4.3%	3.5%	4.3%	3.6%	4.3%	3.9%

Is the interest on debts in line with the market?	n/a
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- Fintraffic ANS is fully financed through equity, thus no interest on debts is specified.
- The WACC reported in the performance plan has been calculated based on the CAPM. However, it is higher than the efficient WACC in all years of RP3. The efficient WACC has been calculated based on option 1.
- Over RP3, the reported cost of capital is 1M€ above the efficient cost of capital. Despite this, the monetary value of the embedded return on equity is commensurate to the total determined costs over RP3 (ranging between 2.2% and 3.1%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	12,739	16,789	23,424	26,757	28,597
Net current assets	3,879	1,773	1,887	2,354	2,902
Adjustments total assets	0	0	0	0	0
Total asset base	16,618	18,562	25,311	29,112	31,499

- The fixed asset base is planned to significantly increase over RP3. This is partially in line with the increase in investments as detailed in section 3.5 of this document.
- The net current assets do not seem to present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to increase over RP3, driven by the increase in the fixed asset base.

4.3.A.5 PRB Key Points

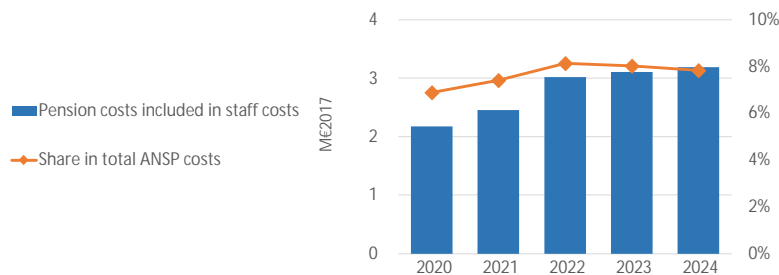


- Over RP3, the reported cost of capital is slightly above (+1M€) the efficient cost of capital. Despite this, the monetary value of the RoE is commensurate to the total determined costs over RP3 (ranging between 2.2% and 3.1%).
- The fixed asset base will significantly increase over RP3.

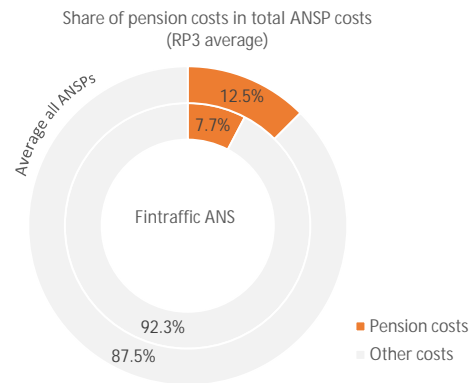
4.3.B Pensions

Fintraffic ANS - En route

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	2.2	2.5	3.0	3.1	3.2
Year on year variation	% change		+12.8%	+23.2%	+2.8%	+2.7%
Share in total ANSP costs	%	6.9%	7.4%	8.1%	8.0%	7.8%
Year on year variation	p.p.		0.5p.p.	0.7p.p.	-0.1p.p.	-0.2p.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 Union-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? **yes**

For Fintraffic ANS: an increase from 14.82% in 2020 to 16.95% in 2021 and to 17.35% for 2022 to 2024 is accounted for which is steadily contributing to increased staff costs. Fintraffic ANS pension costs (included in staff costs) are planned to increase over RP3 by 1M€2017.

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? **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." and that the "2020 pension costs and contribution rate are actuals and 2021 costs are determined by the confirmed contribution rate. 2022-2024 contribution rates are based on the forecast of the Finnish Centre for Pension (20.1.2021)."

4.3.B.4 PRB Key Points



- No major issues identified.

4.3.C Methodology for cost allocation between ER and TRM

Finland

4.3.C.1 Cost allocation overview

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

- Finland did not mention changing 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 zero 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.
 - For practical reasons costs of APP and TWR are in the same cost centre. 40% of total TWR/APP costs are allocated to en route and 60% 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

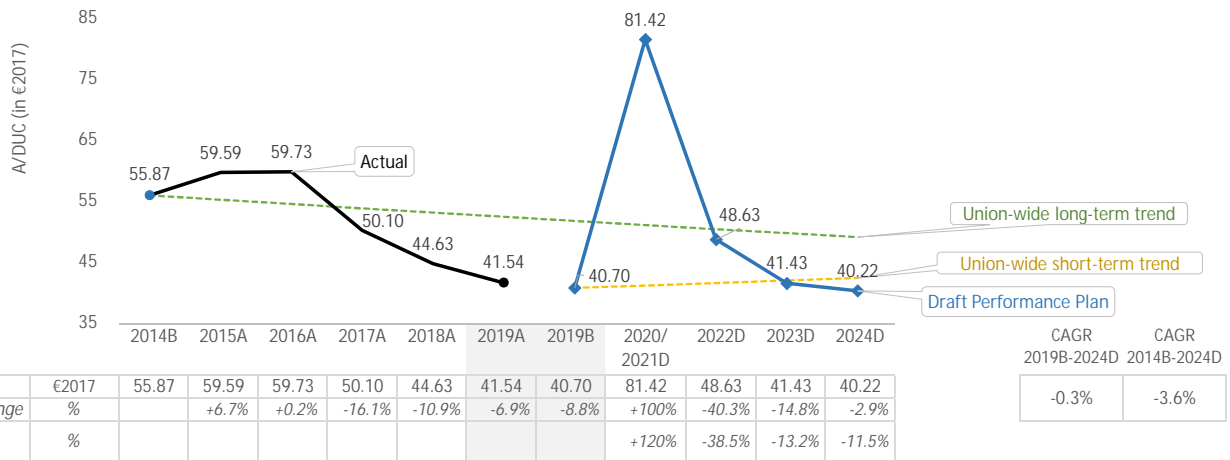
4.3.C.3 PRB Key Points ✔

- Finland did not mention changing the cost allocation methodology with respect to RP2.
 - No major issues identified.

4.4 Determined unit costs (DUC)

Finland - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

✓ DUC consistency with the Union-wide RP3 DUC trend	Trend (CAGR 2019B-2024)	Performance Plan -0.3%	Union-wide +1.0%	Difference -1.3p.p.
✓ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	-3.6%	-1.3%	-2.3p.p.
✓ DUC level consistency	2019 baseline	Performance Plan 40.70	Average comparator group 49.28	Difference -17.4%

- The DUC is planned to decrease on average by -0.3% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -3.6% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -17.4% lower than the average of the comparator 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

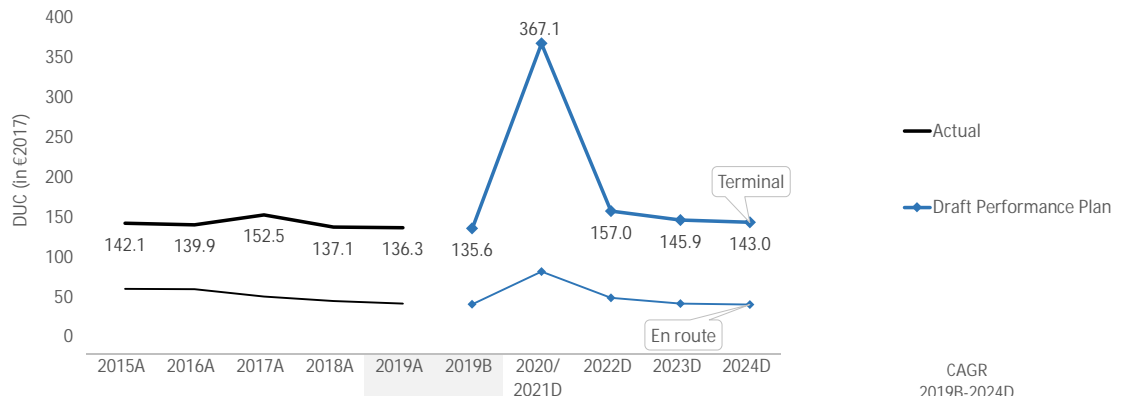
✓

- Finland is consistent with the RP3 DUC trend in terms of average reduction.
- Finland is consistent with the DUC long-term Union-wide trend.
- Finland is consistent with the average DUC baseline of the comparator group.

4.5 Terminal

Finland

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal	€2017	142.1	139.9	152.5	137.1	136.3	135.6	367.1	157.0	145.9	143.0	+1.3%
Annual Change	%		-1.5%	+9.0%	-10.1%	-0.6%	-1.1%	+171%	-57.2%	-7.1%	-2.0%	
DUC - En route	€2017	59.6	59.7	50.1	44.6	41.5	40.7	81.4	48.6	41.4	40.2	-0.3%
Annual Change	%		+0.2%	-16.1%	-10.9%	-6.9%	-8.8%	+100%	-40.3%	-14.8%	-2.9%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Helsinki/ Vantaa (EFHK)	GROUP III	165.1	141.6	-14.3%	238.6	212.6	-10.9%

* 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 only airport in the terminal charging zone, Helsinki/Vantaa (EFHK) is part of the Group III airports (between 80,000 and the 225,000 IFR movements and not seasonal). Helsinki/Vantaa (EFHK) average DUC (212.6€2017) is planned to be (-10.9%) below the median DUC of the comparator group over RP3 (238.6€2017).

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
2019 Traffic Baseline Adjustments	TCZ1	No	

Costs

Cost Baseline analysis		Δ M€2017	%	
2019B vs 2019A	TCZ1	-0.1	-0.5%	
2019 Cost Baseline Adj.	TCZ			
#1 - Adjustment on staff co	TCZ1	ANSP	Staff	-0.008
#2 - Adjustment on other o	TCZ1	ANSP	Other ops.	-0.1

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

There is no adjustment to the 2019 traffic baseline.

There are two main adjustments proposed for the 2019 cost baseline for a total of -0.1M€2017 for terminal :

- a correction of 2019 actual staff costs reported to be -0.01M€2017,
- a correction of 2019 actual other operating costs reported to be -0.1M€2017.

2019 baseline analysis

The 2019 cost baseline is 16.9M€2017, which is -0.1M€2017 (or -0.5%) lower than the 2019 actual costs for terminal ANS (17.0M€2017). Finland explains that the difference is due to some correction to Fintraffic ANS actual costs in 2019, namely:

- a correction of 2019 actual staff costs reported to be -0.01M€2017 for terminal. The justification is that the ANSP provided a new calculation for 2019 staff costs by reallocating some of the costs after the NSA cost verification;
- a correction of 2019 actual other operating costs reported to be -0.1M€2017 for terminal. The justifications are that there were two findings in the baseline value cost verification which influenced the terminal cost base in other operating costs. The ANSP corrected and provided a new calculation on 2019 actuals for the following reasons: 1) some of the costs which were already reported in the NSA costs were also reported in the ANSP costs and 2) clarifications in the cost allocation ratios.

Both seem to be a correction of 2019 actual values and reduce slightly the 2019 cost level.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	Yes
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Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The selected TNSU forecast underpinning the proposed terminal ANS cost-efficiency targets for RP3 is in line with STATFOR October 2021 base forecast.

Determined costs (terminal)

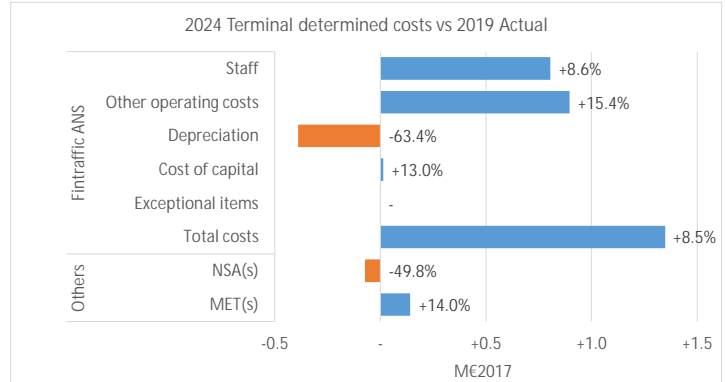
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

Cost elements - Fintraffic ANS (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)	0.25%
Additional incentives?	No



- The share of investment costs in total investment costs (21.2%) is lower than the share of costs in total determined costs (29.7%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The share of pension costs in total pensions costs (30.6%) is comparable to the share of costs in total determined costs (29.7%).
- Total costs in 2024 are planned to be +8.9% (or +1.5M€2017) above the 2019 level. For Fintraffic ANS the cost differences between 2019 and 2024 (+8.5%, or +1.3M€2017) relates to: higher staff costs (+8.6%, or +0.8M€2017), higher other operating costs (+15.4%, or +0.9M€2017), and higher cost of capital (+13.0%). All cost items are showing the same evolution of en route (increases) except for the depreciation costs.
- The 2024 NSA costs are lower (-49.8%, or -0.1M€2017) and the MET service provider costs are higher (+14.0%, or +0.1M€2017) than in 2019.
- The TNSUs are forecasted to reach the 2019 level in 2024 and TANS costs are planned to reach the 2019 level in 2022 (idem for the baseline).
- For incentives, refer to section 3.4 of this document.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is +1.3%, which is worse than the en route RP3 DUC trend of -0.3%.
- The terminal RP3 DUC trend is +1.3%, which is worse than the terminal RP2 DUC trend of -1.0%.
- Helsinki/Vantaa, the only airport included in the scope of the performance plan, had a DUC 14.3% lower than the median of its comparator group over RP2. The difference is expected to be -10.9% over RP3.
- Finland applied the STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs increase over the period, mainly due to an increase in staff and other operating costs.

PRB Assessment

GREECE

Draft Performance Plan

Context and scope

Greece

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4625, F4626, F4628, F4639, F4629, F4641

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 4.2%
 % Serv. Units vs SES 4.6%
 % Costs vs SES 2.2%

Scope

FAB: BLUE MED FAB

ANSPs: HASP
 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 HANSA

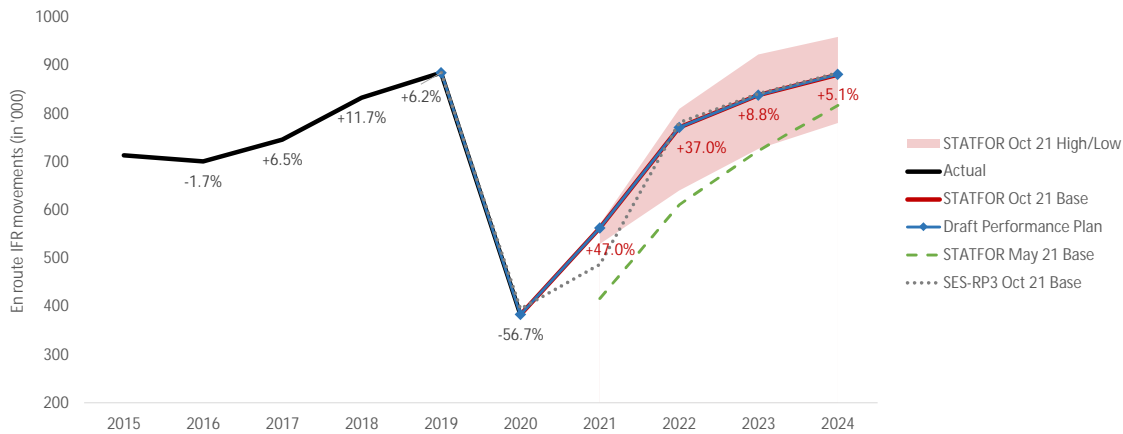
STATE/NSA
 SAR
 STATE/NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Greece	n/a	No	No	No	
Terminal (TRM)	Greece - TCZ	1	No	No	No	
Changes in the CZs from RP2 Yes Reorganization of the institutional arrangements. SAR costs were included in the performance plan and occupational pension scheme was implemented from 2021.						

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

Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP 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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.94%	2.00%	1.92%	1.92%	1.92%

PRB assessment

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

- Greece's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Greece did not achieve the 2021 target of 2.00% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Greece has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.34	0.32	0.26	0.20	0.20
National target for <u>terminal</u> 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 national capacity targets proposed by Greece should not be approved.

- National targets are set higher than the national reference values in all remaining years of RP3. Targets are above the delay forecast range in 2022, fall within the delay forecast range in 2023, and are below the delay forecast range in 2024.
- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed breakdown values.
- The feasibility of the planned increase in the number of ATCO FTEs remains questionable.
- 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 PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	40.71	32.60	33.12	32.93	+9.1%	+0.5%
Target for determined unit cost (DUC) (€2017) - Terminal	233.62	198.05	198.48	192.69	n/a	+6.8%

PRB assessment

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

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

5. PRB recommendations**ENVIRONMENT**

- Greece should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Greece 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.
- Greece should ensure that ATCO training and recruitment plans provided in the performance plan are realistic and feasible, and should make every effort to realise the planned increase in the number of ATCOs in OPS FTEs.
- Greece should address the capacity gap projected in their capacity plans by implementing structural enablers and current plans in a timely manner, as well as by developing additional capacity enhancement measures to align to the reference values.
- Greece should revise the incentive schemes so that they have a material impact on the revenues.

COST-EFFICIENCY

- Greece should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
- Greece should detail the ANSP pension scheme applicable in RP3.
- Greece should detail how the RP2 underspending in investments have been taken into account for RP3.
- Greece should justify or revise the terminal RP3 cost-efficiency targets in regards to the determined unit cost trend against RP2.

GREECE

Safety KPA

1.1 Summary of safety key data and assessment results

Greece

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 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 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 performance plan underlines the priority of safety above other KPAs with respect to changes to ATM functional systems and lists specific measures to monitor the impact on safety during implementation.

1.1.4 Change Management

The performance plan indicates that the change management practices applied by Greece were updated to be compliant with the Commission Implementing Regulation (EU) 2017/373.

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 measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

1.2 Targets for EoSM for ANSPs and Measures

Greece

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
HCAA	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	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. Considering the ANSP' starting levels, close to RP3 targets, the targets could be achieved earlier.

The 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 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan underlines the priority of safety above other KPAs with respect to changes to ATM functional systems. The ANSP has implemented an Integrated Management System with specific metrics and measures aiming at monitoring and balancing the impact over all KPAs during the implementation processes.

1.3.2 Change Management Practices

The performance plan indicates that the change management practices are applied for all future major airspace changes or ATM system improvements (subject to Safety Support Assessment) compliant with the Commission Implementing Regulation (EU) 2017/373.

GREECE

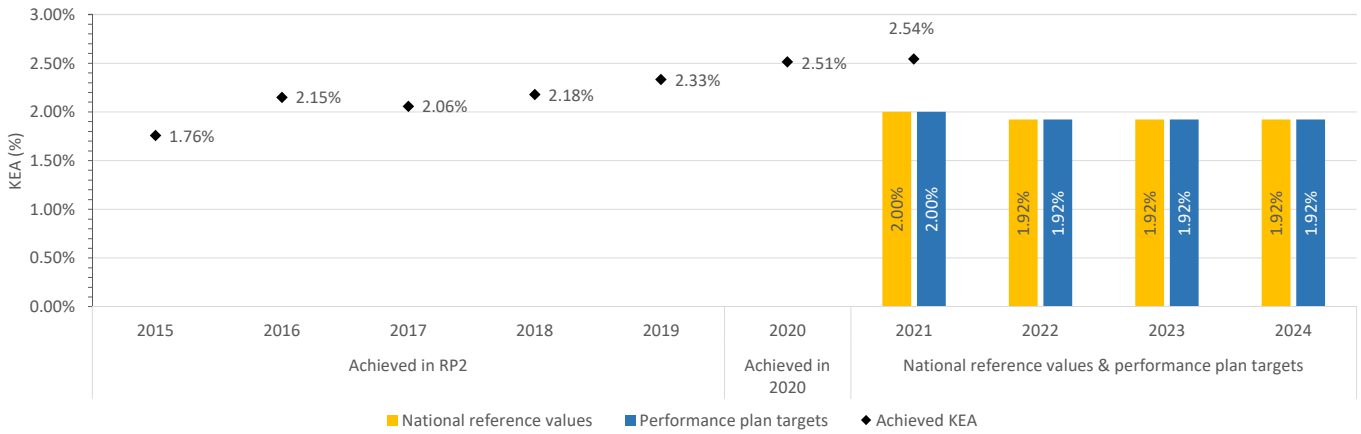
Environment KPA

2.1 Summary of Key Data and Assessment Results

Greece

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

	2020	2021	2022	2023	2024
National reference values	1.94%	2.00%	1.92%	1.92%	1.92%
Performance plan targets	1.94%	2.00%	1.92%	1.92%	1.92%
Comparison of draft performance targets with reference values	n/a	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Greece's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Greece did not achieve the 2021 target of 2.00% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Greece has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Greece should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in ERNIP
On 30 January 2020, HELLAS free route airspace (FRA) was implemented daily between 21:00 – 04:00 UTC between FL335 - FL460. Further development of this FRA is required to meeting the requirements of the pilot common project (PCP). Greece plans to offer 24-hour FRA between FL305-FL660 by the end of 2022.			3.2.1.(c)	Page 66
Major ERNIP Recommended Measures:		9	Reference in PP	Reference in ERNIP
Measure included within performance plan?				
PBN transition plan		✓	3.2.1.(c)	Page 163
Airspace classification in HELLAS UIR		✓	3.2.1.(c)	Page 120
Extension of Hellas UIR upper limit		✓	3.2.1.(c)	Page 122
ATS route improvements		✓	3.2.1.(c)	Page 155, 156
FRA in Hellas UIR		✓	3.2.1.(c)	Page 157
LGGG FIR direct routes		✗	n/a	Page 156
Greek airspace reorganisation – phase 2		✗	n/a	Page 184
HELLAS FRA – phase 4b		✓	3.2.1.(c)	Page 206
Greek airspace reorganisation – phase 3		✗	n/a	Page 209
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Greece achieved a KEA of 2.51% in 2020. In 2021, Greece reached a KEA of 2.54% which means it did not achieve the 2021 target of 2.00% in its performance plan.

Greece plans to extend and improve the currently available night time free route airspace (FRA) in the UIR. Other measures planned include modernising the ATS network that includes the performance based navigation (PBN) transition plan, terminal manoeuvring area (TMA) restructuring and developing new procedures in the TMAs. Finally, full FRA is planned to be offered after RP3, which delays realising the benefits of it in RP3 and may make the targets difficult to achieve.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Greece plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

GREECE

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

National targets are set higher than national reference values for all remaining years of RP3. In 2022, the proposed target is above the scenario 1 delay forecast, while in 2023, the proposed target falls within the range of the delay forecast, whereas in 2024 the proposed target falls below the delay forecast range.

Capacity plans indicate that Greece will face a capacity gap throughout 2022-2024 without implementing additional measures compared to those described in the latest NOP.

There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures and the proposed breakdown values.

The feasibility of the plan to increase the number of ATCO FTEs remains questionable.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✘	✘	✘	✘
<i>Deviation target vs reference value</i>	n/a	+220%	+86%	+33%	+33%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✘	⚠	✔

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 2024? **No**

3.1.2 Arrival ATFM Delay

Athens is the only airport included in the performance plan. The proposed targets are set significantly higher than the overly ambitious RP2 targets and represent a gradual improvement compared to average past performance.

A set of capacity enhancement measures are detailed in the performance plan, which may support the closure of the capacity gap.

Despite the capacity improvement measures and the improving targets, Athens is still expected to perform worse than the group of similar airports.

3.1.3 Incentives

En route:

Greece has chosen not to modulate the pivot values, which are set at the national reference values considerably lower than the national targets.

Maximum bonus is set at 0.1% and maximum penalty is set at 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.

Terminal:

Greece has chosen not to modulate the pivot values, which are set equal to national targets.

Maximum penalty is set at 0.6%, maximum bonus is set at 0.3%.

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 represent 73% of the total determined investments cost, however Greece has delivered only 12% of the RP2 CAPEX.

New major investments in RP3 are planned to be charged from 2022 onwards.

New major projects targeting en route capacity are planned for RP3 and one investment contributes to PCP/CP1 ATM functionality AF3.

Capacity shortfalls are expected to occur before the new investments become operational.

Other investments contribute to resilience, scalability, and flexibility.

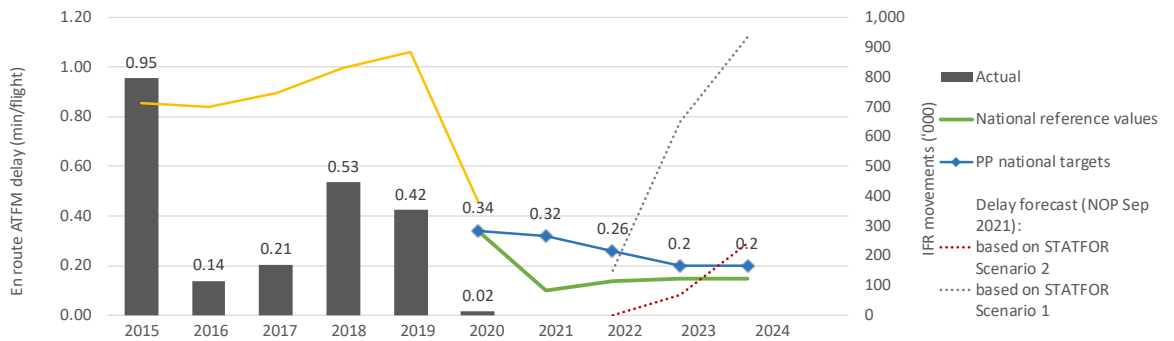
3.1.5 PRB conclusions

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

- National targets are set higher than the national reference values in all remaining years of RP3. Targets are above the delay forecast range in 2022, fall within the delay forecast range in 2023, and are below the delay forecast range in 2024.
- There is a discrepancy in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures, and the proposed breakdown values.
- The feasibility of the planned increase in the number of ATCO FTEs remains questionable.
- 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



Traffic variation	+5%	-1.7%	+6.5%	+11.7%	+6.2%	-56.7%				
Actual delay/flight	0.95	0.14	0.21	0.53	0.42	0.02				
National reference values						0.34	0.10	0.14	0.15	0.15
PP national targets						0.34	0.32	0.26	0.20	0.20
Based on STATFOR Scenario 1							-	0.18	0.78	1.12
Based on STATFOR Scenario 2							-	0.00	0.08	0.29

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✗	✗	✗	✗
<i>Deviation target vs reference value</i>	n/a	+220%	+86%	+33%	+33%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✗	🟡	✔

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 2024?	No

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Greece experienced capacity constraints related to staffing and ATM capacity. Greece missed the capacity targets in 2015 and in 2018. Staffing issues were common root cause to majority of delays and negatively aggravated the lack of ATM capacity.

The main capacity enhancement measures introduced by the performance plan include:

- Implementation of new ATM system, Enhanced Mode S Radars network, new voice communication system,
- airspace reorganisation,
- recruitment of ACC ATCOs,
- ATFM procedures.

Based on the evidence submitted, it is not clear that Greece plans to implement all capacity enhancement measures contained in the NOP (including those proposed by the NM).

The planned number of ATCO FTEs are based on Eurocontrol and ICAO studies. Figures are provided for Athens ACC only cover both ACCs (The ACCs are physically co-located). In 2022, a sharp increase of ATCO by 70 is planned. Considering the length of the training, the personnel must have already been recruited and finalising their training. The performance plan does not elaborate on how such a large increase of ATCO FTEs will be feasible, and/or how the final, on-the-job phase of the training might impact capacity performance. Despite this planned increase, the latest capacity plan shows a capacity gap during 2023 and 2024.

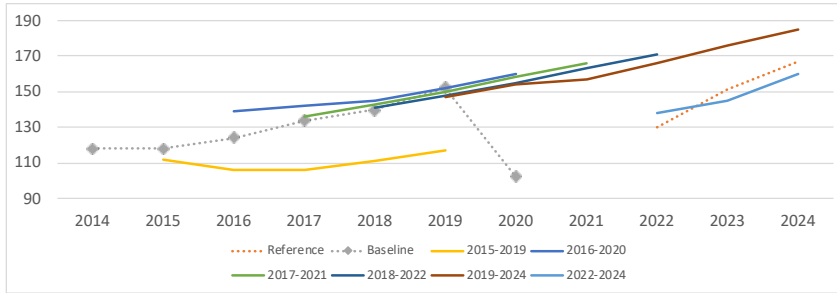
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Athens ACC (LGGG)	Additional ATCOs in OPS to start working in the OPS room	0	24	2	12	84	32	15
	ATCOs in OPS to stop working in the OPS room	3	20	22	6	14	17	15
	ATCOs in OPS to be operational at year-end	210	214	194	200	270	285	285
Makedonia ACC (LGMD)	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	0	0	0	0	0	0	0
Total - HASP (en route)	Additional ATCOs in OPS to start working in the OPS room	0	24	2	12	84	32	15
	ATCOs in OPS to stop working in the OPS room	3	20	22	6	14	17	15
	ATCOs in OPS to be operational at year-end	210	214	194	200	270	285	285

2024 (end) - 2020 (beg.)	
	+71
	+0
	+71

3.2.3 Review of previous and existing capacity profile plans per ACC

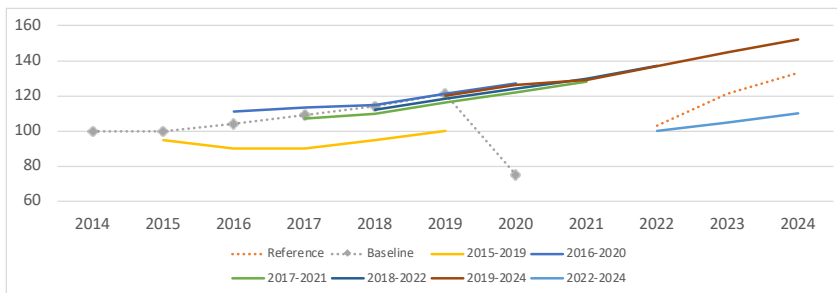
Athens ACC (LGGG)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									130	151	167
Baseline	118	118	124	134	140	152	102				
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
2022-2024									138	145	160
Latest vs Reference									6%	-4%	-4%

- Historical evolution of capacity profiles in RP2 shows a steady increase, although capacity plans were mostly higher than the baseline values. Greece experienced capacity gaps due to ATC capacity and staffing.
- Latest planned capacity profiles show an average annual growth of 7.7%, which results in a minor capacity gap of 4% in 2023 and 2024.
- There are inconsistencies between the planned number of ATCO FTEs, capacity profile plans, capacity enhancement measures and national targets.

Makedonia ACC (LGMD)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									103	121	133
Baseline	100	100	104	109	114	121	75				
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
2022-2024									100	105	110
Latest vs Reference									-3%	-13%	-17%

- Historical evolution of capacity profiles in RP2 shows that capacity plans were mainly in line with the baseline, which were increased steadily. Greece experienced capacity gaps due to ATC capacity and staffing.
- Latest planned capacity profiles show an average annual growth of 4.9%, which, however, fails to meet the reference profile. Makedonia ACC is expected to face a minor capacity gap in 2022, and a significant capacity gap of 13% and 17% in 2023 and 2024 respectively.
- There are inconsistencies between the planned number of ATCO FTEs, capacity profile plans, capacity enhancement measures and national targets.

3.2.4	Review of capacity enhancement measures related to mitigating higher delays due to significant / special events	n/a
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3.2.5	Review of the measures to increase capacity and address capacity gaps	X
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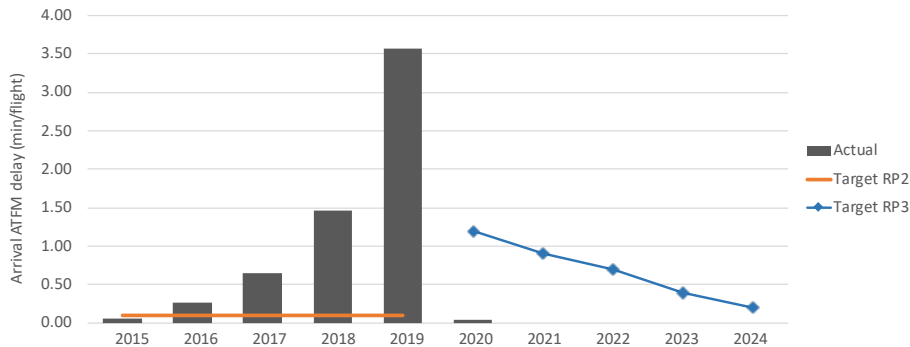
- | | | |
|----|--|----------|
| a) | Performance plan contains additional measures compared to the NOP in order to close the capacity gap?
The performance plan provides no additional capacity measures compared to those included in the NOP | X |
| b) | Measures proposed by the NM to enhance capacity are planned and described in the performance plan?
The NM proposed more measures than actually listed by the performance plan (such as network weather mitigation, operational excellence programme etc.). The level of details does not allow to determine whether those measure are implemented with the main ones introduced by the performance plan. | X |
| c) | The performance plan provides rationale If only a subset of the measures proposed by NM is planned and described?
The performance plan does not provide such rationale. | X |
| d) | The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap?
The NSA does not propose additional measures for the operational stakeholders in order to close the capacity gap. | X |
| e) | Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)?
The performance plan provides details on methodology used to calculate the required number of ATCOs to ensure required capacity. However, despite the planned sharp increase in ATCO FTEs in 2022, capacity gaps are expected to persist in both ACCs. Furthermore, the feasibility of such a large increase remains questionable. | X |
| f) | The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity?
The plan provides only high-level description of the ATCO numbers to be shared between Athens and Makedonia ACCs and methodology to calculate required numbers. It does not provide additional details on flexible rostering etc. | X |
| g) | The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome?
The new ATM system is described as an enabler of increasing capacity and will be implemented in second half of RP3. The plan does not describe limitations of the current system. | I |

3.2.6	PRB Key Points	X
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- National targets are set higher than national reference values for all remaining years of RP3. In 2022, the proposed target is above the scenario 1 delay forecast, while in 2023, the proposed target falls within the range of the delay forecast, whereas in 2024 the proposed target falls below the delay forecast range.
- Capacity plans indicate that Greece will face a capacity gap throughout 2022-2024 without implementing additional measures compared to those described in the latest NOP.
- There might be an inconsistency in the performance plan between capacity profile plans, planned number of ATCO FTEs, the proposed capacity enhancement measures and the proposed breakdown values.
- The feasibility of the plan to increase the number of ATCO FTEs remains questionable.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	Actual	0.10	0.10	0.10	0.10	0.10	1.20	0.90	0.70	0.40	0.20
Athens (LGAV)	Actual	0.06	0.26	0.65	1.47	3.57	0.04	-	-	-	-

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

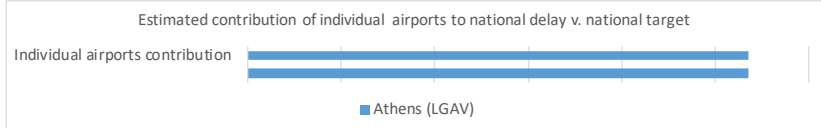
Athens, the only airport included in the Greek performance plan for RP3, has been increasing its arrival ATFM delays exponentially during RP2, reaching the worst performance in 2019 with 3.57 minute per arrival delay (the third highest arrival ATFM delay in the SES area). The main reason for this are problems with the ATCO provision in the summer season.

The situation is not expected to improve in the short-term but several measures are foreseen in the performance plan: CDM (2021-2022), A-SMGCS (2022), staff recruitment that is planned to overcome the significant lack of operational ATCOs, who will only be operational in 2023, PBN procedures (2024), redesign of Athens TMA (2024) and new ATM surveillance system (2024).

The targets for RP3 are adapted to the current capacity constraints and the national target decreases in line with the implementation plan for these measures. The performance plan uses a local forecast updated with the STATFOR October 2021 base forecast and expects a CAGR in IFR movements of -0.2% in 2019-2024.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Athens (LGAV)	0.55
National Target	0.55



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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Athens (LGAV)	GROUP II	0.23	1.31	+1.08	0.55	+0.32

* 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

Athens' performance during RP2 was considerably worse than the median for similar airports. The proposed target for RP3, although it closes 70% of that gap, still represents worse performance than similar airports.

3.3.5 PRB Key Points

- Athens is the only airport included in the performance plan. The proposed targets are set significantly higher than the overly ambitious RP2 targets, and represent a gradual improvement compared to average past performance.
- A set of capacity enhancement measures are detailed in the performance plan, which may support the closure of the capacity gap.
- Despite the capacity improvement measures and the improving targets, Athens is still expected to perform worse than the group of similar airports.

3.4 Capacity Incentive schemes

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	0.100%	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	0.15
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.26	0.20	0.20
Pivot values for RP3			0.14	0.15	0.15

Threshold and pivot value review

The pivot value is fixed at the reference value contained in the NOP for each year of RP3 (considerably more ambitious than the national targets). A dead band is applied within 0.02 minutes of the pivot value, before penalties or bonuses apply. Maximum penalty / bonus is applicable +/- 0.05 minutes around the pivot value.

Modulation review

No modulation is applicable.

Review of financial advantages/disadvantages

Maximum bonus is fixed at 0.1% of determined costs whereas a greater maximum penalty of 0.5% is possible.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.03 min	0.300%	0.600%
	✓	⚠

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)			±0.350	±0.200	±0.100
Performance Plan targets			0.70	0.40	0.20
Pivot values for RP3			0.70	0.40	0.20

Threshold and pivot value review

The Greek terminal incentive scheme has opted for a dead band of +/-0.03 minutes, which might be too small to allow for small variations in performance with no associated bonuses / penalties.

The pivot value is not modulated and represents a significant improvement in performance with respect to the actual delays observed during RP2. Delays in 2020 almost disappeared due to the traffic reduction, but with the traffic recovery in 2021 the arrival delays at Athens have come back and the actual performance is likely to result in maximum penalties for this year.

Modulation review

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

Review of financial advantages/disadvantages

The terminal incentive scheme includes a low maximum penalty (0.60%) but even lower maximum bonus (0.3%). Together with the challenging targets, this incentive scheme will probably result in maximum penalty of 0.60% as traffic peaks up again.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✗

En route:

- Greece has chosen not to modulate the pivot values, which are set at the national reference values considerably lower than the national targets.
- Maximum bonus is set at 0.1% and maximum penalty is set at 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.

Terminal:

- Greece has chosen not to modulate the pivot values, which are set equal to national targets.
- Maximum penalty is set at 0.6%, maximum bonus is set at 0.3%.
- 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 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	1.7	1.6	6.5	17.6	22.9	50.3
En route	M€ (nominal)	1.7	1.5	4.8	16.0	21.3	45.4
Terminal	M€ (nominal)	0.1	0.0	1.7	1.6	1.5	4.9

* 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 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	TRM
1	Procurement of new DPS/ATM	Procurement of new Data Processing System / Air Traffic Management – DPS/ATM	37.9	Yes	Yes	12.6	0.0
2	Procurement and installation of 7 Surveillance systems	Procurement and installation of five (5) collocated surveillance systems (PSR/MSSR EHS, CORFU, THESSALONIKI, RODOS, HERAKLIO, LEMNOS) and two (2) Monopulse Secondary Surveillance Radar Enhanced Mode-S En-route Systems (MSSR EHS) at ATTAVIROI and KARPATOS.	34.7	Yes	No	5.8	0.0
3	Replacement of 10 DVOR, 13 DME and 6 ILS at Greek Airports	Procurement and installation of Navigation Aids (10 DVOR, 13 DME, 6 ILS) in Aerodromes and ATS En-Route determination sites	16.3	Yes	No	1.2	1.2
4	Procurement and installation of 7 Surveillance Systems	Procurement of 7 Surveillance Radars installed in KAMARA (collocated PSR and MSSR Enhanced Mode-s (EHS)), LEYKADA, KITHIRA, PILIO, HIMITTOS and MEREDA	15.4	Yes	No	5.1	0.0
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, Sitia, Milos, Samos, Kavala, Kalamata, Ioannina, Chios, Skiathos, Aktio/Prevezas, Karpathos, Paros and KHEMS). This procurement is also going to serve the ACC Contingency Plan and 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	1.4	0.9
6	Procurement of 450 VHF transceivers and 60 UHF Tx/Rx	Procurement of 450 VHF transceivers and 60 UHF Tx/Rx	9.2	No	No	2.2	0.9
7	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	No	2.7	0.0
8	APP RELOCATION at AIA Airport (NEW VCRS & 14 CWPs)	Relocation of ATHINAI APP from Hellinikon to Athens International Airport	5.2	No	Yes	0.0	2.5
Total:						31.0	5.6

Airspace user feedback regarding major investments

The airspace users addressed questions about the high increase of depreciation costs and of net current assets throughout RP3 and requested a more detailed analysis of the investments. Greece noted that the costs and net current assets follow the implementation of the investment plan. The depreciation has been recalculated such that costs that have been already recovered in RP2 due to delayed projects have been deducted.

Review of investments

Several investments were included in the RP2 performance plan and will continue throughout RP3 due to delays or deployment plan. New major investments represent 73% of the total determined costs over RP3. The actual CAPEX for RP2 was 12% of the planned for the same period and the amount underspent was 111.8M€. In terms of depreciation and cost of capital, the airspace users have financed 32.9M€ for investments that have not been materialised. Greece mentioned that depreciation has been recalculated such that costs that have been already recovered in RP2 due to delayed projects have been deducted, however the amount is unknown.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Procurement of 450 VHF transceivers and 60 UHF Tx/Rx	Local	Safety, Environment, Capacity, Cost-efficiency	Significant benefits to all KPAs. This procurement seeks to deliver a robust and resilient service, legislative compliance, operational performance and cyber resilience.
2	APP RELOCATION at AIA Airport (NEW VCRS & 14 CWPs)	Network, Local	Safety, Environment, Capacity, Cost-efficiency	Significant benefits to all KPAs. This procurement seeks to deliver a robust and resilient service, legislative compliance, operational performance and cyber resilience.

Additional information

The performance plan does not include information about the mandated by SES regulation status of new major investments #6, #7, and #8. Upon expert analysis, the investments #6 and #8 were marked as not mandated by SES regulation.

Procurement of 450 VHF transceivers and 60 UHF Tx/Rx: related to regulation (EU) 1079/2012. Link to ATM Master Plan COM 11, ITY-AGVCS2.

APP RELOCATION at AIA Airport (NEW VCRS & 14 CWPs): Link to ATM Master Plan COM 11.

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 RP3 (M€)
Other new investments	0.0	0.0	0.1	0.0	2.1	2.2	2.3	6.7
Existing investments			1.6	1.6	1.5	1.2	1.1	7.0

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	Replacement of the main VCS/RCS system of Athinaï and Makedonia ACCs	4.7	3.7	0.0	0.0	0.6	0.6	0.6	1.8	n/a
2	Procurement of SMR/A-SMGCS/MLT system for Athinaï (LGAV) Airport	3.9	3.9	0.0	0.0	0.7	0.6	0.6	1.9	n/a
3	Procurement of Wide Area Multilateration (WAM)/ ADS-B system for ATHINAï FIR / HELLAS UIR (En route)	2.8	2.8	0.0	0.0	0.5	0.5	0.4	1.4	n/a
4	Purchase of 7 D-ATIS/D-VOLMET	2.2	1.1	0.0	0.0	0.2	0.2	0.2	0.5	n/a
5	Upgrade of CNS/ATM IP Network	1.5	1.5	0.0	0.0	0.0	0.3	0.2	0.5	n/a
6	Replacement of 4x4 vehicles required for the installation and maintenance of ATM/CNS systems at distant sites	1.2	0.9	0.0	0.0	0.1	0.1	0.1	0.4	n/a
7	Quality Certification of AIS /SWIM	1.0	0.5	0.0	0.0	0.0	0.0	0.1	0.1	n/a

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?

Both Athens and Macedonia ACCs are expected to experience capacity shortfalls during RP3 up to -4% for 2023-24 in Athens ACC and -17% in Macedonia ACC in 2024.

Procurement of new DPS/ATM investment can be expected to yield capacity benefits and the DPS/ATM investment is linked to PCP/CP1 ATM Functionality AF3. Procurement of DLS investment can be seen as a capacity enabler. While the performance plan notes that all new major investments will deliver significant benefits in terms of capacity improvements and reduction in safety risk, it can be argued that while the DPS/ATM, DLS and VCRS investments contribute to resilience, scalability and flexibility and the communication, navigation and surveillance related investments contribute mainly to resilience, the en route capacity benefits generated by the other investments is negligible.

In the airport domain the APP relocation at AIA airport (new VCRS & CWPs) may yield capacity benefits for Athens airport through the implementation of additional CWPs but the performance plan does not elaborate if the number of CWPs and associated sectors is increased and by how many. Additionally, in the other new investments category SMR/A-SMGCS/MLT system investment at Athinaï airport can contribute to airport capacity and resilience.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

The Procurement of new DPS/ATM investment can be expected to introduce a state-of-the-art flight data processing system capable of supporting the current European ATM evolution and associated system capabilities. Procurement of DLS enables the implementation of Data Link Services (DLS) / Controller-Pilot Data Link Communications with the associated capacity benefits to materialise in the longer term.

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

The capacity shortfall in Makedonia ACC is imminent while Athens ACC is expected to become capacity constrained in 2023. The DPS/ATM investment is planned to become operational by the end of 2023, indicating that the system will not be in place in time to respond to the capacity shortfalls. Furthermore, LSSIP Greece 2020 notes that the system was planned to be completed in 2022 and that at the time of publication of the LSSIP edition (Q1 2021) the DPS/ATM investment was being tendered and not yet in implementation phase.

Taking into consideration the timelines associated with new ATM system implementation projects this may result in additional delays and situation should be monitored.

3.5.4 PRB Key Points 📌

- Several investments were included in the RP2 performance plan and will continue throughout RP3 due to delays or deployment plan.
- The actual CAPEX for RP2 was 12% of the planned for the same period and the amount underspent was 111.8M€. The airspace users have financed 32.9M€ for investments that have not been materialised. Greece mentioned that depreciation has been recalculated such that costs that have been already recovered in RP2 due to delayed projects have been deducted, however the amount is unknown.
- New major investments in RP3 are planned to be charged from 2022 onwards.
- New major projects targeting en route capacity are planned for RP3 and one investment contributes to PCP/CP1 ATM functionality AF3.
- Capacity shortfalls are expected to occur before the new investments become operational.
- Other investments contribute to resilience, scalability and flexibility.

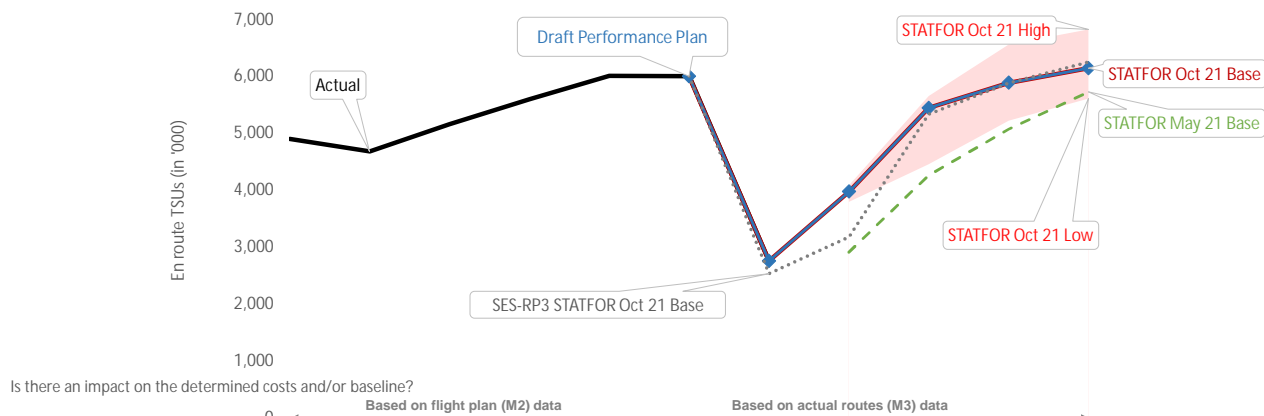
GREECE

Cost-efficiency KPA

4.2 Review traffic forecasts and baseline

Greece - En route CZ

4.2.1 Overview of service units forecasts for RP3



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

		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	4,899	4,678	5,158	5,600	6,005	6,004	2,756					
Annual change	%		-4.5%	+10.3%	+8.6%	+7.2%	+7.2%	-54.1%					
STATFOR Oct 21 Base	'000 TSUs								3,973	5,445	5,888	6,140	+2.3%
Annual change	%								+44.2%	+37.1%	+8.1%	+4.3%	
STATFOR May 21 Base	'000 TSUs								2,907	4,261	5,067	5,724	-4.7%
Annual change	%								+5.5%	+46.6%	+18.9%	+13.0%	
Performance Plan	'000 TSUs					6,004	2,756	3,973	5,445	5,888	6,140	+2.3%	
Annual change	%					+7.2%	-54.1%	+44.2%	+37.1%	+8.1%	+4.3%		

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	6,004		2014B (PP baseline)	4,617	
2019A (as in the Reporting tables, M2)	6,005		2014A (as in the Reporting tables, M2)	4,618	
2019B/ 2019A	-0.01%	-0.01%	2014B/ 2014A	-0.01%	-0.01%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.01%).

Review of 2014 and 2019 traffic baseline

The 2014 and 2019 traffic baselines are calculated on the basis of 2014 and 2019 actual traffic accordingly, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.01%). The impact of the adjustment on the level of baselines traffic is marginal.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Greece is in line with the STATFOR October 2021 base scenario.

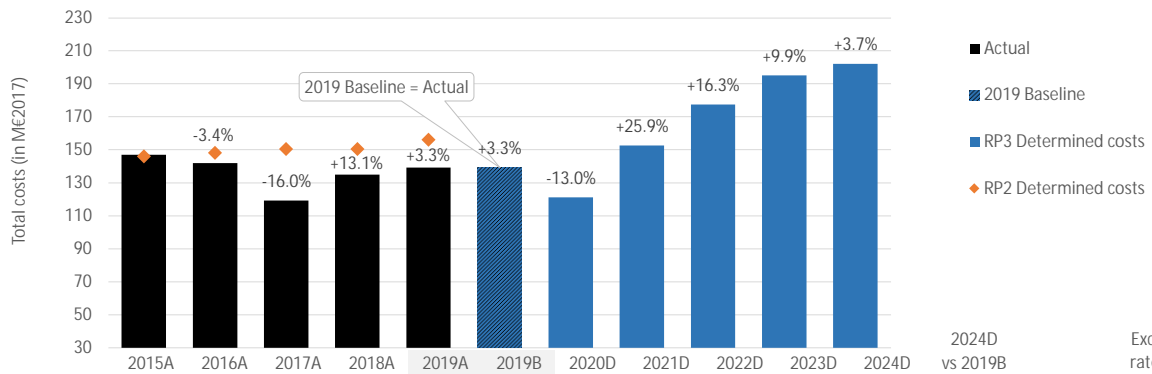
4.2.4 PRB Key Points

- Greece en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Greece - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	146	141	119	136	141	141	123	155	181	200	210	+48.9%
Annual change	%		-3.4%	-15.2%	+13.9%	+3.8%	+3.8%	-13.1%	+26.2%	+17.0%	+10.6%	+4.9%	+3.6%
Inflation index	2017 = 100	98.9	98.9	100.0	100.8	101.3	101.3	101.3	101.5	102.3	103.3	104.9	+3.6%
Total costs	M€ (2017)	147	142	119	135	139	139	121	153	178	195	202	+45.1%
Annual change	%		-3.4%	-16.0%	+13.1%	+3.3%	+3.3%	-13.0%	+25.9%	+16.3%	+9.9%	+3.7%	+45.1%
Total costs	M€ (2017)	147	142	119	135	139	139	121	153	178	195	202	+45.1%

Exchange rate 2017	€:€
	1.00000

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ⚠ Is inflation in PP in line with IMF (October 2021 forecast)? **Deviation from index < 1p.p. in 2024**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments applied to 2014 and 2019 cost baselines.

2014/2019 baseline analysis

The 2014 and 2019 cost baselines are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

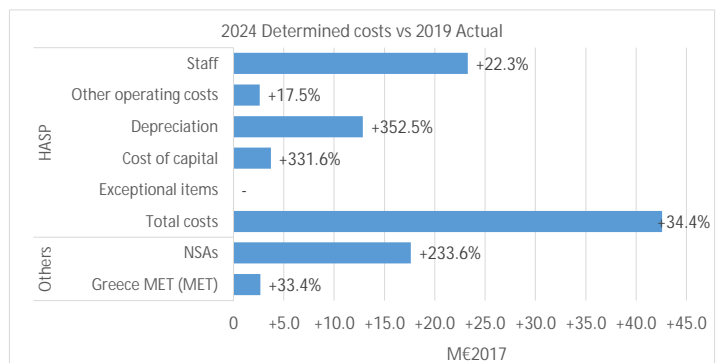
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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)	0.10%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



Total costs of Greece in 2024 are planned to be +45.1% (or +62.9M€2017) higher than 2019 actual costs.

The total planned HASP costs in 2024 are +34.4% (or +42.6M€2017) higher than in 2019 due to increase of costs in all costs categories, and especially of depreciation costs (+352.5%), cost of capital (+331.6%) and staff costs (+22.3%).

- The implementation of the new occupational pension scheme will increase the staff costs in the whole RP3 by +20.8M€2017. Additionally, based on the information from section 3.3.1 of the performance plan, Greece expected to increase the number of ATCOs (+71 FTE by the end of RP3). No other explanations were provided by Greece.

- The depreciation costs are planned to be higher in 2023 and 2024, due to the commissioning of the new ATM/DPS system and the replacement of seven surveillance systems. In the Annex C of the performance plan, Greece underlined that depreciation costs were decreased by the costs that have already been recovered in RP2 regarding delayed projects.

- The cost of capital is planned to be higher due to higher asset base. After the consultation with airspace users, Greece decided to exclude the net current assets from the calculation of the cost of capital for years 2022-2024.

The establishment of an independent NSA and the inclusion of SAR costs in the NSA costs increase the en route NSA costs in RP3. SAR costs present 49% of total determined NSA costs forecasted for RP3. However, the increase in NSA costs is not fully explained by the SAR integration.

En route service units will reach 2019 actual level in 2024, while the costs are forecasted to exceed the level of 2019 for the first time in 2021.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for Greece are planned to increase by +45.1% (or +63M€2017).
- All cost categories and all entities are planned to increase the costs.
- In RP2, in terms of depreciation and cost of capital, airspace users have financed 32.9M€ for investments that have not been materialised. Greece mentioned that depreciation has been recalculated such that costs that have been already recovered in RP2 due to delayed projects have been deducted, however the amount is unknown.

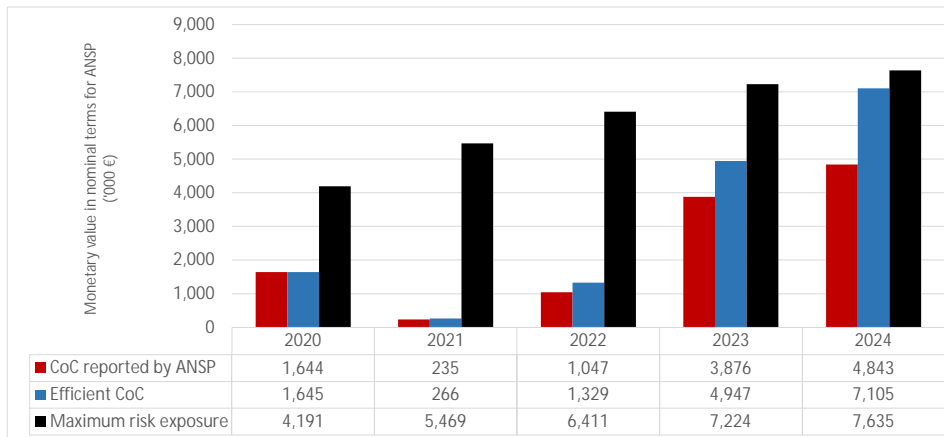
4.3.A Cost of capital

HASP - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	95,244	124,304	145,701	164,172	173,534
Monetary value of Return on Equity	1,644	235	1,047	3,876	4,843
Ratio RoE/DC (%)	1.7%	0.2%	0.7%	2.4%	2.8%

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	5.6%	6.5%	4.6%	6.0%	4.6%	6.7%	4.6%	6.7%	4.6%	7.7%
Interest on debts	0.0%	3.1%	0.0%	3.3%	0.0%	3.9%	0.0%	4.1%	0.0%	4.7%
Capital structure (% debt)	0.0%	25.6%	0.0%	28.8%	0.0%	29.3%	0.0%	29.1%	0.0%	29.1%
WACC	5.6%	5.6%	4.6%	5.2%	4.6%	5.9%	4.6%	5.9%	4.6%	6.8%

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

- HASP is fully financed through equity, thus no interest on debts is specified.
- The WACC reported in the performance plan has been calculated based on the CAPM. The efficient WACC has been calculated based on option 1.
- The embedded return on equity reported in the performance plan over RP3 varies from a minimum of 0.2% to a maximum of 2.8%. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	6,033	5,072	22,609	83,706	104,611
Net current assets	23,163	0	0	0	0
Adjustments total assets	0	0	0	0	0
Total asset base	29,195	5,072	22,609	83,706	104,611

- The fixed asset base will significantly increase over RP3. This is in line with the investments described in section 3.5 of this document. However, the amounts rise questions on the feasibility of such increase.
- After consultation with the airspace users, Greece decided to exclude the net current assets from the calculation of the cost of capital as of 2021.
- The RAB does not include adjustments to the total asset base.
- The total asset base will increase over RP3, driven by an increase in the fixed asset base.

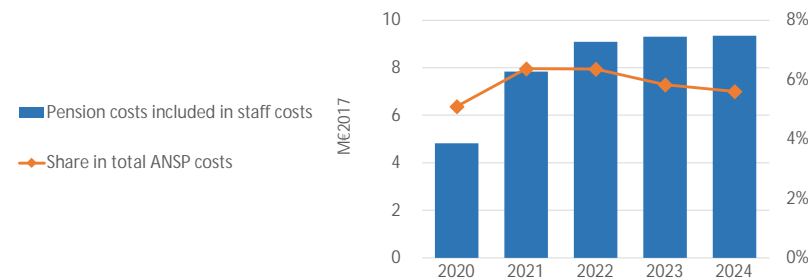
4.3.A.5 PRB Key Points

- The cost of capital does not present major issues over RP3.
- The asset base significantly increases at the end of RP3, when RP3 major investments are starting to be charged.

4.3.B Pensions

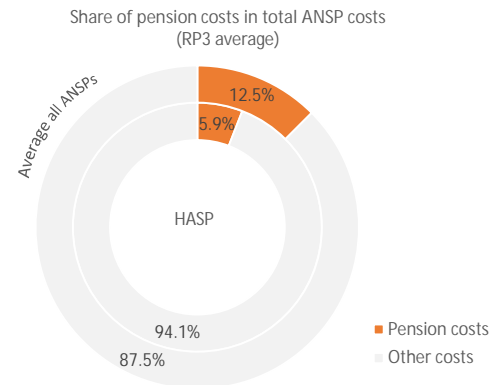
HASP - En route

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	4.8	7.8	9.1	9.3	9.3
Year on year variation	% change		+62.7%	+16.1%	+2.4%	+0.4%
Share in total ANSP costs	%	5.1%	6.4%	6.4%	5.8%	5.6%
Year on year variation	p.p.		1.3p.p.	0.0p.p.	-0.5p.p.	-0.2p.p.

Is there an impact on the determined costs and/or baseline?	Slight increase
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Is the ANSP RP3 average share of pension costs higher or lower than the Union-wide average?	Lower
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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 rate reported in the performance plan is stable at the level of 16.33% for all years of RP3. Nevertheless, in the additional description of the State pension scheme provided in section 3.4.3.2 of the performance plan, the rate 13.33% is indicated as the share of contribution covered by the employer.

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

The rate reported in the performance plan is stable throughout RP3 and is equal to 1%. The applicable defined contribution scheme has been established in line with the current and updated national law. No additional explanation was presented together with the performance plan.

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

No occupational defined benefit scheme established for HASP.

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

As indicated in the performance plan, actions are taken in line with the applicable national law. Additionally, it was mentioned that the risk management and actuarial actions associated with the occupational fund have been outsourced in order to control and monitor the potential associated risks.

4.3.B.4 PRB Key Points

- No detailed explanation provided. Greece provides only reference to the national law. No link to the assumptions from the draft 2019 RP3 performance plan.
- Major changes in the assumption comparing to the draft 2019 RP3 performance plan (no occupational defined benefit schemes established), however still starting from 2021 the new occupational defined contribution scheme was implemented.
- The share of the pension costs in total costs is relatively low compared to the Union-wide average.
- There might be a reporting error in the contribution rate for first pillar and in the total pensionable payroll to which the occupational defined contribution scheme applies.

4.3.C Methodology for cost allocation between ER and TRM

Greece

4.3.C.1 Cost allocation overview

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

- Greece did not 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, and the organisational structure.

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 only briefly explained.

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

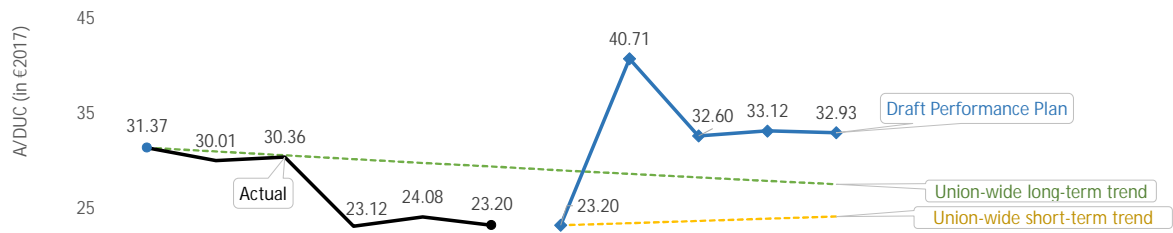


- Greece did not mention changes to the cost allocation methodology with respect to RP2.
- The criteria for cost allocation are only briefly explained.

4.4 Determined unit costs (DUC)

Greece - En route CZ

4.4.1 Overview and trends of the DUC



	2014B	2015A	2016A	2017A	2018A	2019A	2019B	2020/ 2021D	2022D	2023D	2024D	CAGR 2019B-2024D	CAGR 2014B-2024D
DUC	€2017	31.37	30.01	30.36	23.12	24.08	23.20	23.20	40.71	32.60	33.12	32.93	
Annual Change	%		-4.3%	+1.2%	-23.9%	+4.2%	-3.7%	-3.6%	+75%	-19.9%	+1.6%	-0.6%	+9.1%
Union-wide target	%								+120%	-38.5%	-13.2%	-11.5%	+0.5%

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+9.1%	+1.0%	+8.1p.p.
Trend (CAGR 2014B-2024)	+0.5%	-1.3%	+1.8p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	23.20	28.59	-18.9%

- The DUC is planned to increase on average by +9.1% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +0.5% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -18.9% lower than the average of the comparator 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

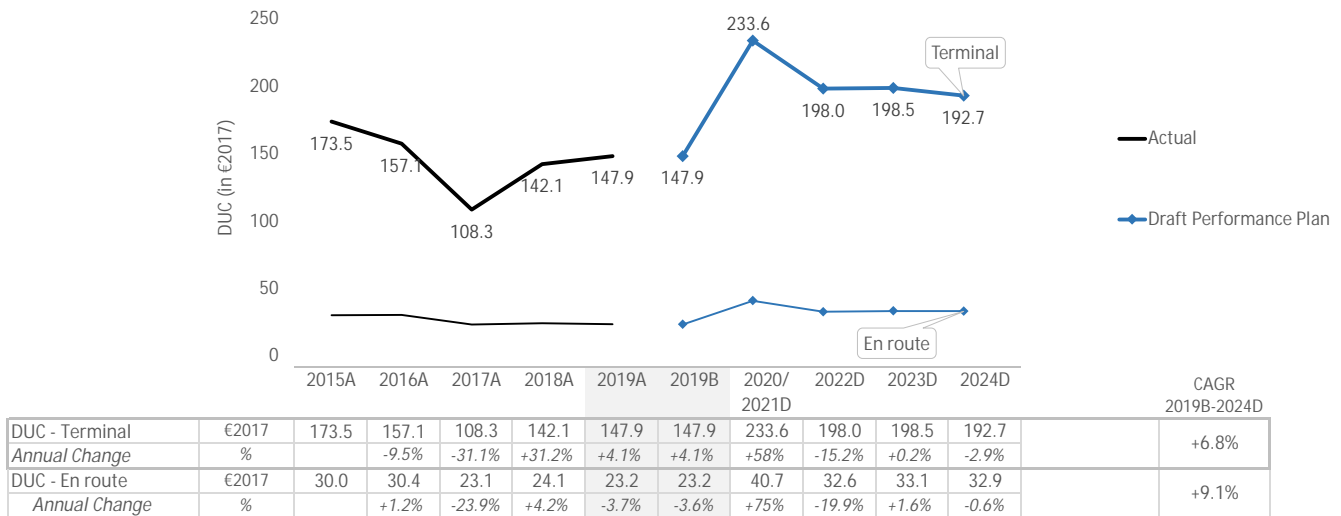
4.4.5 PRB Key Points

✗

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

4.5 Terminal

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Athens (LGAV)	GROUP II	168.6	145.8	-13.5%	191.3	200.9	+5.0%

* 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 average DUC for Athens (LGAV) airport is planned to be +5.0% higher than median DUC of its respective comparator group of airports over RP3.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%

2019 Traffic Baseline Adjustments	TCZ1	No
-----------------------------------	------	----

Costs

Cost Baseline analysis		Δ M€2017	%
2019B vs 2019A	TCZ1	0.0	+0%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	M€2017
-------------------------	-----	-------------	--------	--------

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

No adjustments applied to 2019 cost and traffic baselines.

2019 baseline analysis

As for en route, both the 2019 baseline traffic and cost are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	Yes
---	-----

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Greece is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

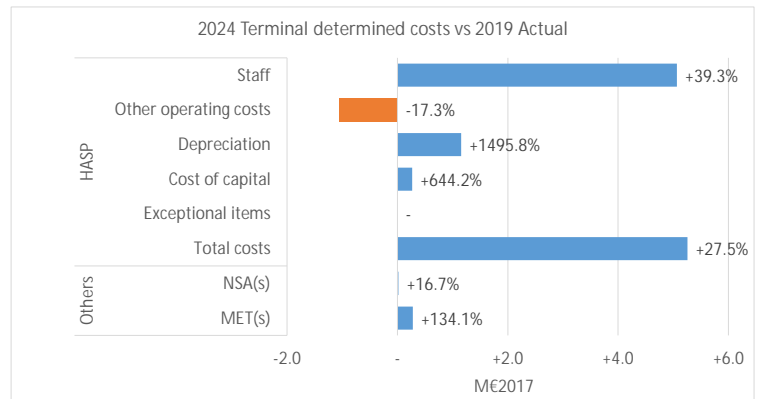
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

Cost elements - HASP (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)	0.30%
Maximum penalty (% of determined costs)	0.60%
Additional incentives?	No



- The share of terminal investment costs (10%) is slightly lower than the share of terminal total costs (13%).
- The terminal WACC is equal to the en route WACC and, as in en route cost base, no current assets were taken into account for the calculation of the terminal cost of capital for the years 2021-2024.
- The share of terminal pension costs in total pension costs is slightly higher than the share of other costs.
- The total determined costs in 2024 are forecasted to be +27.5% higher than 2019 actuals. The main costs drivers are the same as for en route, depreciation and staff costs. Staff costs in 2024 are forecasted to be +39.3% higher than 2019 actuals. No detailed explanation was provided by Greece.
- Depreciation costs in 2024 are expected to be +1,495.8% compared to 2019 actuals. The main reason for this is the planned realization of the investment plan, including replacement of 10 DVOR, 13 DME and six ILS, which costs are 50% allocated to the terminal cost base and the costs of relocation of the ATHINAL APP from Hellinikon to Athens International Airports that are 100% allocated to terminal costs base. No other explanation is found in the performance plan.
- NSA costs allocated to terminal costs are +16.7% in 2024 compared to 2019 actuals.
- The terminal service units will not reach 2019 actual level in RP3, while costs are planned to exceed the 2019 actual level for the first time in 2022.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is +6.8%, which is better than the en route RP3 DUC trend of +9.1%.
- The terminal RP3 DUC trend is +6.8%, which is worse than the terminal RP2 DUC trend of -3.9%.
- Athens, the only airport included in the scope of the performance plan, had a DUC -13.5% lower than the median of its comparator group over RP2. The difference is expected to be +5.0% over RP3.
- Greece used the STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs significantly increase over the period, mainly due to a significant increase in staff costs.
- SAR costs are 100% allocated to en route, and thus have no impact on the terminal cost base.

PRB Assessment

HUNGARY

Draft Performance Plan

Context and scope

Hungary

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 21/02/2022
 Documents no: F5163, F5162, F5164, F5129, F5130, F5131, F4413, F4415, F5132, F5161

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 1.9%
 % Serv. Units vs SES 2.4%
 % Costs vs SES 1.6%

Scope

FAB: FAB CE

ANSPs: HungaroControl
 Hungarian Meteorological Service (Országos Meteorológiai Szolgálat)

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

ATM (including ATC, FIS, FMP, AMC), AIS, CNS, MET,
 MET

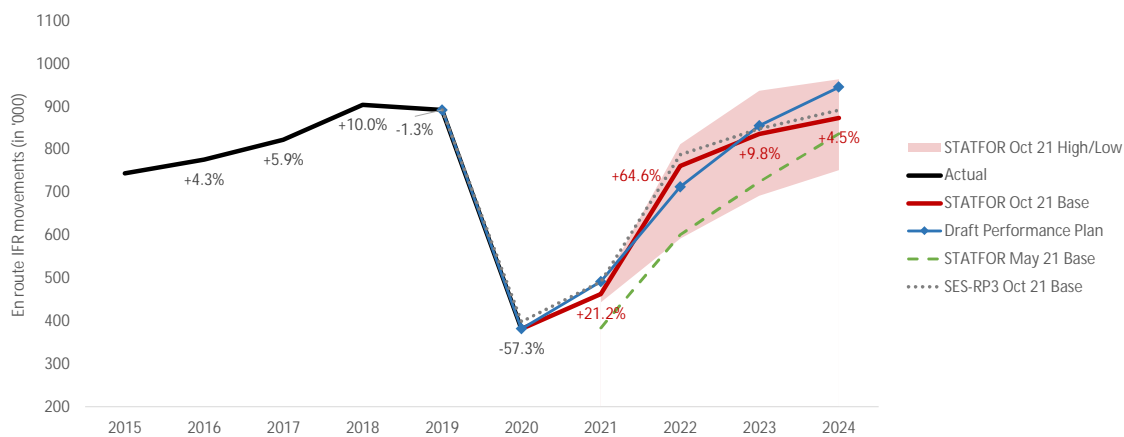
NM, CRCO
 NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Hungary	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Hungarocontrol	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 Hungary should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.45%	1.50%	1.49%	1.49%	1.49%

PRB assessment

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

- Hungary's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Hungary did not achieve the 2021 target of 1.50% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Hungary has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.90	0.06	0.11	0.11	0.11
National target for <u>terminal</u> 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 be approved.

- The incentive schemes defined in the performance plan do not have a material impact on the revenue at risk.
- Hungary included an investment related to 'Drone passive scout system' in the performance plan.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	57.05	45.72	38.32	35.42	+2.8%	-0.9%
Target for determined unit cost (DUC) (€2017) - Terminal	494.02	378.72	362.91	335.29	n/a	+11.0%

PRB assessment

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

- Hungary is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (7.7M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Hungary is not consistent with the long-term Union-wide DUC trend. However, the deviation (3.6M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Hungary is consistent with the average DUC baseline of the comparator group.
- Hungary presents justifications for a deviation to achieve the RP3 capacity targets. The amount seems justified and it is greater than the deviations from both the RP3 and long term Union-wide trend.

5. PRB recommendations**SAFETY**

- Hungary should retain the high levels of safety achieved in 2020 throughout RP3.
- Hungary should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Hungary should ensure it implements all relevant projects outlined in the June 2021 ERNIP

HUNGARY

Safety KPA

1.1 Summary of safety key data and assessment results

Hungary

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. HungaroControl either reached or exceeded the RP3 targets in 2020.

1.1.2 Measures planned to reach the target (if applicable)

Considering the ANSP's current safety levels, the measures described under the Fourth Safety Program (2020-2024) should be sufficient to ensure the required safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The 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 performance plan specifies that safety KPA has the priority over the other areas. The interdependencies, as described in the performance plan, are adequately explained.

1.1.4 Change Management

The performance plan describes in detail the change management practice, compliant with the Commission Implementing Regulation (EU) 2017/373 and supervised by the competent authority. The process described provides confidence that new implementations are 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 Hungary should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- In 2020, Hungary reached the safety targets for RP3 and exceeded the targets planned for 2020. Hungary should retain the high levels of safety achieved in 2020 throughout RP3.
- Hungary should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Hungary

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
HungaroControl	Safety policy and objectives	D	C	C	C	C	C	✓	
	Safety risk management	D	C	C	C	D	D	✓	
	Safety assurance	D	C	C	C	C	C	✓	
	Safety promotion	D	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. HungaroControl either met or exceeded the RP3 targets in 2020. Considering the current safety levels, the achieving of the targets should have been advanced.

Measures are described in detail with reference to the fourth Safety Program (2020-2024). More specifically, the performance plan mentions that the fourth Safety Program 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 Just and Safety Culture. The fourth Safety Program enlists 70 actions aiming to support the achievement of RP3 Safety targets. Some NSA derived measures should be provided.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The 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 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 performance plan states that as prescribed by Commission Implementing Regulation (EU) 2017/373, change management practice for a change impacting the functional system is handled by the internal safety assessment process that is supervised by the competent authority.

Major airspace changes, expected as a result of the FABCE cross-border sector optimisation project were launched in cooperation with NM and are planned to be extended towards the adjacent FABs (DANUBE and BALTIC). The changes are accompanied with proper implementation plan including assessment of the impact of the cross-border sector optimisation from technological and human point of view as well as legal and financial impact.

The process described provide confidence that new implementations are conducted in a manner minimising any negative impact on the network performance.

HUNGARY

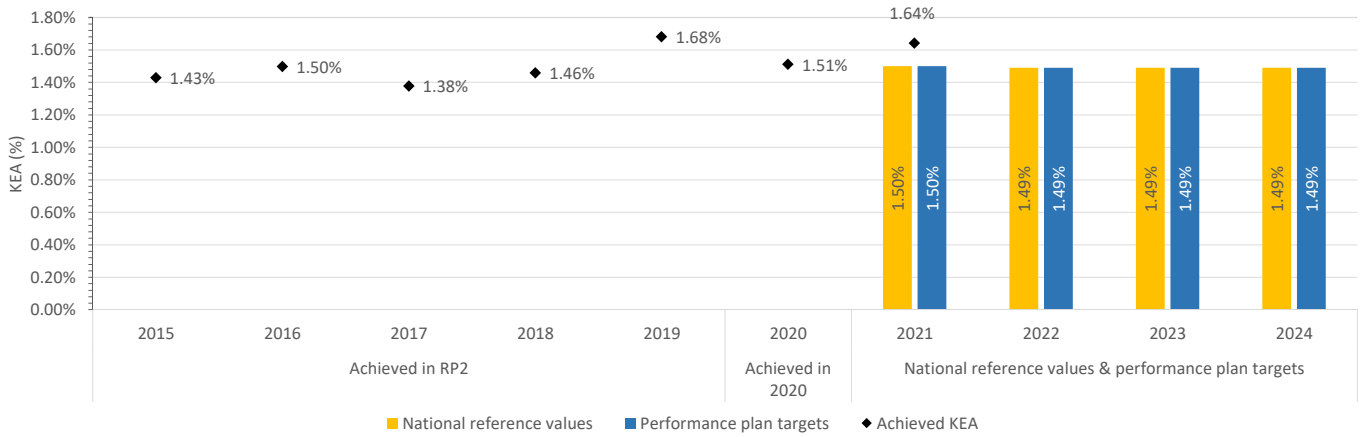
Environment KPA

2.1 Summary of 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
National reference values	1.45%	1.50%	1.49%	1.49%	1.49%
Performance plan targets	1.45%	1.50%	1.49%	1.49%	1.49%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Hungary's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Hungary did not achieve the 2021 target of 1.50% in its performance plan.
- Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Hungary has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Hungary should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Hungary

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
Hungary implemented free route airspace (FRA) in 2015 between FL095 and FL660.			3.2.1(c)	Page 52
Major ERNIP Recommended Measures:		7	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(c)	Page 116
PBN transition plan		✓	3.2.1(c)	Page 118
SEE FRA phase 2		✓	n/a	Page 137
New ATS route for approach to LRSM		✗	n/a	Page 178
Budapest ACC reorganisation		✗	3.2.1(c)	Page 174
SEE FRA phase 3		✓	n/a	Page 225
Interface re-sectorisation		✗	3.2.1(c)	Page 174
CB FRA operations		✓		
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Hungary achieved a KEA of 1.51% in 2020. In 2021, Hungary reached a KEA of 1.64% which means it did not achieve the 2021 target of 1.50% in its performance plan.

Hungary has suggested that since the implementation of 24-hour free route airspace (FRA) performance is influenced more by external factors than those that can be influenced by HungaroControl. Whilst external factors certainly influence environmental performance, there are several projects in the June 2021 ERNIP that Hungary has acknowledged it needs to implement to do all it can to improve performance. Whilst most of the FRA projects were committed to in the performance plan, the projects to re-sectorise the interface between Hungary and Slovakia and to implement a new sectorisation for Budapest ACC were not mentioned as measures to maximise the ability of Hungary to achieve the targets.

Hungary has significant airspace that is allocated to temporary reserved area/temporary segregated areas (TRAs/TSAs) and are managed through the airspace use plan (AUP). In previous aeronautical information publications (AIPs), Hungary estimated that tactically vectoring around active reserved areas could add between five and ten nautical miles to each flight affected. Improving civil-military co-ordination may further help Hungary achieve the targets.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

HUNGARY

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to the national reference values and are also equal to the scenario 1 delay forecast during 2022-2024.

Hungary is expected to have sufficient capacity to meet traffic demand during RP3.

The minor decrease in the planned number of ATCO FTEs may affect capacity performance negatively if not compensated with other capacity improvement measures.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Budapest is the only airport included in the performance plan. National targets are set equal to those in RP2 and remain in line with the good performance observed in the past.

Performance at Budapest airport is expected to be better than that of the group of similar airports in RP3.

3.1.3 Incentives

En route:

Hungary has chosen not to modulate the pivot values, which are set equal to the national reference values.

Maximum bonus and penalty is set at 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.

Terminal:

Hungary has chosen not to modulate the pivot values, which are set equal to the national performance targets.

Maximum bonus and penalty is set at 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

There is no capacity surplus/shortage in Hungary during RP3.

There are capacity enhancing investments planned for RP3 (assumed already implemented) and beyond related to PCP/CP1 ATM Functionalities AF2, AF3, AF5, and AF6 but the deployment of the post-RP3 capacity enhancing measures does not take place until the end of 2026.

Hungary chose to include an investment in 'Drone passive scout system' in the performance plan.

Other investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

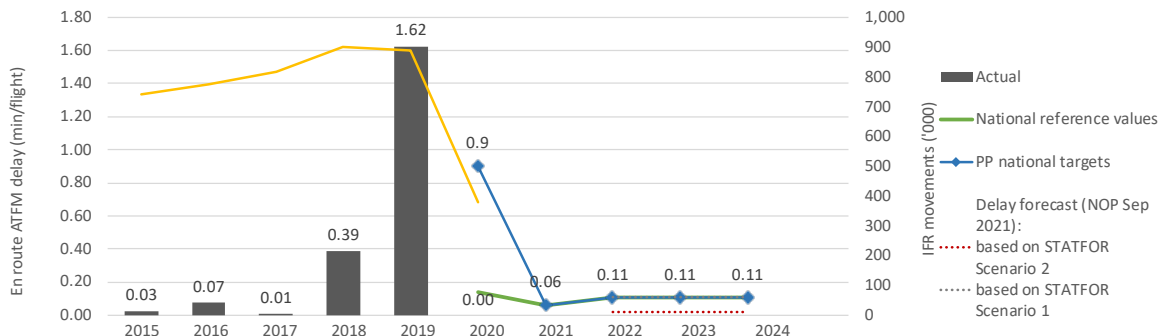
3.1.5 PRB conclusions

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

- The incentive schemes defined in the performance plan do not have a material impact on the revenue at risk.
- Hungary included an investment related to 'Drone passive scout system' in the performance plan.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight



Traffic variation	+11%	+4.3%	+5.8%	+10.0%	-1.5%	-57.2%				
Actual delay/flight	0.03	0.07	0.01	0.39	1.62	0.00				
National reference values						0.14	0.06	0.11	0.11	0.11
PP national targets						0.90	0.06	0.11	0.11	0.11
Based on STATFOR Scenario 1						-	0.11	0.11	0.11	0.11
Based on STATFOR Scenario 2						-	0.02	0.02	0.02	0.02

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
Deviation target vs reference value	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Hungary experienced capacity constraints related mainly to ATM capacity, weather-related issues and staffing. Increasing staffing problems were identified as a root cause for the lack of ATM capacity during the second half of RP2. Hungary missed the capacity targets in 2018 and by a significant margin in 2019.

The main capacity enhancement measures introduced by the performance plan include:

- 'Budapest ACC re-organisation' project - airspace reorganisation,
- training programme of new ATCOs,
- The upgrade of the ATM System (part of the investment projects).

Only the upgrade of the ATM system is described by the plan in more details. The upgrade is however not described in the capacity plan of the current NOP. It is expected to enter fully into operations only in RP4. It is not known if the system's partial implementations during RP3 would contribute to the RP3 capacity enhancement. All listed measures are nevertheless expected to contribute to the overall capacity improvement.

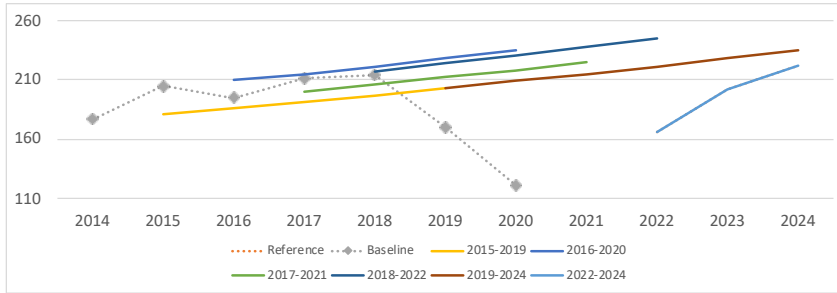
The planned number of ATCO FTEs shows an increase of 12% compared to 2019. Most of the increase is planned in 2021-2022 already, with a minor decrease during 2023, which might affect capacity performance slightly.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Budapest ACC (LHCC)	Additional ATCOs in OPS to start working in the OPS room	4	5	0	13	13	0	6	+13
	ATCOs in OPS to stop working in the OPS room	5	6	5	3	5	3	3	
	ATCOs in OPS to be operational at year-end	107	106	101	111	119	116	119	
Total - HungaroControl (en route)	Additional ATCOs in OPS to start working in the OPS room	4	5	0	13	13	0	6	+13
	ATCOs in OPS to stop working in the OPS room	5	6	5	3	5	3	3	
	ATCOs in OPS to be operational at year-end	107	106	101	111	119	116	119	

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Budapest ACC (LHCC)



- Historical data shows a mixed picture for baseline values in RP2: baseline values decreased in 2016 slightly, then following a period of growth in 2017 and 2018, dropped sharply in 2019, by more than 20%. Planned values were below the baseline in 2015 and in 2017, in all other years, the planned values were higher than the baseline.

- Latest planned capacity profile shows an average annual growth of 15.6%, resulting in higher values than in 2019 (and than in 2018). Planned values follow exactly the reference profile values: no capacity surplus or gap is expected in Budapest ACC.

- The minor decrease in the planned number of ATCO FTEs is not visible in the latest planned capacity profile, which may be a minor inconsistency, or the compensatory effect of the other capacity enhancement measures.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									166	202	222
Baseline	177	205	195	211	214	170	121				
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
2022-2024									166	202	222
Latest vs Reference									0%	0%	0%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events ⓘ

Review of the planned impact of special events in some years of RP3

The performance plan does not identify any significant/special event and related capacity-shortfall mitigating measure. The current NOP provides the World Athletic Championship as special event without providing further impact details as well. It is expected that implementation of new airspace design under the 'Budapest ACC re-organisation project' including connectivity to SEEN FRA and implementation of the new ATM system may impact capacity, which must be contained by mitigating measures.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The plan does not provide enough details to make the external assessment. The NOP contains additionally the Central/South East Europe airspace restructuring project, improved rostering and different number of new ATCOs compared to the performance plan.

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

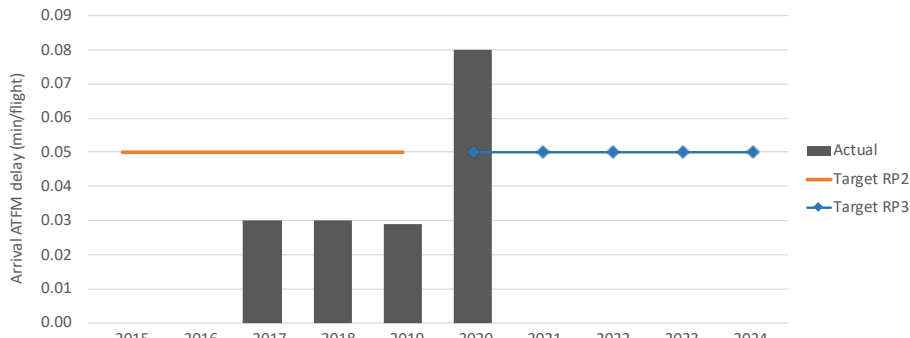
- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? ✔
Performance plan contains no additional measures compared to the NOP. The plan however does not expect a capacity gap during RP3.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? ⓘ
The NOP describes the Central/South East Europe airspace restructuring project, which is not explicitly mentioned by the performance plan although it is anticipated to be included in the airspace re-organisation project.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? ⓘ
The performance plan does not provide enough details to assess how the airspace restructuring project mentioned in point b) above is included.
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? n/a
No capacity gap is not expected.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)? ✔
The plan provides details on the planned ATCO numbers. It is difficult to link the numbers to the individual capacity measures and their contribution to the capacity improvement, however, the timing of the changes corresponds to the implementation years of the main capacity enhancement measures.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✘
The performance plan does not include information on the flexible rostering although the measure is mentioned in the NOP.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
The performance plan does not provide information on the limitations of the current ATM systems, it however includes upgrades of the current one as the investment project classified as the main capacity enhancement measure.

3.2.6 PRB Key Points ✔

- The proposed national capacity targets are set equal to the national reference values and are also equal to the scenario 1 delay forecast during 2022-2024.
- Hungary is expected to have sufficient capacity to meet traffic demand during RP3.
- The minor decrease in the planned number of ATCO FTEs may affect capacity performance negatively if not compensated with other capacity improvement measures.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



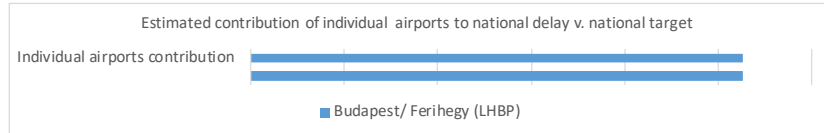
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Budapest/ Ferihegy (LHBP)	0.00	0.00	0.03	0.03	0.03	0.08	-	-	-	-

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 (2021-2024) 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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Budapest/ Ferihegy (LHBP)	GROUP III	0.12	0.02	-0.10	0.05	-0.07

* 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

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

- Budapest is the only airport included in the performance plan. National targets are set equal to those in RP2, and remain in line with the good performance observed in the past.
- Performance at Budapest airport is expected to be better than that of the group of similar airports in RP3.

3.4 Capacity Incentive schemes

3.4.1 En route 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
NOP reference values			0.11	0.11	0.11
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.11	0.11	0.11
Pivot values for RP3			0.11	0.11	0.11

Threshold and pivot value review

A threshold of 25% is applied around the pivot value before bonuses / penalties apply. The maximum penalty / bonus applies at +/-0.05 minutes around the pivot value. The pivot value is fixed at the national target which is equal to the reference value from the NOP.

Modulation review

No modulation applied.

Review of financial advantages/disadvantages

The maximum penalty and maximum bonus are fixed at 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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
Performance Plan targets			0.05	0.05	0.05
Pivot values for RP3			0.05	0.05	0.05

Threshold and pivot value review

The terminal incentive scheme establishes a dead band of ±25% that allows for small variations in performance with no associated bonuses / penalties. The pivot value, not modulated, is in line with past performance and implies low delays.

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 minutes per arrival, which is still well below the median past delay of similar airports.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points



En route:

- Hungary has chosen not to modulate the pivot values which are set equal to the national reference values.
- Maximum bonus and penalty is set at 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.

Terminal:

- Hungary has chosen not to modulate the pivot values which are set equal to the national performance targets.
- Maximum bonus and penalty is set at 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.

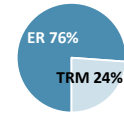
3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	23.8	24.1	31.3	36.2	40.3	155.9
	En route	20.0	19.7	25.3	26.0	27.7	118.7
	Terminal	3.8	4.5	6.0	10.3	12.6	37.2

* 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 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	TRM
1	New MATIAS system (ANSIII, ANSI, TTF), new simulator	<i>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.</i>	63.3	Yes	Yes	1.3	0.2
2	mirTWR	<i>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 and remote tower video system.</i>	25.7	Yes	Yes	0.0	13.2
3	MATIAS system Build 12	<i>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.</i>	16.7	Yes	Yes	12.6	2.1
4	MATIAS Build 13 ANS I HW replacement PCP, new TWR interface	<i>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).</i>	9.9	Yes	Yes	4.1	0.7
5	Drone passive scout system	<i>In accordance with the strategic goals of HungaroControl Pte. Ltd. Co. this investment makes the recognition of drone traffic possible within the airspace with the further development of air traffic service procedures and technological background. As a result of the procurement, after the realization of all the development phases, the company will be able to display the cooperative and wrongdoer drones within the airspace covered by the technology. With the spread of unmanned aerial vehicles (often called drones) and because of the vicinity of Budapest Liszt Ferenc International Airport to Budapest, departing and arriving aircrafts experience an increasing amount of risk due to intentional or unintentional drone usage. In accordance with the regulations of the European Union and the national regulation plan, a so-called no drone zone will be selected within the airspace of the airport. Furthermore, these regulations allow flying of drones with certain conditions outside the no drone zone. However, air traffic controllers will not have any direct information on cooperative or non-cooperative drones without this development. Due to this issue, it is possible that drones will violate the secure airspaces. To sum up, this upcoming risk makes the surveillance and display of the drones necessary, so that the safe and secure management of airspaces can be done by HungaroControl.</i>	9.5	No	No	0.0	1.6

6	ATM Backup System Build 1	<p>Currently there is an old legacy home-developed ATM backup system in operation in Budapest ATS centre. Any further development is impossible for that.</p> <p>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.</p> <p>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.</p> <p>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.</p>	6.6	Yes	No	2.4	0.4
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Total:	20.4	18.2
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Airspace user feedback regarding major investments

The airspace users expressed their concerns regarding the Drone Passive Scout System and also regarding the costs related to drone detection included in the ATM Backup investment. The users also requested more information with regards to 2020-2021 actual investments.

Hungary noted that the investments are essential for securing the safety of the ATM and that they are respecting the legal obligations set under EU framework and sharing costs would not be in line with the responsibilities defined for each entity providing service provision, since detection is the task of the ANSP.

Review of investments

Investment #3, "MATIAS System Build 12" was included in the RP2 performance plan and will continue throughout RP3. During RP2, the total actual CAPEX for this investment was underspent by 12M€. New major investments represent 24% of the total determined costs over RP3. The actual CAPEX for RP2 was 5% higher than the planned and the amount overspent was 3.7M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total actual costs related to investments were 16.5M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	ATM Backup System Build 1	Network, Local, Non-performance	Safety, Environment, Capacity, Cost-efficiency	With the spread of unmanned aerial vehicles (often called drones) and because of the vicinity of Budapest Liszt Ferenc International Airport to Budapest, departing and arriving aircrafts experience an increasing amount of risk due to intentional or unintentional drone usage.

Additional information

The positive contributions of this Implementation Project to:

- Safety enhancement by representing and providing information on the increased intentional or unintentional drone usage in the vicinity of Budapest Liszt Ferenc International Airport.
- Implementing a surveillance system specialised for drones is a fundamental step in keeping the departing and arriving aircrafts safety on the same level while the drone traffic is increasing.

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 RP3 (M€)
Other new investments	59.9	63.8	1.3	4.1	7.6	10.2	12.1	35.4
Existing investments			21.9	16.8	17.9	13.6	11.7	81.9

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	Püspökladány en-route radar replacement	2.6	2.6	0.0	0.0	0.0	0.0	0.1	0.1	The purpose of the investment is to maintain a high level of service in accordance with the regulations by carrying out the necessary replacements due to operational lifetime expiration. More details can be found in section 2.1 of the performance plan.
2	Kőrishegy en-route radar replacement	2.6	2.6	0.0	0.0	0.0	0.1	0.4	0.5	
3	X - ANS3 HW replacement - Frequentis	3.3	3.3	0.1	0.5	0.6	0.6	0.6	2.4	Replacement and upgrade of the software and hardware of the air traffic control, ground-to-ground and ground-to-air voice communication centre, the voice recording system and the emergency radio and emergency telephone system of HungaroControl Zrt. More details can be found in section 2.1 of the performance plan.

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?

Budapest ACC is expected to be able to deliver capacity in accordance with the reference values with 0% over/under capacity during RP3.

There are two new major investments planned for RP3 in Hungary directly contributing to en route capacity enhancement: the New MATIAS system (ANSIII, ANSI, TTF), new simulator investment and the MATIAS system Build 12 investment. These investments are linked with PCP/CP1 ATM Functionalities AF2, AF3, AF5, and AF6. Investments related to improved contingency capabilities can be considered as capacity enablers and the investments related to TWR improvements and integrating the TWR environment with the en route environment may contribute to airport/TMA domain capacity as well as capacity improvements at the ACC interfaces. The investments in general contribute to resilience, scalability and flexibility and are in line with the overall European ATM evolution.

Other (non-major) investments include investments to surveillance infrastructure contributing to resilience and VCS equipment replacement contributing to scalability and flexibility.

Hungary chose to include a new major investment related to 'Drone passive scout system' in the performance plan.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

The New MATIAS system (ANSIII, ANSI, TTF), new simulator investment is expected to improve en route capacity through new FDP and HMI capabilities and the system will be able to exchange flight information using SWIM yellow profile and will introduce required services to support exchange of flight information with SWIM blue profile. The MATIAS system Build 12 investment will upgrade the ATM system to exchange real time airspace reservation messages between local ASM support systems and the CWP to manage dynamic airspace configurations and upgrade the ATM system with the capability to receive and process EFPL information via FF-ICE/1.

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

The New MATIAS system (ANSIII, ANSI, TTF), new simulator investment will not enable capacity enhancement during RP3 as it is planned for deployment at the end of 2026. The MATIAS system Build 12 investment was planned for deployment in April 2021 but does not generate capacity surplus for RP3. Previous MATIAS builds and other capacity enhancing measures such as electronic dialogue as automated assistance to controller during coordination and transfer were implemented as capacity enhancing measures during RP2. As New MATIAS system (ANSIII, ANSI, TTF), new simulator investment is not planned to be deployed until mid-RP4, close monitoring is required to avoid capacity shortfalls in the first half of RP4.

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 5% higher than the planned and the amount overspent was 3.7M€. Despite overspending on investments, the the total actual costs related to investments were 16.5M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.
- There is no capacity surplus/shortage in Hungary during RP3.
- There are capacity enhancing investments planned for RP3 (assumed already implemented) and beyond related to PCP/CP1 ATM Functionalities AF2, AF3, AF5, and AF6, but the deployment of the post-RP3 capacity enhancing measures does not take place until the end of 2026.
- Hungary chose to include an investment in 'Drone passive scout system' in the performance plan.
- Other investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

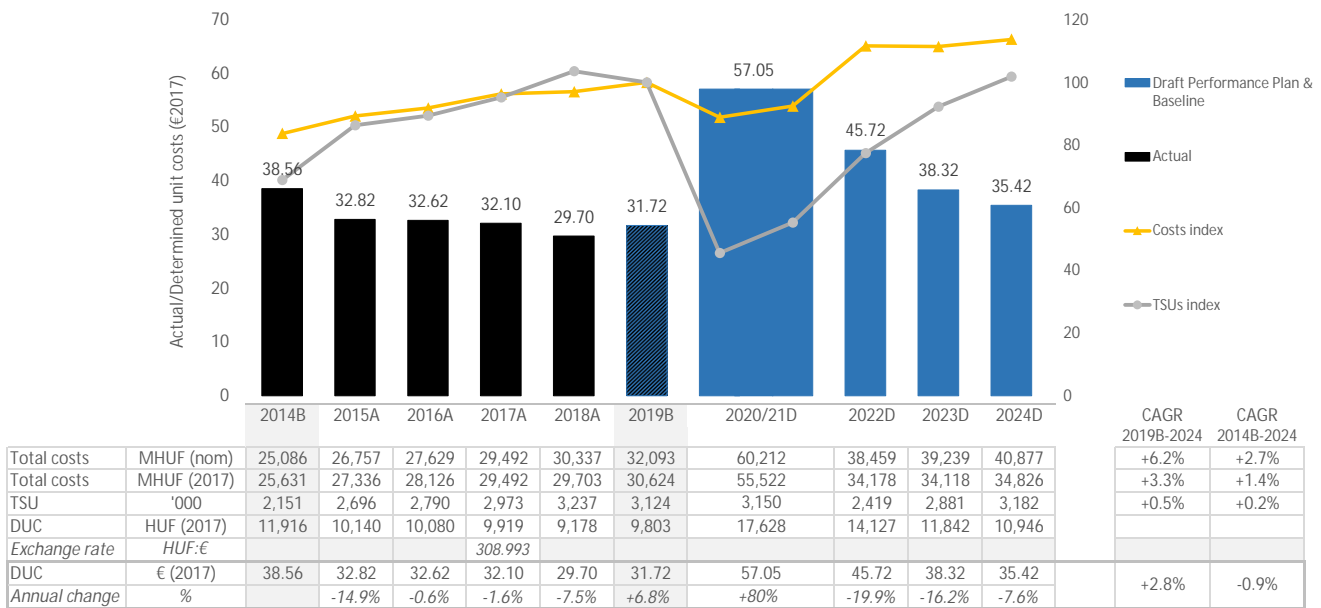
HUNGARY

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Hungary - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 31.72 €2017 ✓

The adjustment of the 2019 cost baseline to add the costs of the early retirement pensions scheme planned to be introduced as of 2022 seems justified. However, Hungary did not provide in the performance plan a detailed calculation of this adjustment (which amounts to +598MHUF, or +1.8M€2017).

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? +2.8% ✗
The DUC is planned to increase on average by +2.8% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%). However, the deviation (7.7M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -0.9% ✗
The DUC is planned to decrease on average by -0.9% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%). However, the deviation (3.6M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- c) DUC level (2019 baseline) lower than the average of comparator group (C) average (40.13 €2017)? -20.9% ✓
The 2019 DUC level is -20.9% lower than the average of the comparator group.
- d) Deviation exclusively due to measures necessary to achieve the capacity targets? - ✓
The amount seems justified and it is greater than the deviations from the Union-wide trends.
- e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users? - n/a

4.1.4 PRB Conclusions ✓

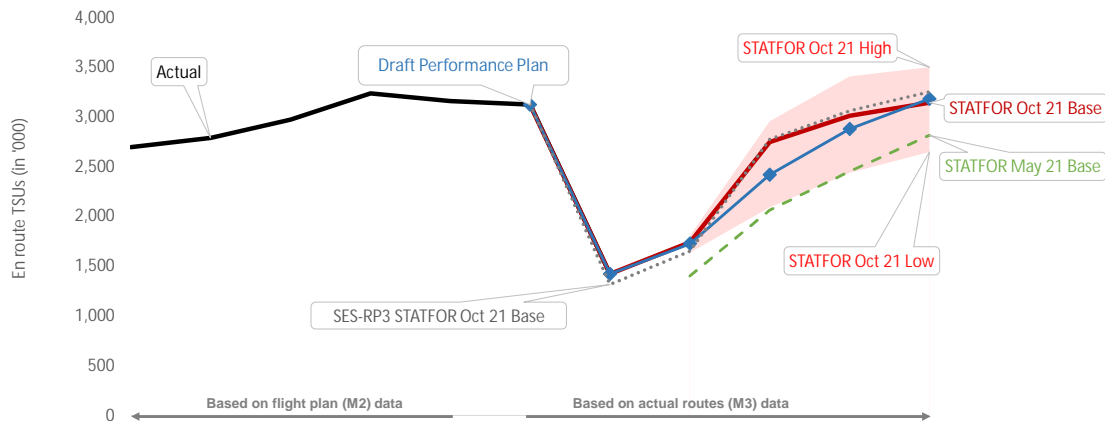
The PRB concludes that the cost-efficiency targets proposed by Hungary should be approved.

- Hungary is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (7.7M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Hungary is not consistent with the long-term Union-wide DUC trend. However, the deviation (3.6M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Hungary is consistent with the average DUC baseline of the comparator group.
- Hungary presents justifications for a deviation to achieve the RP3 capacity targets. The amount seems justified and it is greater than the deviations from both the RP3 and long term Union-wide trend.

4.2 Review traffic forecasts and baseline

Hungary - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	2,696	2,790	2,973	3,237	3,162	3,124	1,423					
Annual change	%		+3.5%	+6.6%	+8.9%	-2.3%	-3.5%	-54.4%					
STATFOR Oct 21 Base	'000 TSUs								1,743	2,748	3,012	3,144	+0.6%
Annual change	%								+22.5%	+57.7%	+9.6%	+4.4%	
STATFOR May 21 Base	'000 TSUs								1,402	2,064	2,452	2,815	-9.9%
Annual change	%								-1.5%	+47.2%	+18.8%	+14.8%	
Performance Plan	'000 TSUs						3,124	1,423	1,727	2,419	2,881	3,182	+1.8%
Annual change	%						-3.5%	-54.4%	+21.3%	+40.1%	+19.1%	+10.4%	

4.2.2 Traffic baseline review

	2019	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)		3,124	
2019A (as in the Reporting tables, M2)		3,162	
2019B/ 2019A		-1.19%	-1.19%

	2014	'000 TSUs	CRCO 12-month coefficient
2014B (PP baseline)		2,151	
2014A (as in the Reporting tables, M2)		2,408	
2014B/ 2014A		-10.66%	-1.19%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- Hungary adjusted the 2014 traffic baseline to take into consideration the sudden large increase in traffic in Q3 2014 due to the Ukrainian crisis. This represented a +15% traffic increase in 2014 compared to 2013 whereas the latest STATFOR forecast prior to the crisis predicted around +4%.
- As the traffic increase happened mostly in Q3 2014, Hungary states that the impact on the costs was only felt from 2015 onwards. Indeed the actual costs in 2014 decreased by -0.9% with respect to 2013.
- For this reason, Hungary proposes as baseline the STATFOR September 2013 base forecast (2,177 TSUs) as the latest estimation produced before the full impact of the crisis.
- Hungary applied the CRCO 12-month M2/M3 coefficient to the proposed 2014 and 2019 traffic baseline.

Review of 2014 and 2019 traffic baseline

- The arguments proposed by Hungary to adjust the 2014 traffic baseline seem reasonable as indeed there was an unforeseen traffic increase well beyond what could have been predicted, whereas the increase in costs to cope with the extra traffic was only implemented from 2015 onwards. This results in a lower than usual DUC. The proposed value (STATFOR September 2013 base forecast) as the latest available estimation before the full impact of the crisis seems also appropriate.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- For the years 2022 to 2024, Hungary selected the STATFOR May 2021 high forecast arguing that the STATFOR base scenario tends to underestimate traffic in Hungary. The Network Manager also considered the high scenario as the most probable for Hungary and this was the one used for the production of the Network Operations Plan 2022-2024 (Ed. September 2021), which will be the basis for the planning of operational capacity. The strong recovery during the summer has indeed been much closer to the high forecast than the base one.
- Hungary considers the STATFOR October 2021 base forecast as too optimistic for 2022 and 2023 due to some risk factors, i.e. GDP growth being weaker than forecasted by STATFOR, deterioration of the pandemic situation and risk of increased operational costs due mostly to the rise in oil prices. These arguments are detailed by Hungary in Annex D to the performance plan explaining the decision to use the STATFOR May 2021 high forecast for the performance plan.
- For 2021, Hungary applies the actual data available on Eurocontrol's ETNA portal and the PRU dashboard.

Review of the PP traffic forecast

- The initial selection by Hungary of the STATFOR May 2021 high forecast instead of the base forecast proved closer to reality considering the strong summer recovery, despite some misgivings expressed by the airspace users during the consultation early September.
- The STATFOR October 2021 base forecast predicts higher traffic for Hungary than the STATFOR May 2021 high forecast selected by Hungary for 2022 and 2023.
- The STATFOR October 2021 base forecast for 2024 (3,144K TSUs) is slightly lower than the forecast selected by Hungary for 2024 (3,182K TSUs).
- Hungary has applied the actual figure for 2021, thereby cancelling any traffic risk-sharing or traffic adjustment resulting from the difference between planned and actuals for the combined year 2020-2021.

4.2.4 PRB Key Points

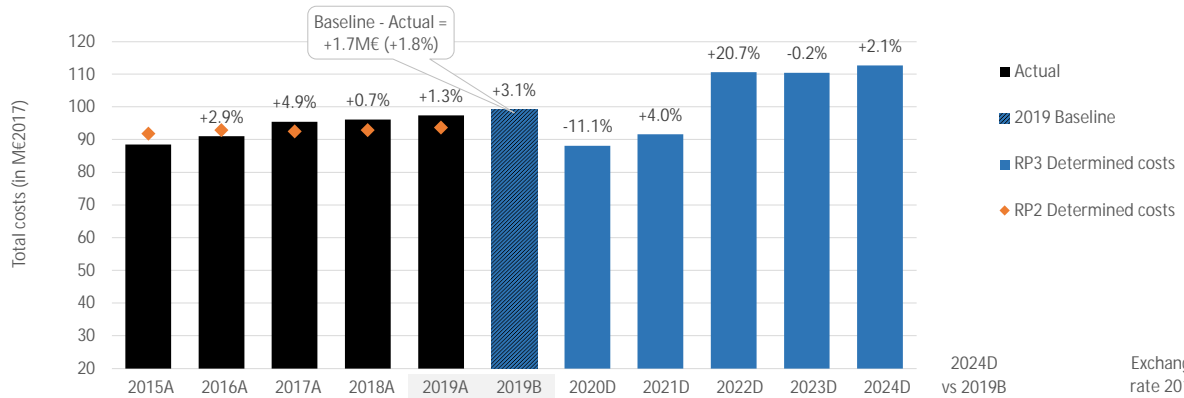


- Hungary adjusted the 2014 traffic baseline to take into account the Ukrainian crisis occurred in that year.
- Hungary en route traffic is based on STATFOR May 2021 high scenario for years 2022 to 2024.
- Hungary has applied the actual figure for the 2021 traffic, thereby cancelling any traffic risk-sharing or traffic adjustment resulting from the difference between planned and actuals for the combined year 2020-2021.

4.3 Review of determined costs and baseline

Hungary - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



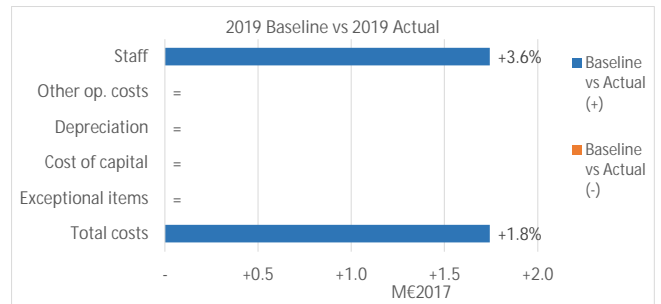
		2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B	Exchange rate 2017
Total costs	MHUF (nom)	26,757	27,629	29,492	30,337	31,520	32,093	29,197	31,015	38,459	39,239	40,877	+27.4%	HUF:€
Annual change	%		+3.3%	+6.7%	+2.9%	+3.9%	+5.8%	-9.0%	+6.2%	+24.0%	+2.0%	+4.2%	+18.0%	308.99300
Inflation index	2017 = 100	97.3	97.7	100.0	102.9	106.4	106.4	110.0	114.0	118.0	121.9	125.5		
Total costs	MHUF (2017)	27,336	28,126	29,492	29,703	30,085	30,624	27,212	28,310	34,178	34,118	34,826	+13.7%	
Annual change	%		+2.9%	+4.9%	+0.7%	+1.3%	+3.1%	-11.1%	+4.0%	+20.7%	-0.2%	+2.1%		
Total costs	M€ (2017)	88	91	95	96	97	99	88	92	111	110	113	+13.7%	

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? Yes
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review ✓

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	1.7	+1.8%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Early retirement scheme correction	ANSP	Staff	+1.7

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- HungaroControl plans to introduce an early retirement pension scheme for ATCOs as of 2022 to replace a State early retirement scheme that existed up to 2014, at the end of which it was terminated by law. Hungary claims that in order to not distort the short-term RP3 DUC trend, the 2019 costs baseline needs to be adjusted to include the costs of the pension scheme as if it were already in place in 2019. The amount used as baseline correction is 13% early retirement contribution on the wages and salaries of ATCOs related to en route service provision in 2019. The determined tax base on which the 13% contribution would have been applied was 4,409,085 tHUF for 2019, resulting 573,181 tHUF planned early retirement cost (or +1.7M€2017).
- Hungary notes that the costs of the previously existing State early retirement scheme were included in the RP2 performance plan as the termination of the scheme in 2014 took place after the submission of the RP2 performance plans. The costs of this pension scheme have been duly returned to airspace users using the cost-exempt mechanism.
- In Annex R of the performance plan, Hungary presents the case for the need of such a scheme citing safety reasons due to the reduced cognitive capabilities of aging ATCOs and the fact that similar schemes are a common practice in many ANSPs.

2014/2019 baseline analysis

- The adjustment of the 2019 cost baseline to add the costs of the early retirement pensions scheme planned to be introduced as of 2022 seems justified, as the elimination of the statutory early retirement scheme was of temporary nature (and the amounts that were planned for the scheme in RP2 were reimbursed to airspace users as cost exempt from cost-sharing).

4.3.3 Review of the RP3 determined costs and incentives

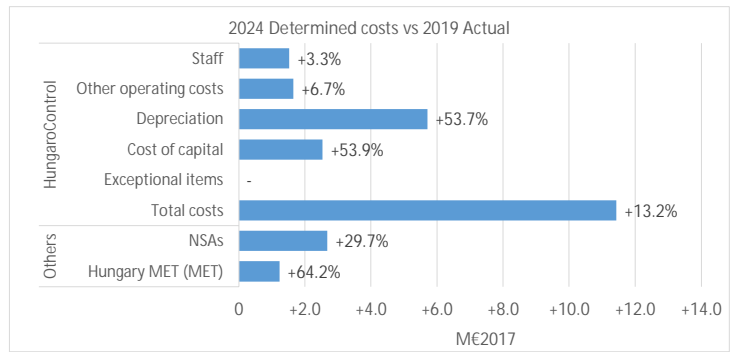
Review of 2020 determined costs	ME2017	%
2020 determined vs actual	+0.0	+0.0%

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



The total costs of Hungary are planned to increase by +15.4%, or 14.9ME2017, between 2019 actuals and planned 2024.

HungaroControl costs in 2024 are planned to be +13.2% (or 11.4ME2017) higher than in 2019. Although there are increases in all cost categories, the main drivers for the overall increase are depreciation (+53.7%, or 5.7ME2017) and cost of capital (+53.9%, or +2.5ME).

- The cost variations for HungaroControl described below are slightly impacted by the transfer of MET services, and associated costs, to OMSZ as of 2022.

Comparing 2024 with 2019, these costs can be estimated to around 1ME2017.

- Staff costs are planned to increase by +3.3% (+1.5ME2017), driven by the introduction of an early retirement scheme for ATCOs as of 2022. Apart from this, staff costs for 2020 and 2021 are actually lower than in 2019 mainly because of the decrease of performance-related pays, reduction of ATCO working hours due to the pandemic and a two percentage point reduction in social contribution tax. From 2022 onwards, inflation-linked wage increases are planned both for ATCO and non-ATCO staff.

- For other operating costs (+6.7%), the main drivers are the training costs for the intake of ATCOs planned over the period, new IT services, and the launch of the support of ATM backup system in 2024.

- Depreciation costs correspond mostly to the upgrades of the ATM system (MATIAS) planned over the period.

- The cost of capital increase is driven by the application of the full market risk premium as of 2022 and an increase of +70% of the asset base from 2019 to 2024.

NSA costs in 2024 are planned to be +29.7% (or 2.7ME2017) higher than in 2019 due to an increase in wages and other operating costs. These include the costs for the Hungarian NSA, as well as for SAR.

MET costs (OMSZ) in 2024 are planned to be +64.2% (or 1.2ME2017) higher than in 2019 mostly driven by the fact that, as from 2022, OMSZ will take over all MET activities from HungaroControl.

During RP2 Hungary absorbed a significant traffic increase, on average +21.8% higher than foreseen in the RP2 performance plan (+25.8% in 2019). Despite the fact that the traffic threshold for revising the performance plan was surpassed already in 2016, Hungary did not revise its performance plan and kept its costs almost in line with RP2 determined costs throughout the period (+2% higher than planned on average over the period).

En route service units are forecasted to reach 2019 levels in 2023/2024, while en route costs are planned to reach the 2019 actual level between 2022/2023.

4.3.4 PRB Key Points

- Hungary includes a correction to the 2019 cost baseline due to early retirement pension scheme planned to be introduced as of 2022.
- The costs over the period largely increase, mainly due to an increase in depreciation and cost of capital.
- The increase in depreciation is related to the implementation of the new ATM system (MATIAS).

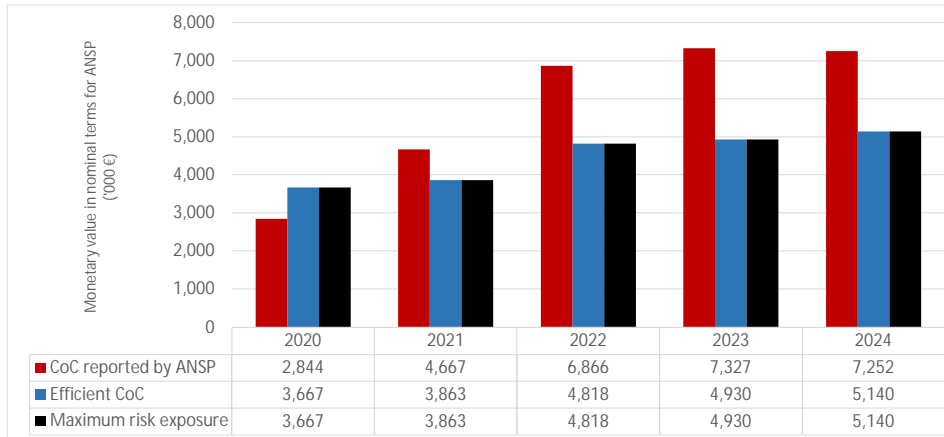
4.3.A Cost of capital

HungaroControl - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	83,349	87,792	109,494	112,046	116,815
Monetary value of Return on Equity	2,844	4,517	6,222	6,699	6,795
Ratio RoE/DC (%)	3.4%	5.1%	5.7%	6.0%	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 vs Efficient ('000 €)	2020	2021	2022	2023	2024
	-823	804	2,048	2,397	2,112

Total 2020-2024	6,538
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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	4.4%	n/a	5.8%	n/a	8.0%	n/a	8.0%	n/a	7.7%	n/a
Interest on debts	0.0%	n/a	3.4%	n/a	3.4%	n/a	3.4%	n/a	3.4%	n/a
Capital structure (% debt)	0.0%	n/a	5.3%	n/a	19.5%	n/a	17.8%	n/a	13.1%	n/a
WACC	4.4%	5.6%	5.6%	4.7%	7.2%	5.0%	7.2%	4.8%	7.2%	5.1%

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

- The cost of debt is in line with the competitive market practices.
- The WACC reported in the performance plan has been calculated based on the CAPM. The WACC proposed by Hungary is higher than the efficient WACC from 2021 onwards.
- The efficient cost of capital is computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 6.5M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 3.4% to 6.0%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	62,799	68,665	74,621	79,843	89,568
Net current assets	3,001	14,381	21,650	22,868	12,082
Adjustments total assets	-417	-298	-246	-233	-229
Total asset base	65,383	82,748	96,025	102,478	101,421

- The fixed asset base is planned to increase over RP3, roughly in line with the investments described in section 3.5 of this document.
- The net current assets will significantly increase until 2023 and decrease in 2024. The net current assets seem excessive compared to the expected cash flows for the period 2021-2023.
- The RAB includes small adjustments, which consist of the proportionate part of investment financed by the EU community funds received before the company was established in 2007.
- The total asset base will increase over RP3, due to the increase in both, fixed assets and net current assets.

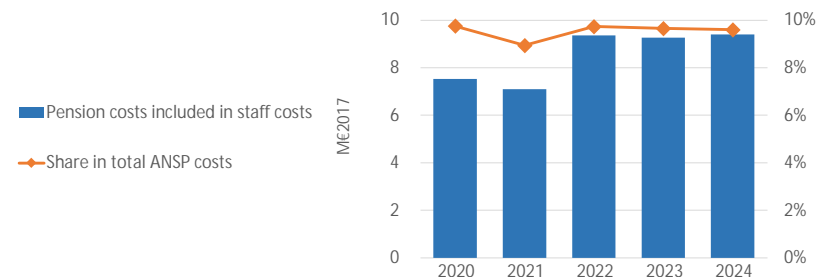
4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is slightly above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 3.4% to 6.0%).
- The net current assets significantly increase until 2023 and decrease in 2024. The net current assets seem excessive compared to the expected cash flows for the period 2021-2023.

4.3.B Pensions

HungaroControl - En route

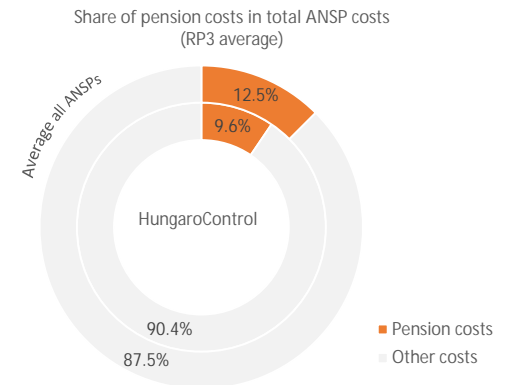
4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	M€2017	7.5	7.1	9.4	9.3	9.4
Year on year variation	% change		-5.7%	+32.0%	-1.0%	+1.4%
Share in total ANSP costs	%	9.8%	8.9%	9.7%	9.7%	9.6%
Year on year variation	p.p.		-0.8p.p.	0.8p.p.	-0.1p.p.	0.0p.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 Union-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?

Yes

The social contribution tax on income wages and certain fringe benefits is going to be reduced during RP3 as follows:

- From 01/01/2020 to 06/30/2020: 17,5%;
- From 01/07/2020 to 30/06/2022: 15,5%;
- From 07/01/2022: 15%.

In line with the governmental intentions, any savings stemming from social security reduction during RP3 will be used for wage increase so the reduction in contribution to the State pension scheme has no impact on the staff costs.

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

Yes

In addition to the current occupational defined contribution scheme, an additional early retirement scheme for ATCOs is going to be introduced by HungaroControl as of 2022. The contributions to these schemes are going to be as follows:

Contributions for ATCO:

- contribution_A1 - 9,3% of yearly base salary;
- contribution_A2 - 3,7% of yearly base salary and 327,845 HUF fix amount increased by yearly inflation rate;
- contribution_A3 - 444,500 HUF fix amount increased by yearly inflation rate;
- contribution_A4 - 13% of yearly wage cost.

Contribution for non-ATCO:

- contribution_nA1 - from 437,100 HUF to 897,000 HUF fix amount based on the employment length increased by yearly inflation rate.

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

HungaroControl notes that the "Defined contribution" nature of the scheme (both for ATCO and non-ATCO) generally mitigates unforeseen risks, as it is mainly dependent on headcount evolution. HungaroControl transitioned their pension scheme from defined benefits to defined contributions in 2013.

4.3.B.4 PRB Key Points

- Despite the introduction of the new early retirement scheme for ATCOs, the proportion of pension costs over staff costs for HungaroControl is lower than the Union-wide average.
- No major issues identified.

4.3.C Methodology for cost allocation between ER and TRM

Hungary

4.3.C.1 Cost allocation overview

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

- 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 of 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, and 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

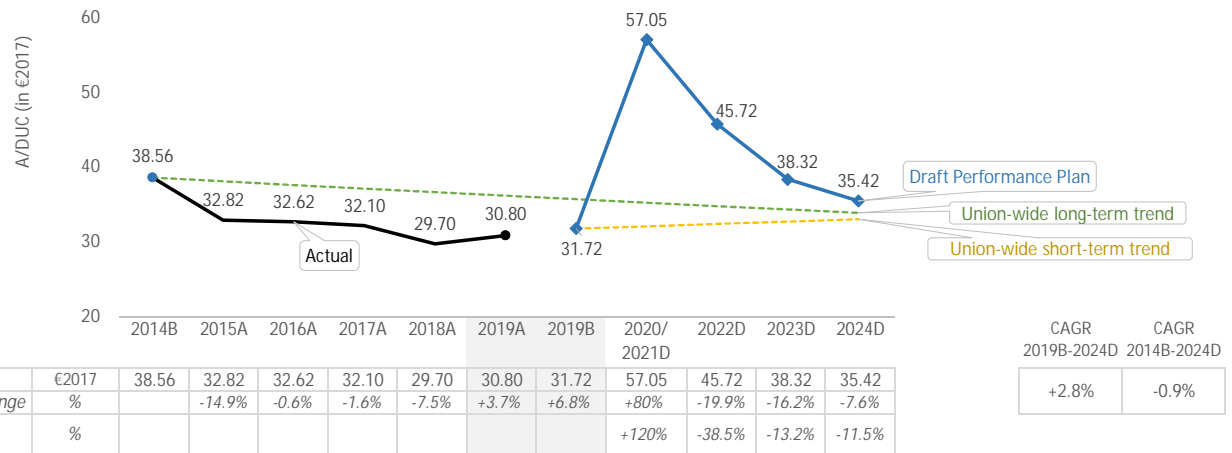


- Hungary did not mention changing the cost allocation methodology with respect to RP2.
 - No major issues identified.

4.4 Determined unit costs (DUC)

Hungary - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+2.8%	+1.0%	+1.8p.p.
Trend (CAGR 2014B-2024)	-0.9%	-1.3%	+0.4p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	31.72	40.13	-20.9%

- The DUC is planned to increase on average by +2.8% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -0.9% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -20.9% lower than the average of the comparator group.

- Hungary presents justifications for a deviation to achieve the RP3 capacity targets. The amount seems justified and it is greater than the deviations from both the RP3 and long term Union-wide trend.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): vs RP3 criteria +7.7 vs RP2+RP3 criteria +3.6

Additional determined costs related to measures necessary to achieve the en route capacity targets (in M€2017)

	2020D	2021D	2020/2021D	2022D	2023D	2024D	€ 2020-2024	PP deviation
Staff	0.5	0.9	1.5	2.8	3.0	3.6	10.9	3.6
of which, pension costs	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.1
Other operating costs	2.0	0.1	2.1	1.6	1.6	1.5	6.8	2.3
Depreciation	0.0	2.0	2.0	3.1	4.6	5.5	15.2	5.1
Cost of capital	0.6	1.2	1.8	2.1	2.3	2.8	9.0	3.0
Exceptional items	-	-	-	-	-	-	-	-
Total additional costs of measures	3.2	4.2	7.4	9.5	11.5	13.5	41.9	14.0

Overall description of the measures necessary to achieve the en-route capacity targets for RP3, which induce additional costs

Hungary plans to implement two main measures to achieve the en route capacity targets:

- Recruitment and training of new ATCOs. The number of ATCOs in operations is planned to increase from 106 FTE in 2019 to 119 FTE by 2024. The number of ATCOs in 2019 was not sufficient to handle the traffic volume at the time and traffic should return to 2019 levels by 2023/2024.
- Investments contributing to increased air traffic control efficiency. A number of investments contributing to increased capacity and productivity are planned during RP3. Hungary has provided a full list of all investments and their contribution to capacity in Annex R of the performance plan, among them the implementation of builds 12, 13 and 14 of the ATM (MATIAS) system.

Demonstration that the deviation is exclusively due to the additional costs related to measures necessary to achieve the capacity targets

In section 3.4.6 d) of the performance plan, Hungary provided detailed calculations. According to these, the DUC for Hungary would be consistent with the Union-wide RP3 and long-term DUC target trends, should the costs reported above be removed from the determined costs of RP3.

Analysis

Based on the information provided in the performance plan, it appears that the amounts claimed to reach the RP3 capacity targets are justified:

- An ATCO recruitment plan seems justified, as the number of ATCOs in 2019 was not sufficient to handle the traffic volume at the time and traffic should return to 2019 levels by 2023/2024.
- Regarding the investment costs, the claimed investments are deemed necessary to achieve the RP3 targets on capacity. Moreover, the RP2 CAPEX monitoring report shows that the actual CAPEX that was foreseen for RP2 was exceeded.
- The additional determined costs for achieving the capacity targets presented by Hungary amounts to 14.0M€2017 (on average for 2020-2024) and largely offsets the deviation from the Union-wide trends both for RP3 and for RP2 and RP3 combined.

✓ 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

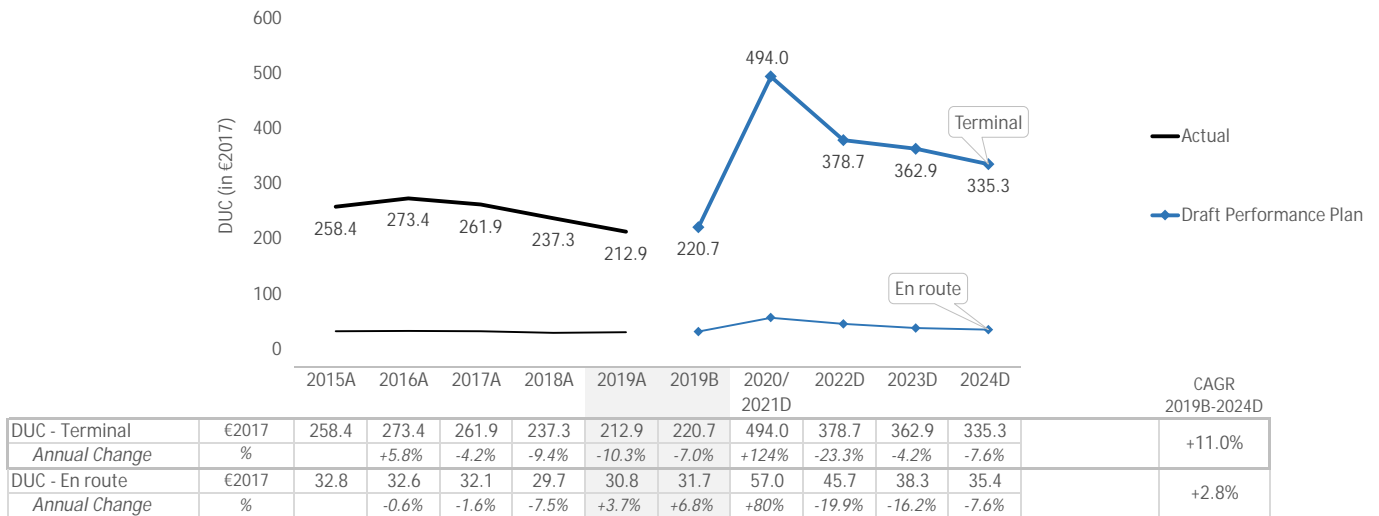
4.4.5 PRB Key Points ✓

- Hungary is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (7.7M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Hungary is not consistent with the long-term Union-wide DUC trend. However, the deviation (3.6M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Hungary is consistent with the average DUC baseline of the comparator group.
- Hungary presents justifications for a deviation to achieve the RP3 capacity targets. The amount seems justified and it is greater than the deviations from both the RP3 and long term Union-wide trend.

4.5 Terminal

Hungary

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Budapest/ Ferihegy (LHBP)	GROUP III	169.1	249.1	+47.3%	229.8	362.5	+57.7%

* 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 average DUC for Budapest airport was +47.3% higher than the comparator group median over RP2. This difference is planned increase to +57.7% on average over RP3.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
2019 Traffic Baseline Adjustments	TCZ1	No	

Costs

Cost Baseline analysis		Δ M€2017	%		
2019B vs 2019A	TCZ1	0.6	+3.7%		
2019 Cost Baseline Adj.	TCZ1				
#1 - Early retirement scheme correction	TCZ1	ANSP	Staff	M€2017	+0.6

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

No adjustment has been applied to the 2019 traffic baseline. As for the cost baseline, the same adjustment than for en route (introduction of early retirement scheme for ATCOs) has been applied. See 4.3.2 of this document for more details.

2019 baseline analysis

The adjustment of the 2019 cost baseline to add the costs of the early retirement pensions scheme planned to be introduced as of 2022 seems justified.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? **No**

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

As for en route, Hungary has selected the STATFOR May 2021 high forecast for 2022 to 2024 and the available actual figures for 2021. Hungary considers the STATFOR October 2021 base forecast too optimistic for the years 2022 and 2023. In Annex D to the performance plan, Hungary provides detailed arguments for the selection of the forecast. It should be noted that these arguments were shared with STATFOR which agreed with some of them in principle accepting that, for the case of Hungary, the October 2021 base forecast might indeed be optimistic for 2022 and 2023.

Review of the PP traffic forecast

As for en route, Hungary selected the STATFOR May 2021 high forecast for 2022-2024 and the available actual figures for 2021. The October 2021 base forecast for 2024 is lower than the forecast selected by Hungary for 2024.

Determined costs (terminal)

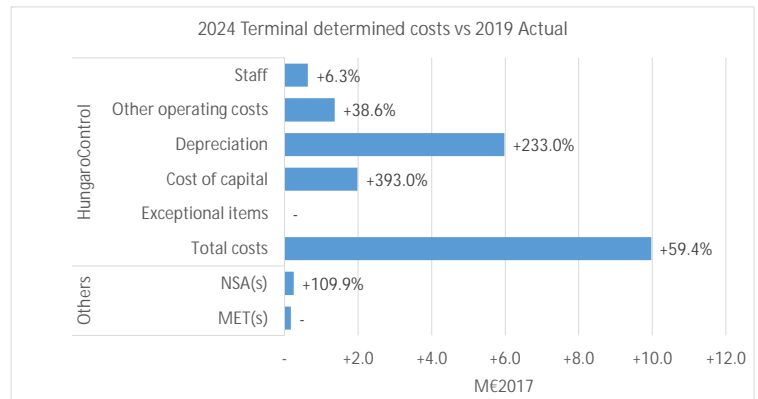
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

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	4.40%
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 the share of terminal total costs (17%).
- The terminal WACC and its parameters are equivalent to the ones for en route.
- The RP3 terminal DUC trend is +11.0%, much higher than the en route DUC for the same period (+2.8% p.a.).
- Overall, HungaroControl plans to increase terminal costs by +59.4% (or +10.0M€2017) over RP3. There are significant increases in all cost categories, in particular depreciation and cost of capital, with similar justifications to those provided for en route.
- The increase in depreciation costs (+233%, or +6.0M€2017) which take place mostly as of 2022 is mainly due to, according to Annex B to the performance plan, the implementation of the modular integrated remote tower system. The highest growth in depreciation costs is in 2023 and 2024 since the majority of the components (e.g. A-SMGCS integrated upgrade) will be operational from these years.
- This is also reflected in the notable increase in the asset base, which is almost +3.5 times higher in 2024 than in 2019, leading to an increase in the cost of capital of almost +400%.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is +11.0%, which is worse than the en route RP3 DUC trend of +2.8%.
- The terminal RP3 DUC trend is +11.0%, which is worse than the terminal RP2 DUC trend of -4.7%.
- Budapest airport had a DUC +47.3% higher than the median of its comparator group in RP2. The difference is expected to be +57.7% over RP3.
- Hungary used the STATFOR May 2021 high forecast for terminal traffic 2022 to 2023 and actual figures for 2021, as for en route.
- The RP3 determined costs for Hungary terminal charging zone are planned to be significantly higher than the 2019 actual costs.

PRB Assessment

IRELAND

Draft Performance Plan

Context and scope

Ireland

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F5121, F5122, F4614, F4616, F4617, F4618, F4620, F4621, F4622, F4623, F4624, F4627, F4638, F4643, F4646, F4647, F4648, F4651

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 1.6%
 % Serv. Units vs SES 3.6%
 % Costs vs SES 1.9%

Scope

FAB:	UK-Ireland FAB
ANSPs:	IAA Met Eireann Aviation Services Division (ASD)
Other entities (as per Article 1(2) last para. of Regulation 2019/317):	IAA SRD CAR Department of Transport, Air Navigation Services division

ANS Provision
 Meteorological services for ANS

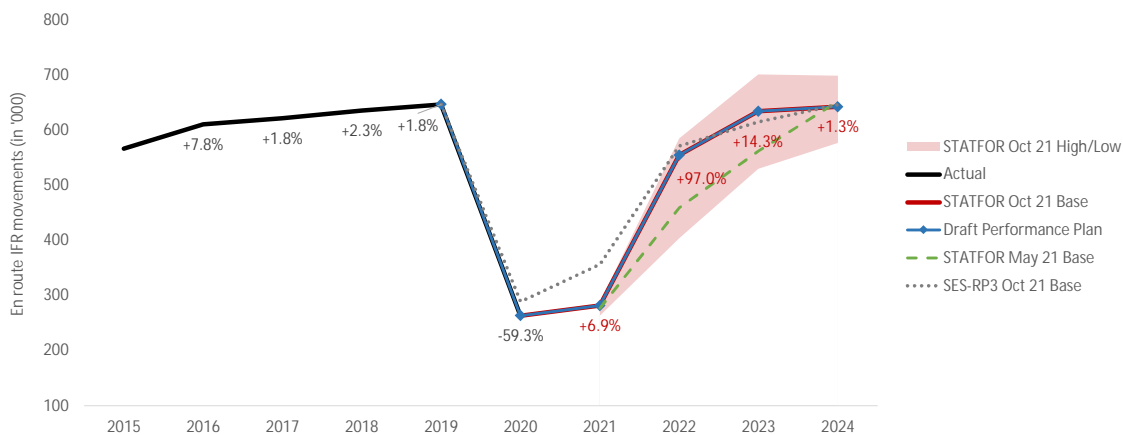
 National Supervisory Authority
 National Supervisory Authority
 Member State

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Ireland	n/a	No	No	No	
Terminal (TRM)	Ireland - TCZ	3	No	No	No	
Changes in the CZs from RP2		No				
Changes in the institutional arrangements in Ireland. SAR costs reported under NSA costs (from 2022 onward).						

Comparator group:	Group B	Other States in the comparator group:	Denmark Finland Norway Sweden
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Currency:	€	Exchange rate:	1.00000
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Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP 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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.56%	1.13%	1.13%	1.13%	1.13%

PRB assessment

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

- Ireland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.07	0.01	0.03	0.03	0.03
National target for terminal 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 breakdown values proposed by Ireland should be approved.

- Capacity profiles indicate a capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- Information provided in the performance is contradictory in terms of the maximum penalty parameter of the en route incentive scheme.
- 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 PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	47.25	29.84	25.01	24.66	-0.4%	-0.7%
Target for determined unit cost (DUC) (€2017) - Terminal	284.45	163.79	168.11	163.49	n/a	+5.0%

PRB assessment

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

- Ireland is consistent with the RP3 DUC trend in terms of average reduction.
- Ireland is not consistent with the long-term Union-wide DUC trend.
- Ireland is consistent with the average DUC baseline of the comparator group.
- Ireland presents justifications for a deviation due to restructuring costs. However, no deviation from cost-efficiency trends is identified.

5. PRB recommendations

COST-EFFICIENCY

- Ireland should present separate costs for Shannon and Cork airports in Annex B of the performance plan.

IRELAND

Safety KPA

1.1 Summary of safety key data and assessment results

Ireland

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. In 2020, the IAA has either met or exceeded the RP3 targets for four management objectives and it needs to improve only in safety risk management from level C to D.

1.1.2 Measures planned to reach the target (if applicable)

Specific measures in the area of safety risk management, ensuring compliance with Commission Implementing Regulation (EU) 2017/373 are proposed. The measures are considered sufficient.

1.1.3 Interdependencies and Trade-offs

The 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 performance plan, is adequately explained ensuring that safety will not be deteriorated.

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 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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

1.2 Targets for EoSM for ANSPs and Measures

Ireland

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
IAA	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	C	D	D	D	D	D	✓	
	Safety assurance	D	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	D	C	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. The IAA has either met or exceeded the RP3 targets for four management objectives and it needs to improve in safety risk management area from level C to D.

The plans declares that specific measures in safety risk management area derived from compliance to Commission Implementing Regulation (EU) 2017/373 are currently being implemented.

Considering the maturity of the safety management system, the proposed measures are considered sufficient.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The 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 cooperation with Eurocontrol and NATS, consider network and the cross-border impact of significant changes.

IRELAND

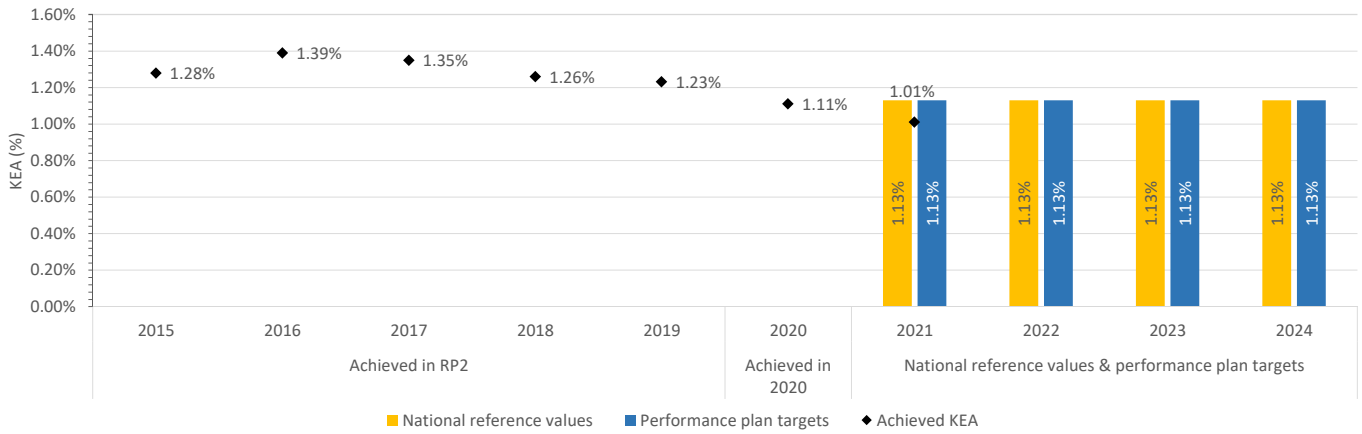
Environment KPA

2.1 Summary of 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
National reference values	1.56%	1.13%	1.13%	1.13%	1.13%
Performance plan targets	1.56%	1.13%	1.13%	1.13%	1.13%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Ireland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

2.2 Measures of Achievement

Ireland

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022? Ireland implemented free route airspace (FRA) in 2009.	✓	Reference in PP 3.2.1.(c)	Reference in LSSIP Page 54
Major ERNIP Recommended Measures: Measure included within performance plan?	2	Reference in PP 3.2.1.(c)	Reference in ERNIP Page 157
Shannon FIR re-organisation	✓	3.2.1.(c)	Page 163
PBN ransition plan	✓	3.2.1.(c)	Page 163
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Ireland achieved a KEA of 1.11% in 2020. In 2021, Ireland reached a KEA of 1.01% which means it achieved the 2021 target of 1.13% in its performance plan.

Ireland has already implemented free route airspace (FRA) in both the upper and lower airspaces and commits to implement the ERNIP measures. Ireland stated that further improvements are dependent on the introduction of FRA in neighbouring states.

With the update of the October 2021 traffic forecast, Ireland stated that the traffic increase in 2023 and 2024 are above the 2019 traffic levels and that most of the traffic comes from less efficient north-south traffic flows meaning it will be more difficult to achieve the national reference values.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

IRELAND

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Ireland proposes capacity targets which are equal to national reference values, and are higher than the range of the delay forecast. Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Ireland includes three airports in the performance plan. National targets are set higher than in most years of RP2, and in line with the performance of the worst year over the same period, thus representing a deterioration compared to average past performance.

Dublin airport is the only airport expected to generate terminal delays and performance is expected to be slightly worse than that of the group of similar airports. The performance of Cork and Shannon is expected to be in line with that of the group of similar airports.

The performance plan contains capacity enhancement measures targeted at Dublin airport, yet there are no improvements in terms of arrival ATFM delay targets compared to RP2.

3.1.3 Incentives

En route:

Ireland has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP and the resulting pivot values are zero minutes per flight.

There is no bonus possible. The maximum penalty is set differently for 2022-2023 and 2024. Information is contradictory as to what the maximum penalty is (0.5% for 2022 and 2023 and 1% for 2024, or 1% for 2022-2023 and 1.5% for 2024).

Depending on the interpretation of the information in the performance plan, maximum penalty defined by the incentive scheme could be 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 in 2022 and 2023.

Terminal:

Ireland has chosen not to modulate the pivot values, which are set at equal to national targets, in line with average past performance.

There is no bonus possible, maximum penalty is set at 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.

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

CAPEX execution in RP2 was only 36% of the planned value. The ANSP noted that 18M€ have been reimbursed to the airspace users.

There is a capacity surplus expected in Ireland during RP3.

New major investments contributing to enroute capacity may be planned but are not described in sufficient detail for a full impact analysis. Investment are linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3 and AF5.

Other investments contribute to resilience, scalability and flexibility.

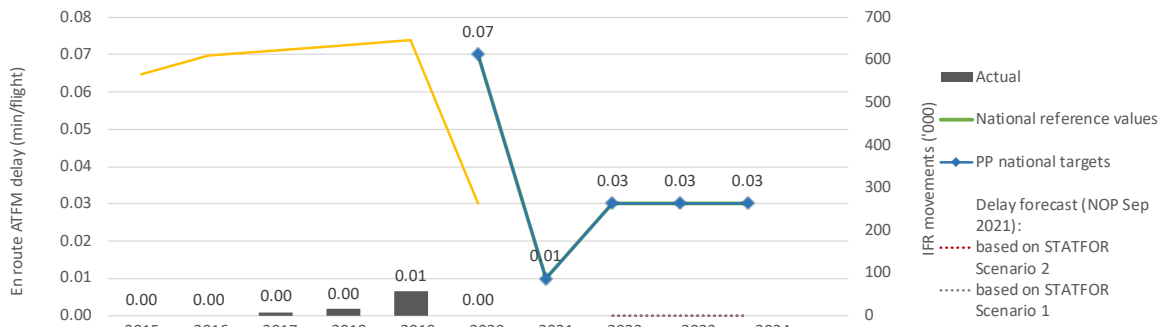
3.1.5 PRB conclusions

The PRB concludes that the capacity breakdown values proposed by Ireland should be approved.

- Capacity profiles indicate a capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- Information provided in the performance is contradictory in terms of the maximum penalty parameter of the en route incentive scheme.
- 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 ✔



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Traffic variation	+5%	+7.8%	+1.8%	+2.3%	+1.8%	-59.3%				
Actual delay/flight	0.00	0.00	0.00	0.00	0.01	0.07	0.01	0.03	0.03	0.03
National reference values						0.07	0.01	0.03	0.03	0.03
PP national targets						0.07	0.01	0.03	0.03	0.03
Based on STATFOR Scenario 1							-	0.00	0	0.00
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures ✔

Assessment of capacity enhancement measures and review against NOP

During RP2, Ireland has not experienced any capacity constraining issues and maintained record of near-to-zero or zero delays.

The performance plan contains the following capacity enhancement measures, which are in line with the measures introduced in the NOP:

- multi-ratings of ATCOs,
- flexible airspace sectorisation in response to traffic loading rather than a fixed sector plan,
- 'crew-to-workload' staffing,
- the new Contingency En route Operations Centre (CEROC) for the Shannon ACC,
- COOPANS projects intended to enhance sector capacities while maintaining or improving safety,
- new control tower to facilitate parallel runway operations at Dublin Airport.

The performance plan provides a list of investments related to the MET service provider which are considered to enhance capacity. The measures are not listed by the NOP however.

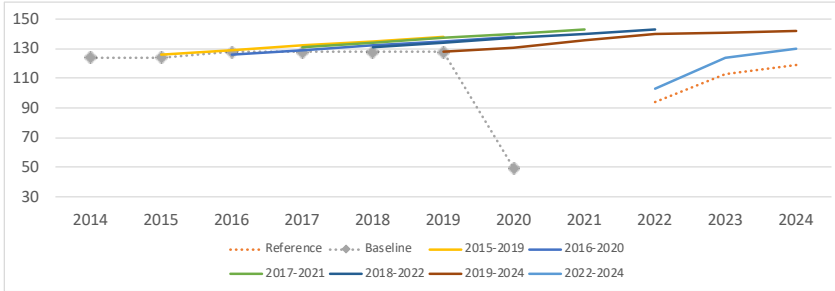
The planned number of ATCO FTEs shows no increase overall compared to 2019, however there are some fluctuations during the period.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Shannon ACC (EISN)	Additional ATCOs in OPS to start working in the OPS room	0	6.2	0	0	0	5.6	2.4	+0
	ATCOs in OPS to stop working in the OPS room	0	1.5	3.9	3.9	0	0	0	
	ATCOs in OPS to be operational at year-end	194.4	199.1	195.2	191.3	191.3	196.9	199.3	
Dublin ACC (EIDW)	Additional ATCOs in OPS to start working in the OPS room	0	1.8	0	0	0	1.4	0.6	-0
	ATCOs in OPS to stop working in the OPS room	0	0.5	1.1	1.1	0	0	0	
	ATCOs in OPS to be operational at year-end	57.6	58.9	57.8	56.7	56.7	58.1	58.7	
Total - IAA (en route)	Additional ATCOs in OPS to start working in the OPS room	0	8	0	0	0	7	3	+0
	ATCOs in OPS to stop working in the OPS room	0	2	5	5	0	0	0	
	ATCOs in OPS to be operational at year-end	252	258	253	248	248	255	258	

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Shannon ACC (EISN)



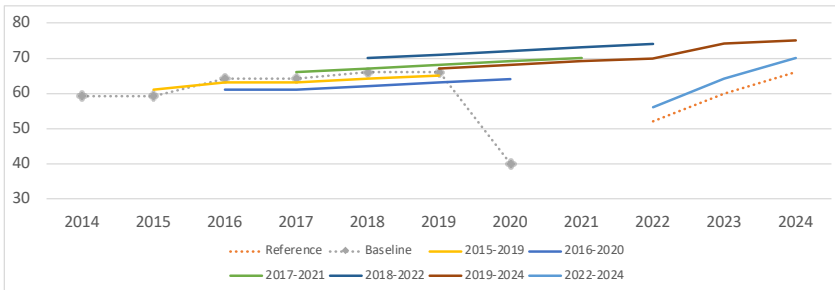
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									94	113	119
Baseline	124	124	128	128	128	128	49				
2015-2019		126	129	132	135	138					
2016-2020			126	129	132	135	138				
2017-2021				131	134	137	140	143			
2018-2022					131	134	137	140	143		
2019-2024						128	131	136	140	141	142
2022-2024									103	124	130
Latest vs Reference									10%	10%	9%

- Historical data shows that baseline values were stable over RP2 with the planned capacity profile values oscillating around the baseline values.

- The latest planned capacity profile shows an average annual growth of 12.3%, resulting in values slightly higher than in 2019 and well above the reference profiles: a capacity surplus of 10% is expected in 2022 and 2023 and 9% in 2024.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

Dublin ACC (EIDW)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									52	60	66
Baseline	59	59	64	64	66	66	40				
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
2022-2024									56	64	70
Latest vs Reference									8%	7%	6%

- Historical data shows a step-wise bi-annual baseline increase between 3% and 8% during RP2. The capacity plans starting from 2016 provided lower values than the actual baseline, except for 2018, whereas the capacity plan was slightly higher than the 2018 baseline value.

- The latest planned capacity profile shows an annual average growth of 11.8%, resulting in values slightly higher than in 2019 and well above the reference profiles: a capacity surplus of 8%, 7% and 6% is expected in 2022, 2023, 2024 respectively.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

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

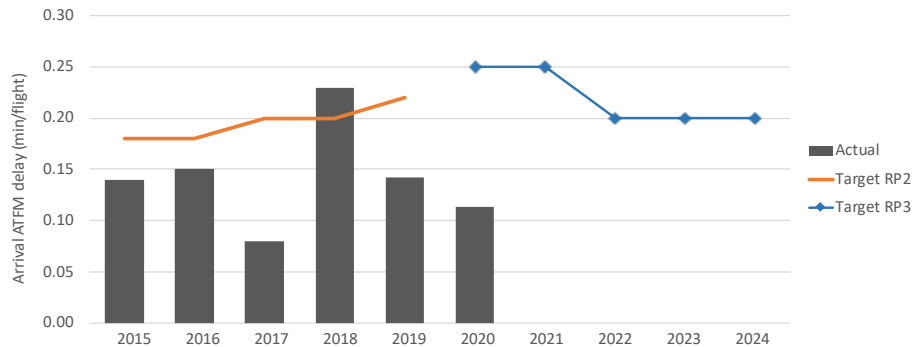
- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? n/a
No capacity gap is foreseen.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? n/a
There have been no measures proposed by the NM.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? n/a
n/a
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? n/a
No capacity gap is foreseen. The measures introduced by the performance plan have been revised by the NSA. The details are available in the performance plan' documentation. No additional measures have been proposed by the NSA.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)? ✔
No staffing shortage has been experienced during previous years. The plan offers capacity surplus which is supported by the planned ATCO numbers.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✔
The plan does not make direct reference to the flexible rostering system however, it provides similar functionalities through the 'crew-to-workload' and 'ATCO multi-rating' measures.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
No specific limitation of the current ATM system are described. The new investments related to the ATM system are expected to improve and enhance capacity in the restructured and reorganised airspace.

3.2.6 PRB Key Points ✔

- Ireland proposes capacity targets which are equal to national reference values, and are higher than the range of the delay forecast.
- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	Target (RP2/RP3)											
	Actual		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level			0.18	0.18	0.20	0.20	0.22	0.25	0.25	0.20	0.20	0.20
Dublin (EIDW)			0.17	0.19	0.10	0.27	0.17	0.14	0.30	0.25	0.25	0.25
Cork (EICK)			0.00	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	0.02	0.00	0.00	0.00	0.00	0.00

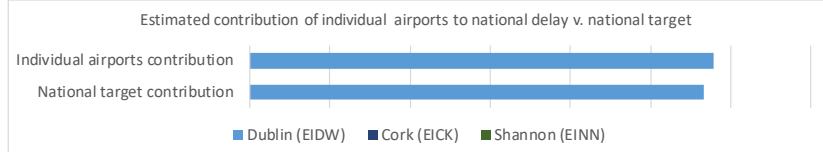
3.3.2 Review of targets and comparison with level and trend of past performance during RP2

Dublin is the only airport expected to produce terminal delays. Dublin airport experienced a significant traffic increase during RP2, reaching the worst delay performance in 2018. The STATFOR October 2021 forecast is chosen for the performance plan, expecting a CAGR in IFR movements in Ireland TCZ of -0.3% in 2019-2024. The proposed targets are in line with the worst observed performance in RP2 and they take into account expected improvements thanks to a new parallel runway planned to be operational as of 2022, multi-ratings of ATCOs, flexible airspace sectorisation, 'crew-to-workload' staffing and the implementation of necessary procedures to facilitate parallel runway operations at Dublin airport.

The performance plan also argues the main source for delays are those due to airport ground infrastructure and weather, out of IAA's 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 (2021-2024) target (min/flight)
Dublin (EIDW)	0.26
Cork (EICK)	0.00
Shannon (EINN)	0.00
National Target	0.21



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).

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Dublin (EIDW)	GROUP III	0.12	0.18	+0.06	0.26	+0.15
Cork (EICK)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00
Shannon (EINN)	GROUP IV	0.00	0.00	+0.00	0.00	-0.00

* 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 $< 80,000$

During RP2, the performance of the Irish airports was equal or close to the median performance of similar airports. The targets set for RP3, represent a slight worsening with respect to the past observed performance at Dublin and therefore higher delays than similar airports in that group.

3.3.5 PRB Key Points

- Ireland includes three airports in the performance plan. National targets are set higher than in most years of RP2, and are in line with the performance of the worst year over the same period, thus representing a deterioration compared to average past performance.
- Dublin airport is the only airport expected to generate terminal delays and performance is expected to be slightly worse than that of the group of similar airports. The performance of Cork and Shannon is expected to be in line with that of the group of similar airports.
- The performance plan contains capacity enhancement measures targeted at Dublin airport, yet there are no improvements in terms of arrival ATFM delay targets compared to RP2.

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty (2022 and 2023)	Max penalty (2024)
±0.03 min	0.000%	0.500%	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
NOP reference values			0.03	0.03	0.03
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.03	0.03	0.03
Pivot values for RP3			0.00	0.00	0.00

Threshold and pivot value review

No bonuses are foreseen in the incentive scheme. The pivot value is fixed at zero delay and there is a threshold of +0.03 minutes before penalties are applicable (which is equal to the national target and the NOP reference value). Full penalties apply at +0.05 minutes of delay.

Modulation review

Modulation is applied by limiting scope to ATFM delay codes C,R,S,T,M & P only.

Review of financial advantages/disadvantages

No bonus is foreseen. Maximum penalty of 0.5% DC is defined for 2022 and 2023 but increased to 1% in 2024 as indicated by the respective table in the performance plan, however, the text in the justification indicates that the maximum penalty is 1% for 2022 and 2023, and is 1.5% in 2024.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±50.0%	0.000%	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)			±0.100	±0.100	±0.100
Performance Plan targets			0.20	0.20	0.20
Pivot values for RP3			0.20	0.20	0.20

Threshold and pivot value review

The Irish 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. The pivot values, not modulated, are similar to the observed past performance during RP2.

Modulation review

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

Review of financial advantages/disadvantages

The scheme does not contemplate any bonuses, while it stipulates maximum penalties of 0.5%. The Irish performance plan argues that the dead band has been set as wide as possible around the pivot value (which is set at the level of the delay target) and bonus and penalty payments set relatively low, in order to avoid, as far as possible, the ANSP being rewarded or penalised for things that are largely not within its control.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

⚠

En route:

- Ireland has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP and the resulting pivot values are zero minutes per flight.
- There is no bonus possible. The maximum penalty is set differently for 2022-2023 and 2024. Information is contradictory as to what the maximum penalty is (0.5% for 2022 and 2023 and 1% for 2024, OR 1% for 2022-2023 and 1.5% for 2024).
- Depending on the interpretation of the information in the performance plan, maximum penalty defined by the incentive scheme could be 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 in 2022 and 2023.

Terminal:

- Ireland has chosen not to modulate the pivot values, which are set at equal to national targets, in line with average past performance.
- There is no bonus possible, maximum penalty is set at 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.
- 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.

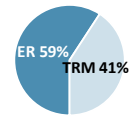
3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	10.4	15.3	19.7	21.5	20.8	87.6
	En route	7.5	10.1	11.2	12.0	11.1	51.9
	Terminal	2.9	5.3	8.4	9.5	9.7	35.7

* 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 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	TRM
1	COOPANS Builds 3.6 to 3.8 budget	COOPANS is a partnership between the IAA ANSP and other ANSPs, as well as the ATM systems supplier, Thales, for the incremental delivery of ATM systems and functionality in a coordinated manner. Builds 3.6 to 2.8, split between RP2 and RP3, include features such as the addition of FAST DBS (Final Approach Spacing Tool Distance Based Separation), and Safety Nets enhancements.	8.0	Yes	Yes	2.3	0.8
2	New Dublin Radar 2 Replacement	To replace Dublin RADAR 2 which is stated to be at end of life, and also to deliver a second RADAR at an off-airfield site. The first of these RADARs has already been delivered.	5.0	No	No	0.4	0.1
3	NAVAIDS replacement program	To replace the existing Instrument Landing System (ILS) and Instrument Runway Visual Range (IRVR) systems at the three state airports Dublin, Shannon, and Cork.	9.0	Yes	No	0.0	1.0
4	Dublin Tower - Building	New control Tower building at Dublin Airport, which is an unavoidable investment if the IAA is to provide dual runway ATM services at Dublin Airport. The project is now almost complete. This investment cost line refers only to the building costs.	36.4	Yes	No	0.0	10.5
5	Dublin Tower - Equipment	New Control Tower equipment at Dublin Airport	13.5	Yes	No	0.0	7.1
6	COOPANS 2019 Roadmap Builds	COOPANS is a partnership between the IAA ANSP and other ANSPs, as well as the ATM systems supplier, Thales, for the incremental delivery of ATM systems and functionality in a coordinated manner. Builds 3.6 to 3.8, split between RP2 and RP3, include features such as the addition of FAST DBS (Final Approach Spacing Tool Distance Based Separation), and Safety Nets enhancements.	8.0	Yes	Yes	0.2	0.1
7	New En Route Contingency Centre at Ballygireen	The facility is intended to provide up to 100% of the capacity of the Ballycasey centre under single person operation conditions. From an operational perspective, ATCOs will use similar procedures and equipment as in normal operations at Ballycasey ACC. As noted by the IAA ANSP, this project will enhance contingency and resilience of the provision of air traffic services, ensuring that En Route capacity targets can be met even in the event of a severe incident at the Ballycasey centre.	12.3	No	No	7.4	0.0
8	Plant upgrade works	This is a major Mechanical and Electrical (M&E) asset care project allowance (including associated civil works) at 15 IAA ANSP facilities. The project predominantly relates to heating, ventilation and air conditioning (HVAC), chillers & pumps, and Building Management System works.	7.2	No	No	0.8	0.3
9	Emergency Air Situation Display System (EASDS) Replacement	The purpose of this project is to replace the current EASDS which was introduced into operational service in 2008. The EASDS is used as a contingency ATC system in the event of a major failure of the COOPANS system.	6.5	Yes	No	1.6	0.5
10	Climate Action Plan (Sustainability Management Plan)	The purpose of this project is to commence a number of projects (and to continue several underway) aimed at helping the IAA ANSP achieve its aim of becoming carbon neutral in its use of energy, and enhance sustainability. The project is expected to deliver a range of assets including electric vehicles and charging infrastructure, a photovoltaic farm, and building insulation and HVAC works.	5.0	No	No	0.6	0.2
Total:						13.3	20.7

Airspace user feedback regarding major investments

The airspace users made several comments with regards to the investment plan of Ireland:

- the necessity of the Radar Replacements projects,
- the lack of redundancy for the COOPANS investments,
- the lack of a clear link between the investments and the quantitative benefits on the KPIs,
- the “ambitious” investment plan and the ability of the ANSP to deliver the investments over the period.

The NSA proposed a reduction of 20% of the investments plan, concluding that the ANSP is unlikely to deliver all of the projects in the proposed timeframe, given the underspending and delays registered in RP2.

Review of investments

New major investments represent 38.8% of the total determined costs over RP3. The actual CAPEX for RP2 was 36% of the planned for the same period and the amount underspent was 70.1M€. In terms of depreciation and cost of capital, the airspace users have financed 15M€ for investments that have not been materialised. The ANSP noted that 18M€ have been reimbursed to airspace users in 2020, however the underspending in 2019 was not reimbursed to the airspace users due to the “artificially lower unit rates in 2021”.

The NSA noted that the depreciation and cost of capital not incurred in RP3 will be reimbursed to the airspace users and that progress reports will be published.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 Dublin Radar 2 Replacement	Network, Local	Safety, Environment, Capacity, Cost-efficiency	This project will ensure that Dublin ATC has sufficient, reliable and accurate surveillance coverage of Dublin airspace in order to maintain 3NM horizontal separation of Aircraft. The existing Dublin Radar 2 will remain fully operational during the project delivery to avoid use of 5NM separation during the installation and validation phase of the replacement Radar.
2	New En Route Contingency Centre at Ballygireen	Network, Local	Safety, Capacity, Cost-efficiency	Build and equip a new En-route contingency centre at Ballygireen, fit out with 21 ATCO positions. The facility provides up to 100% of the capacity of the Ballycasey centre under single person operation conditions. From an operational perspective ATCO's will use similar procedures and equipment as in normal operations at Ballycasey ACC.
3	Plant upgrade works	Local, Non-performance	Capacity, Cost-efficiency	This project will ensure the replacement of end-of-life essential mechanical plant and equipment as well as associated electrical/civil works at 15 IAA facilities. This equipment includes air handling systems, chillers and boilers which are at end-of-life and require replacement to ensure continuity of service and the provision of essential cooling/heating for IAA Operational Centres and remote sites.
4	Climate Action Plan (Sustainability Management Plan)	Non-performance	Cost-efficiency	To achieve the IAA's aim is to become carbon neutral in their use of energy and decrease their impact on the natural world by enhancing the sustainability of their business.

Additional information

New Dublin Radar 2 Replacement: this project addresses the current radar obsolescence problem, with a solution which delivers resilient surveillance coverage, which will ensure that ATC delays at Dublin airport do not arise due to a lack of surveillance coverage.

Following the installations of the two new radars, a failure or maintenance of any one radar of the three.

Dublin radars will have no impact on the provision of 3NM separation in Dublin.

New en route contingency centre at Ballygireen: enhanced contingency for IAA customers specifically airlines; secure air access for Ireland as an island nation; enhanced protection for IAA revenue.

Plant upgrade works: regulatory and legal compliance, essential replacement plant, equipment and associated works, energy efficiency, prolong the longevity of equipment reliant on the plant, enhanced control / management capabilities with advancement in technology, operational safety etc.

Climate Action Plan (Sustainability Management Plan): regulatory and legal compliance, protection of the environment, promotion of electric transport, enhanced facilities for staff, reduction in the use of fossil fuels, reduced CO₂ emissions, reduced toxic fumes.

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 RP3 (M€)
Other new investments	49.1	39.9	0.2	0.9	3.6	5.3	6.5	16.6
Existing investments			10.0	10.1	8.1	5.7	3.1	37.0

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls? 

A 9% - 10% capacity surplus is expected in Ireland during RP3.

Several new major investments are planned for RP3 linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3 and AF5. Capacity contribution through TBS is defined for the COOPANS 2019 roadmap builds and COOPANS Builds 3.6 to 3.8 budget investments but as the features enabled by these investments is not clearly defined it is more likely that only airport/TMA domain capacity improvements can be expected with no significant impact in the en route environment. The investment descriptions for these two investments are identical.

In addition to the COOPANS investments, which may be expected to contribute to scalability and flexibility in line with the overall European ATM developments the investments related to surveillance, navigation and contingency equipment and facilities contribute to resilience.

Other (non-major) investments for RP3 are related to property/security, ICT and communications/network and surveillance related projects which contribute to resilience, scalability, and flexibility with no direct capacity impact.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 

The Final Approach Spacing Tool - Distance Based Separation investment will bring capacity benefits to the airport/TMA environments by improving the airport throughput. The specifics of the COOPANS 2019 Roadmap Builds investment are not defined in the performance planning but indication is that as PCP/CP1 capabilities will be introduced with for ATM Functionality AF3 some en route capacity benefits may be achievable.

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

As there is no shortage of capacity in Ireland, it can be argued that the timing of the investments is non-critical vis-à-vis capacity and no issues are identified. The COOPANS roadmap build investments are to be implemented during RP3 and may yield capacity benefits beyond RP3 although more detailed description of the changes introduced by these investments would be required.

3.5.4 PRB Key Points 

- The actual CAPEX for RP2 was 36% of the planned for the same period and the amount underspent was 70.1M€. The airspace users have financed 15M€ for investments that have not been materialised. The ANSP noted that 18M€ have been reimbursed to airspace users in 2020, however the underspending in 2019 was not reimbursed to the airspace users due to the "artificially lower unit rates in 2021".

- There is a capacity surplus expected in Ireland during RP3.

- New major investments contributing to enroute capacity may be planned but are not described in sufficient detail for a full impact analysis. Investment are linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3 and AF5.

- Other investments contribute to resilience, scalability, and flexibility.

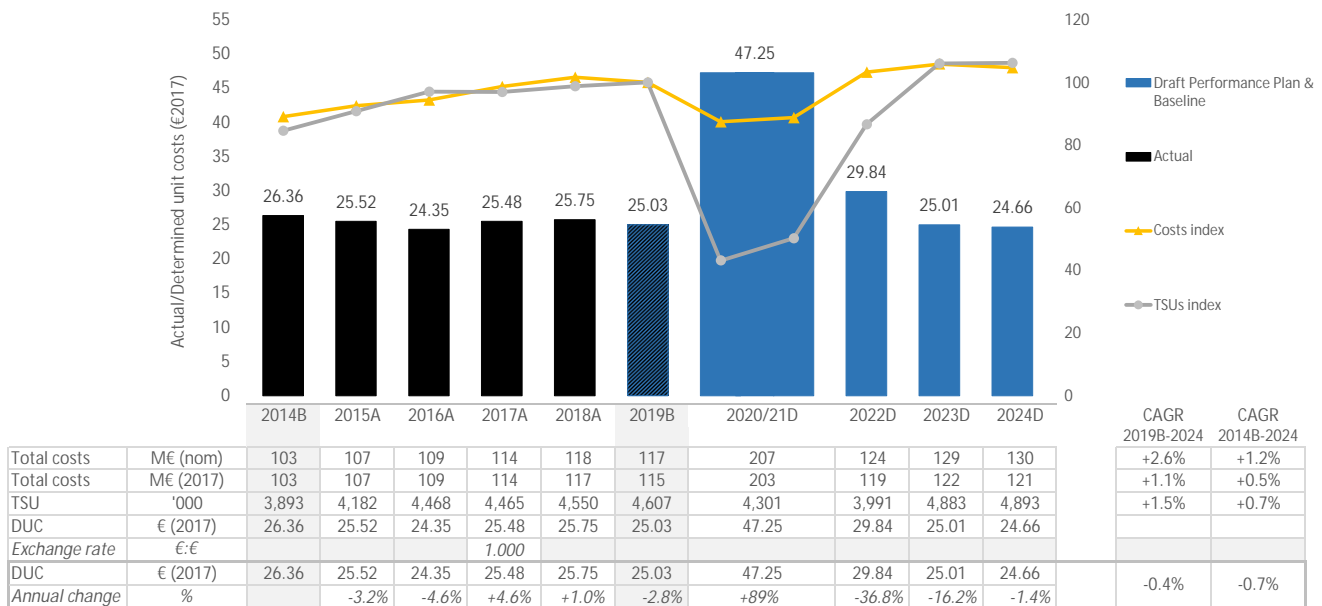
IRELAND

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Ireland - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	25.03 €2017	✓
No major issues identified.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	-0.4%	✓
The DUC is planned to decrease on average by -0.4% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-0.7%	✗
The DUC is planned to decrease by -0.7% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (B) average (53.20 €2017)?	-52.9%	✓
The 2019 DUC level is -52.9% lower 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

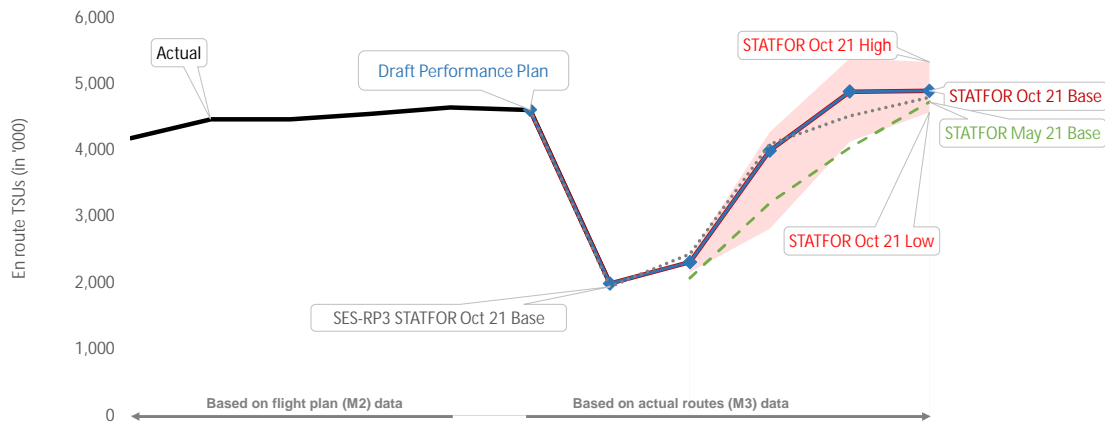
The PRB concludes that the cost-efficiency targets proposed by Ireland should be approved.

- Ireland is consistent with the RP3 DUC trend in terms of average reduction.
- Ireland is not consistent with the long-term Union-wide DUC trend.
- Ireland is consistent with the average DUC baseline of the comparator group.
- Ireland presents justifications for a deviation due to restructuring costs. However, no deviation from cost-efficiency trends is identified.
- Ireland should present separate costs for Shannon and Cork airports in Annex B of the performance plan.

4.2 Review traffic forecasts and baseline

Ireland - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	4,182	4,468	4,465	4,550	4,641	4,607	1,988					
Annual change	%		+6.8%	-0.1%	+1.9%	+2.0%	+1.2%	-56.8%					
STATFOR Oct 21 Base	'000 TSUs								2,312	3,991	4,883	4,893	+6.2%
Annual change	%								+16.3%	+72.6%	+22.3%	+0.2%	
STATFOR May 21 Base	'000 TSUs								2,072	3,202	4,039	4,726	+2.6%
Annual change	%								+4.2%	+54.6%	+26.1%	+17.0%	
Performance Plan	'000 TSUs						4,607	1,988	2,312	3,991	4,883	4,893	+6.2%
Annual change	%						+1.2%	-56.8%	+16.3%	+72.6%	+22.3%	+0.2%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	4,607		2014B (PP baseline)	3,893	
2019A (as in the Reporting tables, M2)	4,641		2014A (as in the Reporting tables, M2)	3,922	
2019B/ 2019A	-0.74%	-0.74%	2014B/ 2014A	-0.74%	-0.74%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.74%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.74%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan is in line with the STATFOR October 2021 base scenario.

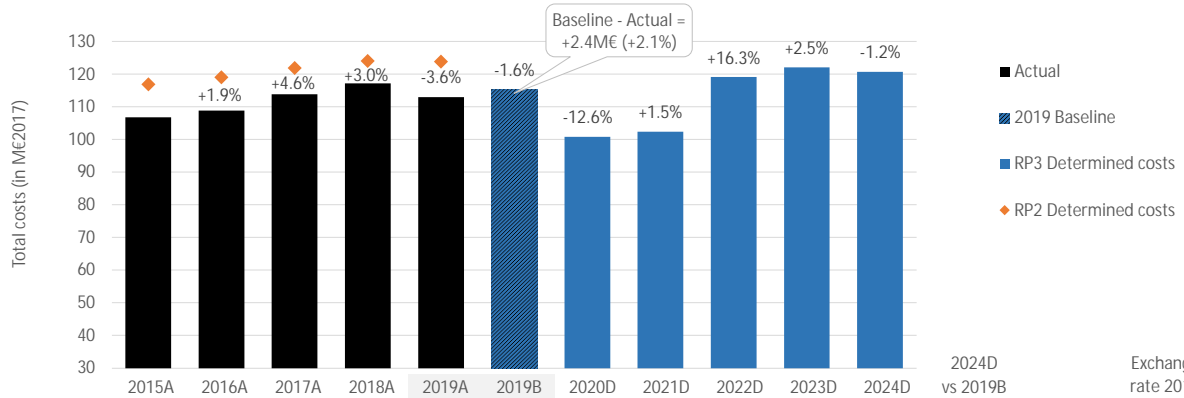
4.2.4 PRB Key Points

- Ireland en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Ireland - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



Total costs	M€ (nom)	107	109	114	118	114	117	102	105	124	129	130	2024D vs 2019B
Annual change	%		+1.8%	+4.8%	+3.5%	-2.9%	-0.9%	-12.5%	+2.7%	+18.1%	+4.1%	+0.5%	
Inflation index	2017 = 100	99.9	99.7	100.0	100.7	101.6	101.6	101.6	103.2	105.2	107.3	109.4	+7.7%
Total costs	M€ (2017)	107	109	114	117	113	115	101	102	119	122	121	+4.7%
Annual change	%		+1.9%	+4.6%	+3.0%	-3.6%	-1.6%	-12.6%	+1.5%	+16.3%	+2.5%	-1.2%	+4.7%
Total costs	M€ (2017)	107	109	114	117	113	115	101	102	119	122	121	+4.7%

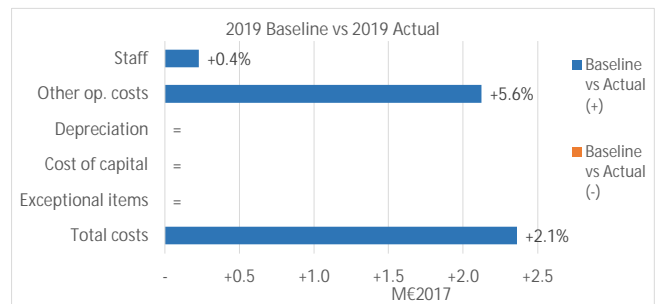
Exchange rate 2017	€:€
	1.00000

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ⓘ Is inflation in PP in line with IMF (October 2021 forecast)? **Deviation from index < 1p.p. in 2024**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review ✓

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	2.4	+2.1%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Actual cost correction	MET	Staff	+0.2
#2 - Actual cost correction	MET	Other Operating	+2.1

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- No adjustments were made to the 2014 cost baseline.
- Ireland adjusted the 2019 cost baseline. The 2019 actual MET costs (staff and other operating costs) were adjusted to reflect the actual costs incurred, not the costs charged (determined). As explained by Ireland, it was an error in the previously submitted plan, but for transparency reasons Ireland reported those changes as the adjustments to the 2019 actual costs.

2014/2019 baseline analysis

The 2019 cost baseline is 115M€2017, which is +2.1% above the 2019 actual costs. Ireland explains that the adjustments are related to corrections to the 2019 actual costs. The adjustments seem justified.

4.3.3 Review of the RP3 determined costs and incentives

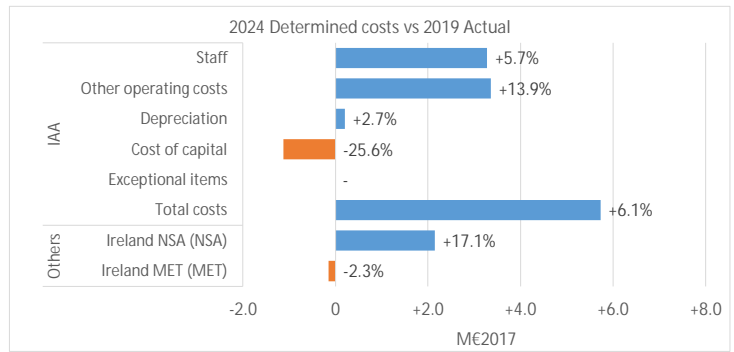
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	-1.9	-1.9%

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



The total costs of Ireland are planned to increase by +6.8%, or 7.7M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is IAA (+6.1%, or +5.7M€2017 overall).

The total planned ANSP costs in 2024 are +6.1% higher than the 2019 actual costs mainly due to higher staff and other operating costs. The costs were calculated on the basis of the performance plan model described in details in Annex T of the performance plan.

- Staff costs are forecasted to be +5.7% higher than the 2019 actual staff costs. As explained in the performance plan, staff costs depend on the traffic level and planned delivery of the capital projects. Ireland explained that additional non-ATCO staff (mainly engineers) will be recruited during RP3 and the general assumption was made for the salary increase of +3% per annum between 2022-2024.
- Other operating costs will exceed the 2019 level in 2022 and then will gradually increase in 2023 and 2024. Additional costs were forecasted for training, telecommunication, rent and rates, security, and maintenance.

The NSA costs in 2021 are forecasted to be higher by +17.1% than 2019 actuals, mainly due to the reorganisation of the institutional arrangement (institutional separation of the NSA from the ANSP and consolidation of the Commission for Aviation Regulation and Safety Regulation Division).

En route service units are forecasted to exceed 2019 level in 2023, while en route costs will exceed the level of 2019 actual costs already in 2022.

4.3.4 PRB Key Points

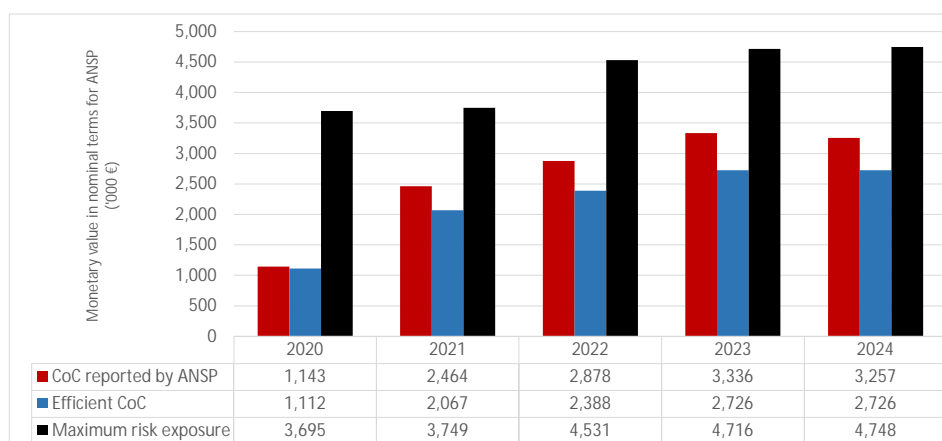
- There are adjustments to the 2019 cost baseline related to corrections to the 2019 actual costs.
- Total costs of the main ANSP are planned to increase by +6.1% over the period, due to the increase in staff costs (non-ATCO staff) and in other operating costs.

4.3.A Cost of capital

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	83,983	85,208	102,981	107,187	107,919
Monetary value of Return on Equity	1,143	2,464	2,878	3,336	3,257
Ratio RoE/DC (%)	1.4%	2.9%	2.8%	3.1%	3.0%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	31	397	491	610	531

Total 2020-2024	2,060
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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	3.0%	3.6%	5.2%	5.1%	5.5%	5.3%	5.6%	5.3%	5.6%	5.5%
Interest on debts	0.0%	0.9%	0.0%	2.5%	0.0%	2.8%	0.0%	2.9%	0.0%	2.9%
Capital structure (% debt)	0.0%	25.6%	0.0%	28.8%	0.0%	29.3%	0.0%	29.1%	0.0%	29.1%
WACC	3.0%	2.9%	5.2%	4.4%	5.5%	4.6%	5.6%	4.6%	5.6%	4.7%

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

- IAA is fully financed through equity, thus no interest on debts is specified.
- The WACC reported in the performance plan has been calculated based on the CAPM. However, it is higher than the efficient WACC in all years of RP3. The efficient WACC has been calculated based on option 1.
- Over RP3, the reported cost of capital is 2.1M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 1.4% and 3.1%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	38,426	47,273	52,039	59,175	57,777
Net current assets	0	0	0	0	0
Adjustments total assets	0	0	0	0	0
Total asset base	38,426	47,273	52,039	59,175	57,777

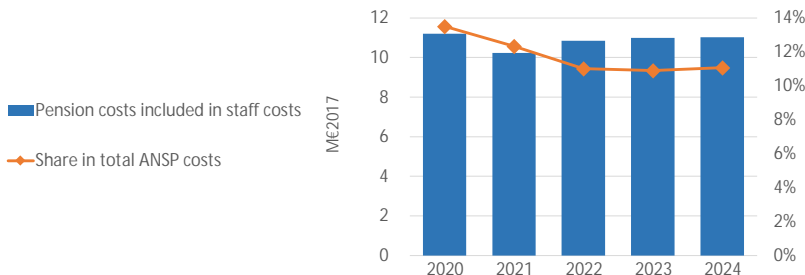
- The fixed asset base is planned to increase over RP3. This is partially in line with the increase in investments as described in section 3.5 of this document, with costs of investments increasing at a lower rate.
- The RAB does neither include net current assets, nor adjustments to the total asset base.
- The total asset base is thus aligned to the fixed asset base.

4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is slightly above the efficient cost of capital (+2.1M€). Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 1.4% and 3.1%).

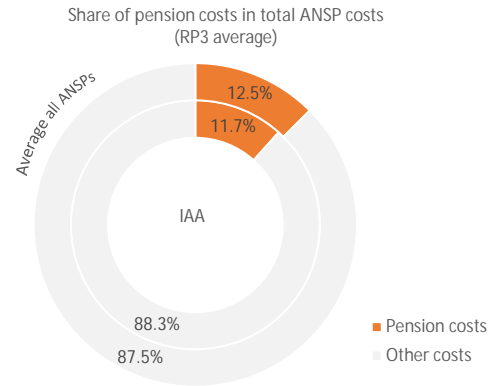
4.3.B Pensions

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		11.2	10.2	10.8	11.0	11.0
Year on year variation	% change		-8.7%	+6.0%	+1.4%	+0.2%
Share in total ANSP costs	%	13.5%	12.3%	11.0%	10.9%	11.1%
Year on year variation	p.p.		-1.2p.p.	-1.3p.p.	-0.1p.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 Union-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? 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

The information was "redacted" by Ireland. The pension costs for the scheme were recalculated taking into account the STATFOR October 2021 forecast.

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

The information was "redacted" by Ireland, in the performance plan itself, the following explanation was provided: "In the NSA forecasts, this was combined with the changing share of total staff in each year to derive an overall pension cost rate as a proportion of total salaries. An adjustment factor was then applied so that the proportions matched with the IAA ANSP business plan. The resulting pension cost rates were applied to the respective staff costs forecast in each year to determine the pension costs."

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

For the defined contribution scheme it is stated in the performance plan that: "This pension scheme applies to all employees who joined the IAA since 01 January 2012. The defined benefit element of the scheme is capped. Employees currently contribute 4.5% per annum towards the funding of the defined benefit element of this scheme. Employees, whose pensionable pay exceeds the cap, contribute to a defined contribution scheme. Their contributions, up to a ceiling, are matched by the employer."

As explained in the performance plan, the defined benefit scheme was closed to the new entrants from 1 January 2012. No further increases granted on pensions payable under the scheme from 1 January 2015.

4.3.B.4 PRB Key Points



- No major issue identified.

4.3.C Methodology for cost allocation between ER and TRM

Ireland

4.3.C.1 Cost allocation overview

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

- Ireland did not mention changing the cost allocation methodology with respect to RP2.

- Costs of facilities and services are first allocated to geographical cost centres. Cost allocation for an activity is based on a number of factors, including traffic, the number of staff working and in which role, the use of assets, and the '20km rule'.

- 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



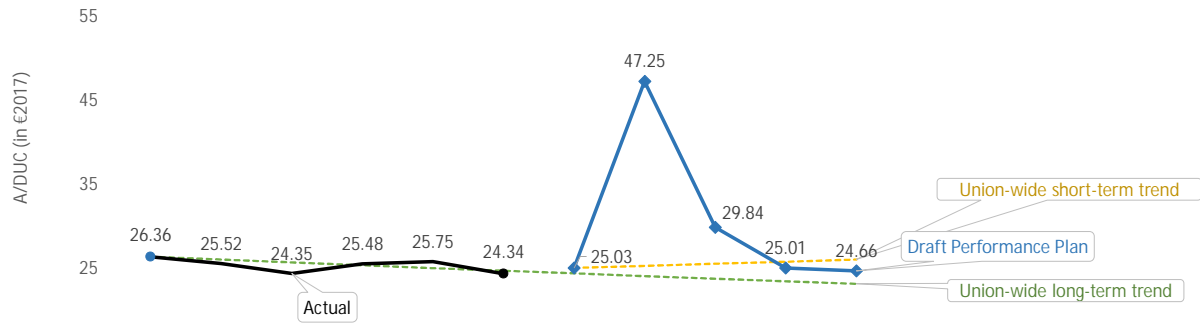
- Ireland did not mention changing the cost allocation methodology with respect to RP2.

- No major issues identified.

4.4 Determined unit costs (DUC)

Ireland - En route CZ

4.4.1 Overview and trends of the DUC



	€2017	2014B	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D	CAGR 2014B-2024D
DUC		26.36	25.52	24.35	25.48	25.75	24.34	25.03	47.25	29.84	25.01	24.66	-0.4%	-0.7%
Annual Change	%		-3.2%	-4.6%	+4.6%	+1.0%	-5.5%	-2.8%	+89%	-36.8%	-16.2%	-1.4%		
Union-wide target	%								+120%	-38.5%	-13.2%	-11.5%		

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-0.4%	+1.0%	-1.4p.p.
Trend (CAGR 2014B-2024)	-0.7%	-1.3%	+0.6p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	25.03	53.20	-52.9%

- The DUC is planned to decrease on average by -0.4% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -0.7% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -52.9% lower than the average of the comparator group.
- Ireland presents justifications for a deviation due to restructuring costs. However, no deviation from cost-efficiency trends is identified.

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

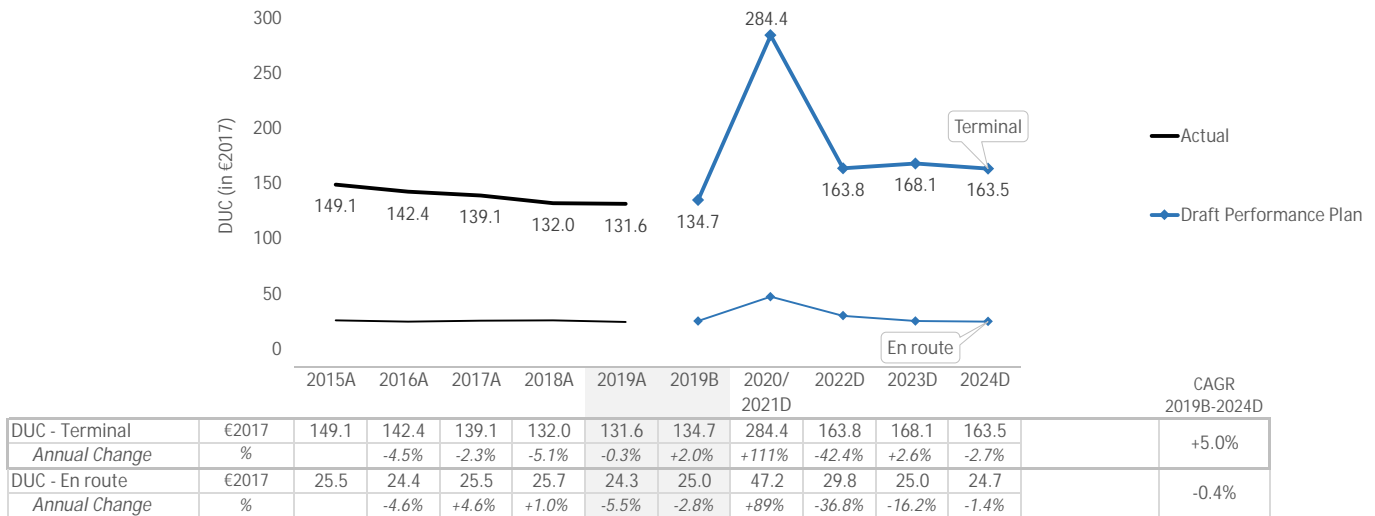
4.4.5 PRB Key Points ✓

- Ireland is consistent with the RP3 DUC trend in terms of average reduction.
- Ireland is not consistent with the DUC long-term Union-wide trend.
- Ireland is consistent with the average DUC baseline of the comparator group.
- Ireland presents justifications for a deviation due to restructuring costs. However, no deviation from cost-efficiency trends is identified.

4.5 Terminal

Ireland

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Dublin (EIDW)	GROUP III	166.6	124.5	-24.2%	234.2	176.0	-24.8%

* 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 average DUC for Dublin (EIDW) airport is planned to be -24.8% lower than median DUCs of the respective comparator group of airports over RP3.
- Two more airports: Shannon and Cork are covered by the performance plan, however as no determined costs were reported separately for each of these airports (only the sum of determined costs), therefore no comparison for these airports is presented in the table above.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
2019 Traffic Baseline Adjustments	TCZ1	No	

Costs

Cost Baseline analysis		Δ M€2017	%	
2019B vs 2019A	TCZ1	0.6	+2.4%	
2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	M€2017
#1 - Actual cost correction	TCZ1	MET	Staff	+0.1
#2 - Actual cost correction	TCZ1	MET	Other ops.	+0.5

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

- No adjustments were made for 2014 costs.
- Ireland adjusted the 2019 cost baseline. The 2019 actual MET costs (staff and other operating costs) were adjusted to reflect the actual costs incurred, not the costs charged (determined). As explained by Ireland, it was an error but for transparency reasons, Ireland reported those changes as the adjustments to the 2019 actual costs. The same adjustments were made for the en route 2019 actual costs.
- No other adjustments were made for 2019 costs.

2019 baseline analysis

The 2019 cost baseline has been adjusted by +0.6M€2017. As for en route, Ireland explains that the adjustments are related to corrections to the 2019 actual costs. The adjustments seem justified.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The selected terminal forecast is in line with STATFOR October 2021 base forecast.

Determined costs (terminal)

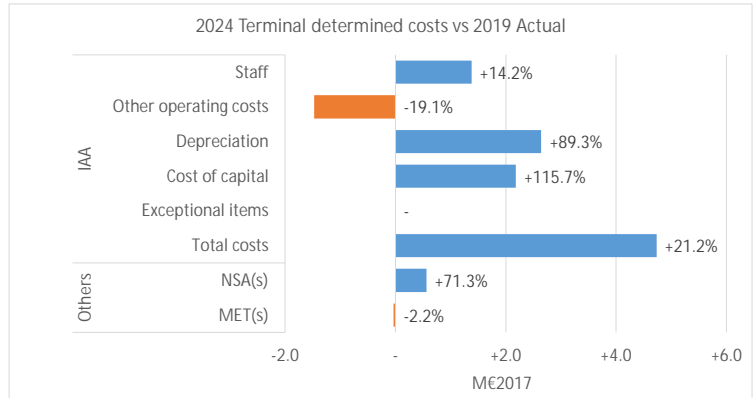
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

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 (41%) is significantly higher than the share of terminal total costs (20%).
- The terminal WACC is equal to the en route WACC.
- The share of terminal pension costs in total pension costs (14%) is lower than the share of other costs (20%).
- For the main ANSP, the total terminal determined costs in 2024 are forecasted to be +21.2% higher compared to 2019 actuals, due to the higher depreciation costs, cost of capital, and staff costs. The depreciation costs in 2024 are planned to be +89.3% higher compared to 2019 actuals. This is mainly due to the planned initiation of dual runway operations at Dublin airport and in consequence the necessary construction of the new Control Tower. The share of the depreciation costs for EIDW in total depreciation costs in 2024 is 76%. This investment will also increase staff, other operating costs, and cost of capital (higher asset base).
- The NSA costs are forecasted to be +71.3% higher, mainly due to the reorganisation of the institutional arrangement (institutional separation of the NSA from the ANSP and consolidation of the Commission for Aviation Regulation and Safety Regulation Division (in RP2 being part of the IAA ANSP)).
- Terminal service units will not reach the 2019 level in RP3, while the forecasted terminal costs are expected to reach the 2019 level in 2022. At the end of 2024 the terminal service units forecast will be -2.7% lower compared to the 2019 actuals, while terminal costs are forecasted to be +21.3% higher.

4.5.4 PRB Key Points ✘

- The terminal RP3 DUC trend is +5.0%, which is worse than the en route RP3 DUC trend of -0.4%.
- The terminal RP3 DUC trend is +5.0%, which is worse than the terminal RP2 DUC trend of -3.1%.
- Dublin had a DUC -25.2% lower than the average of its comparator group over RP2. The difference is expected to be -24.8% over RP3.
- Ireland used the STATFOR October 2021 base forecast for terminal traffic.
- 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 (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 19/11/2021
 Documents no: F4816, F4824, F4817, F4818, F4819, F4820, F4821, F4822, F4823

Relative weight compared to the SES area (2019):

- % Flight-hours vs SES 8.6%
- % Serv. Units vs SES 8.0%
- % Costs vs SES 10.0%

Scope

FAB: BLUE MED FAB

ANSPs: ENAV ITAF

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

ANSP
ANSP

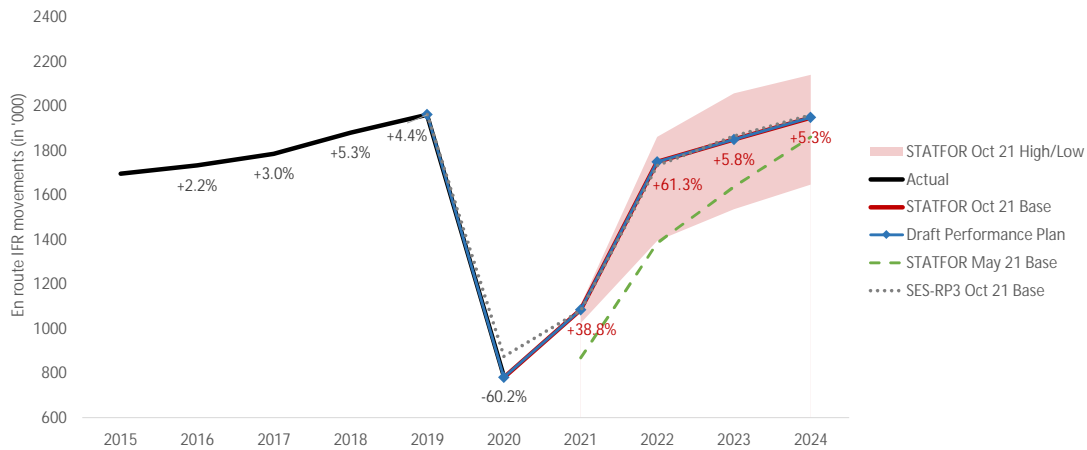
NSA

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Italy	n/a	No	No	No	
Terminal (TRM)	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

Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



PRB assessment

Italy - Draft Performance Plan

1. Safety

Safety PP 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 EoS safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment

Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	2.83%	2.67%	2.67%	2.67%	2.67%

PRB assessment

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

- Italy's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Italy did not achieve the 2021 target of 2.67% in its performance plan. For this reason and due to missing measures to achieve RP3 targets, Italy has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity

Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.25	0.07	0.11	0.11	0.11
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.41	0.41	0.33	0.33	0.30

PRB assessment

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

- Based on the capacity enhancement measures, the traffic forecast and the observed past performance, more ambitious targets on airport arrival ATFM delays would be realistic in Italy.
- Parameters of the incentive schemes do not allow for minor deviations in performance without financial consequences.
- The pivot values of the incentive schemes defined in the performance plan allow for bonuses to be paid at delay performance levels which are worse than national targets.

4. Cost-efficiency

Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	123.72	73.67	61.52	57.80	-2.3%	-3.5%
Target for determined unit cost (DUC) (€2017) - Terminal	TCZ1 406.06	179.29	148.46	141.52	n/a	-1.7%
	TCZ2 337.73	219.23	189.46	183.14	n/a	+3.1%

PRB assessment

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

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

5. PRB recommendations

ENVIRONMENT

- Italy should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

COST-EFFICIENCY

- Italy should report the real WACC parameters instead of notional WACC parameters.

ITALY

Safety KPA

1.1 Summary of safety key data and assessment results

Italy

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 in 2023.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan describes the measures established at ANSP level. Considering the current safety levels, the measures are considered relevant to improve and further ensure the required safety levels over RP3.

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 sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

1.2 Targets for EoSM for ANSPs and Measures

Italy

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
ENAV	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	D	C	C	C	D	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	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 performance plan describes that ENAV established a dedicated safety plan to guarantee the continuous improvement of safety performances and SMS effectiveness.

The safety plan includes the following actions:

- development of safety data recording systems;
- organisation of independent safety culture survey;
- introduction of Normal Operations Safety Surveys (NOSS);
- improvements to Emergency Response Plan Area;
- improve risk assessment capabilities;
- improve safety support assessment capabilities.

The listed measures are considered relevant and sufficient to maintain safety level over RP3.

1.3 Interdependencies and Change management practices

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 will 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

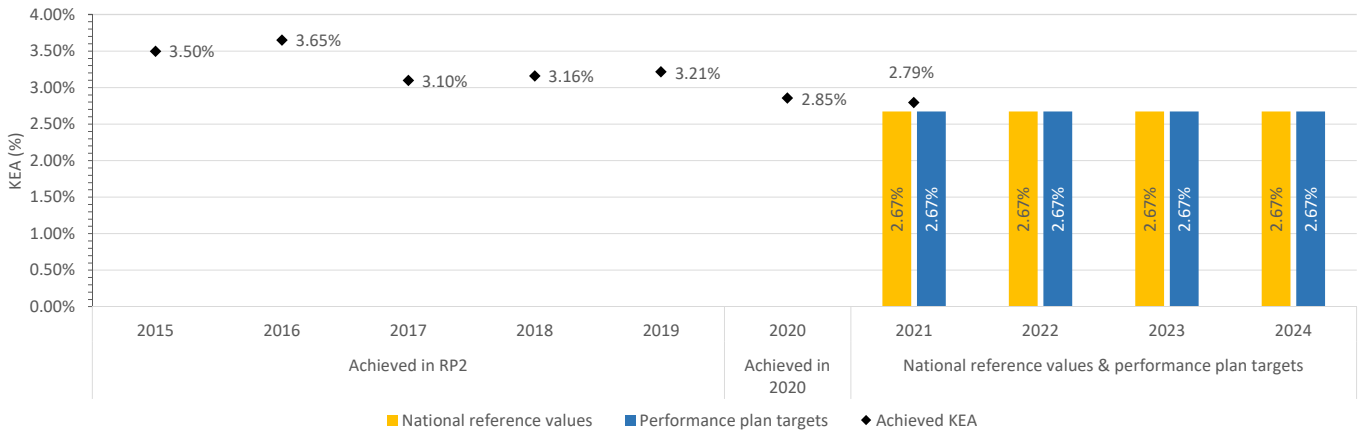
Environment KPA

2.1 Summary of 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
National reference values	2.83%	2.67%	2.67%	2.67%	2.67%
Performance plan targets	2.83%	2.67%	2.67%	2.67%	2.67%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Italy's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Italy did not achieve the 2021 target of 2.67% in its performance plan. For this reason and due to missing measures to achieve RP3 targets, Italy has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Italy should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Italy

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
Italy has implemented free route airspace (FRA) in the airspace above FL305.		3.2.1(c)	Page 98
Major ERNIP Recommended Measures:	11	Reference in PP	Reference in ERNIP
Measure included within performance plan?		3.2.1(c)	Page 66
PBN transition plan	✓	3.2.1(c)	Page 116
Improved interface LIRR/LFMM	✓	3.2.1(c)	Page 117
New sector in LIRRACC	✓	3.2.1(c)	Page 134
Apulia CTR re-organisation	✓	3.2.1(c)	Page 133
Lamezia CTR re-organisation	✓	3.2.1(c)	Page 129
Ronchi CTR re-organisation and new Venezia Giulia CTA	✓	3.2.1(c)	Page 134
Verona CTR re-organisation	✓	3.2.1(c)	Page 184
ATS route improvement	✓	3.2.1(c)	Page 191
New STARs to LIMF	✓	n/a	Page 191
CDR harmonisation	✗	n/a	Page 220
CB FRA operations	✗		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Italy achieved a KEA of 2.85% in 2020. In 2021, Italy reached a KEA of 2.79%, which means it did not achieve the 2021 target of 2.67% in its performance plan.

Italy has implemented free route airspace (FRA) above FL305, which is consistent with the requirements of the pilot common project (PCP), but Italy could further improve its application of FRA, by lowering available limits and reviewing waypoints. One of the projects planned in the ERNIP as necessary to improve horizontal flight efficiency was to offer a cross-border FRA with Malta, however this was not included within the performance plan.

Italy plans to offer arrival management (AMAN) at five major Italian airports and the controlled traffic regions (CTR) re-organisations are related to this work. With regards to military coordination, Italy plans to enhance the application of flexible use of airspace (FUA) to update the ATS route network according to airspace users' needs.

2.3.1 Annex IV 2.1(f): Measures for achievement of targets

Does Italy plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

ITALY

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national targets are consistent with the national reference values. The target is equal to the scenario 1 delay forecast in 2022, slightly above the scenario 1 delay forecast in 2023 and falls within the range of the delay forecast in 2024.

Capacity plans indicate that Italy will have sufficient capacity during 2022-2024 if the planned measures and profiles are realised.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Italy included five airports in the performance plan. The proposed targets show a decreasing trend, starting from the level of RP2 targets and reaching a significantly lower level in 2024. Despite the decrease, the final value of the targets is still higher than the average past performance.

Based on the average traffic share in RP2, the delay associated with the airport targets is 5% lower than the national target. The main contributor for airport arrival delays are Rome Fiumicino and Milan Linate. The target for Milan Linate is more than four times higher than the observed performance in RP2.

Milan Malpensa, Bergamo and Rome Fiumicino are expected to perform better than the group of similar airports, while Milan Linate and Venice are expected to perform significantly worse than their respective group of similar airports.

Based on the capacity enhancement measures, the traffic forecast and the observed past performance, more ambitious targets on airport arrival ATFM delays would be realistic in Italy.

3.1.3 Incentives

En route:

Italy has chosen not to modulate the pivot values, which are set equal to the reference values.

Maximum bonus and penalty is set at 2%.

The performance plan claims that only certain delay codes are applicable in the incentive scheme, thus effectively resulting in pivot values, which are higher than the national targets.

The dead band is set at 0.001 minutes, which is too small to allow for minor deviations in performance.

Terminal:

Italy has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values. The indicated pivot values are four times higher than the average CRSTMP delays during RP2, thus the scheme does not incentivise to maintain or improve performance.

Maximum bonus and penalty is set at 1%.

The dead band is set at 0.002 minutes, which is too small to allow for minor deviations in performance.

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

The determined costs of investments are not consistent with the lifecycle of all the investment.

There is no capacity surplus/shortage expected in Italy during RP3.

There are capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3, and AF5 but the operational deployment of the investments is not clearly defined.

Other investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

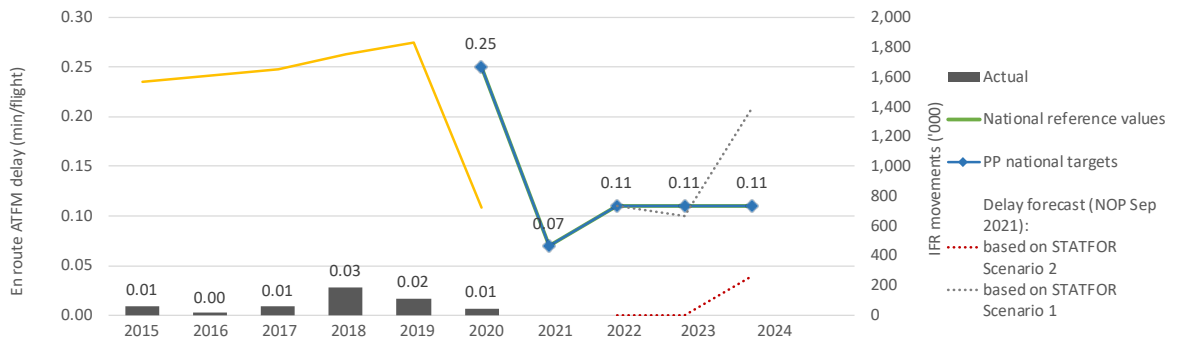
3.1.5 PRB conclusions

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

- Based on the capacity enhancement measures, the traffic forecast and the observed past performance, more ambitious targets on airport arrival ATFM delays would be realistic in Italy.
- Parameters of the incentive schemes do not allow for minor deviations in performance without financial consequences.
- The pivot values of the incentive schemes defined in the performance plan allow for bonuses to be paid at delay performance levels which are worse than national targets.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+1%	+2.9%	+2.8%	+5.9%	+4.5%	-60.5%				
Actual delay/flight	0.01	0.00	0.01	0.03	0.02	0.01				
National reference values							0.25	0.07	0.11	0.11
PP national targets							0.25	0.07	0.11	0.11
Based on STATFOR Scenario 1							-	0.11	0.1	0.21
Based on STATFOR Scenario 2							-	0.00	0	0.04

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, Italy experienced delays related mostly to industrial actions and weather. However, all constraints have caused only minor impact on the capacity performance producing only minor delays well below the targets.

The performance plan includes capacity enhancement measure that are in line with the NOP. They include:

- Further improvements in the application of Flexible Configuration Concept,
- Airspace management and ATS route assessment and/or improvements according to network needs, Airspace Users expectations, ENAV's Flight Efficiency Plan and BLUEMED FAB implementation,
- Improved ATFCM, including STAM,
- Flexible opening scheme according to traffic demand and system enablers implementation,
- Recruitment of ATCO as needed,
- New ATM system (4Flight).

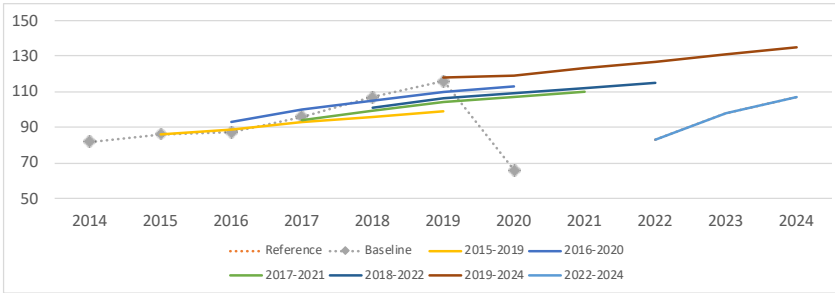
The planned number of ATCO FTEs show an increase in all ACCs except in Rome ACC, where a minor reduction (-2.1%) is planned, resulting in an overall increase of 40 FTEs (4.6%) compared to 2019. The planned increase is the greatest in Milan ACC (10%) followed by Padova ACC (8.7%) and Brindisi (5.5%). The performance plan claims that further ATCOs may be recruited if required by the traffic.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Brindisi ACC (LIBB)	Additional ATCOs in OPS to start working in the OPS room	0	0	0	0	9	0	6	+5
	ATCOs in OPS to stop working in the OPS room	2	3	1	3	1	1	4	
	ATCOs in OPS to be operational at year-end	94	91	90	87	95	94	96	
Milano ACC (LIMM)	Additional ATCOs in OPS to start working in the OPS room	0	3	14	9	20	4	10	+25
	ATCOs in OPS to stop working in the OPS room	3	4	7	5	2	4	14	
	ATCOs in OPS to be operational at year-end	254	253	260	264	282	282	278	
Padova ACC (LIPP)	Additional ATCOs in OPS to start working in the OPS room	0	0	9	13	9	4	4	+17
	ATCOs in OPS to stop working in the OPS room	1	7	2	6	4	4	6	
	ATCOs in OPS to be operational at year-end	201	194	201	208	213	213	211	
Rome ACC (LIRR)	Additional ATCOs in OPS to start working in the OPS room	0	3	2	7	16	2	11	-7
	ATCOs in OPS to stop working in the OPS room	4	5	10	4	6	7	18	
	ATCOs in OPS to be operational at year-end	329	327	319	322	332	327	320	
Total - ENAV (en route)	Additional ATCOs in OPS to start working in the OPS room	0	6	25	29	54	10	31	+40
	ATCOs in OPS to stop working in the OPS room	10	19	20	18	13	16	42	
	ATCOs in OPS to be operational at year-end	878	865	870	881	922	916	905	

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Brindisi ACC (LIBB)



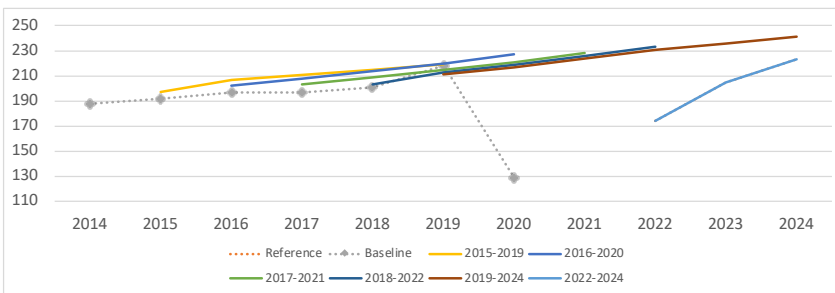
- Historical data shows an average growth of 7% in RP2, with more dynamic increase during 2017-2019. Planned values were oscillating around the baseline values over the period.

- The latest planned capacity profile shows an average annual growth of 13.5% over the period, and is exactly following the reference profile values.

- Based on the planned number of ATCO FTEs, capacity enhancement measures and capacity profiles, Brindisi ACC is not expected to face a capacity gap.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									83	98	107
Baseline	82	86	87	96	107	116	66				
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
2022-2024									83	98	107
Latest vs Reference									0%	0%	0%

Milano ACC (LIMM)



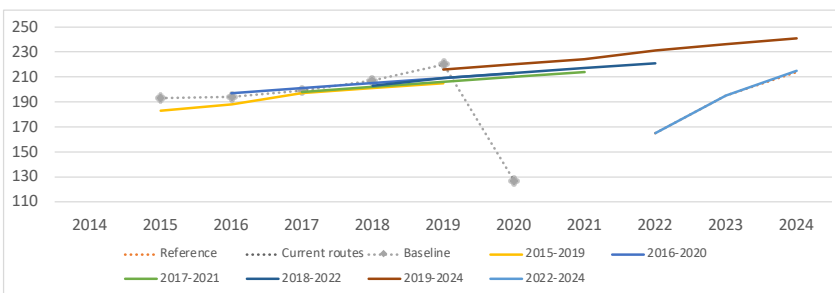
- Historical data shows an average annual growth of 3% of baseline values in RP2. Between 2016 and 2017, the baseline value remained at the same levels. The baseline values remained below the planned capacity values during the observed period, except in 2019.

- Latest planned capacity profile shows an average annual growth of 13.2% over the period, and is exactly following the reference profile values.

- Based on the planned number of ATCO FTEs, capacity enhancement measures and capacity profiles, Milano ACC is not expected to face a capacity gap.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									174	205	223
Baseline	188	192	197	197	201	218	129				
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
2022-2024									174	205	223
Latest vs Reference									0%	0%	0%

Padova ACC (LIPP)



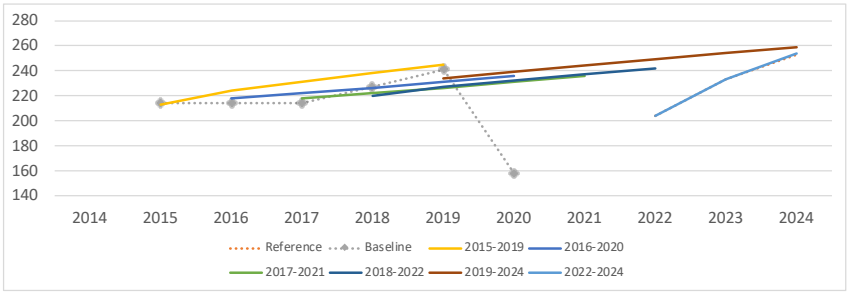
- Historical data shows an average growth of 3.3% in RP2, with more dynamic increase during 2017-2019. Planned values were mostly below the baseline values over the period.

- The latest planned capacity profile shows an average annual growth of 14.2% over the period, and is exactly following the reference profile values.

- Based on the planned number of ATCO FTEs, capacity enhancement measures and capacity profiles, Padova ACC is not expected to face a capacity gap.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									165	195	214
Baseline		193	194	199	207	220	127				
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
2022-2024									165	195	215
Latest vs Reference									0%	0%	0%

Rome ACC (LIRR)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference											
Baseline		214	214	214	227	241	158		204	233	253
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
2022-2024									204	233	254
Latest vs Reference									0%	0%	0%

- Historical data shows an average growth of 3% in RP2, which happened in 2018 and 2019. Planned values were below the baseline values in 2015 and 2018, and above the baseline values in 2016 and 2017.

- The latest planned capacity profile shows an average annual growth of 11.6% over the period and is exactly following the reference profile values.

- Based on the planned number of ATCO FTEs and capacity enhancement measures, the increase in capacity profiles is generated by capacity enhancement measures only, as the number of ATCO FTEs show a decrease over the period.

- Despite the minor inconsistency that may be between the planned number of ATCO FTEs and capacity profiles, Rome ACC is not expected to face a capacity gap in RP3.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

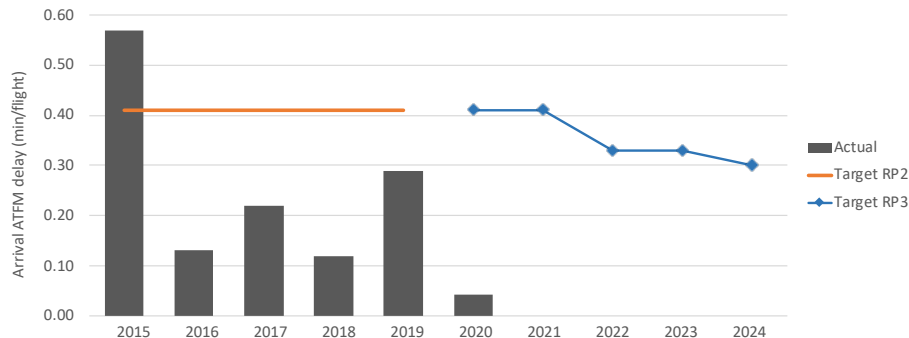
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- The proposed national targets are consistent with the national reference values. The target is equal to the scenario 1 delay forecast in 2022, slightly above the scenario 1 delay forecast in 2023 and falls within the range of the delay forecast in 2024.
- Capacity plans indicate that Italy will have sufficient capacity during 2022-2024 if the planned measures and profiles are realised.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



National level	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Actual	0.57	0.13	0.22	0.12	0.29	0.04	-	-	-	-
Milan/ Malpensa (LIMC)		0.02	0.02	0.03	0.09	0.33	0.02	0.10	0.08	0.08	0.08
Bergamo (LIME)		0.03	0.01	0.05	0.07	0.04	0.04	0.03	0.03	0.03	0.03
Milan/ Linate (LIML)		0.06	0.02	0.10	0.04	0.04	0.06	0.50	0.48	0.48	0.46
Venice (LIPZ)		0.39	0.27	0.45	0.44	1.10	0.16	0.40	0.38	0.38	0.36
Rome/Fiumicino (LIRF)		1.22	0.23	0.36	0.10	0.16	0.02	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 an improvement with respect to RP2 targets but are still significantly higher than past observed performance in 2016-2019.

When looking at the breakdown per airport, the new target for Milan Linate is especially striking, around four times the delays observed during RP2.

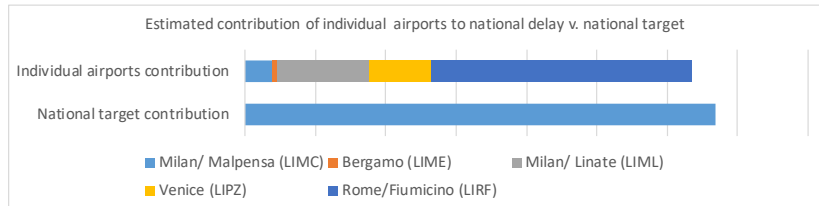
The plan mentions that thanks to PBN procedures, already implemented, ENAV expects to be able to manage possible traffic increase without negative impact on capacity. It also mentions other technological improvements expected to provide benefits with new systems for LIMC, LIML and LIRF. In particular, the AMAN system will be deployed in LIMC and LIRF.

The plan uses the STATFOR October 2021 base forecast that estimates a CAGR in IFR movements (2019-2024) of 2.5% for TCZ1 and 1.1% for TCZ2.

Given the past performance, foreseen measures and traffic forecast, these targets seem high for the Italian airports.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) 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	0.34



The main contributor to Italian performance in terms of delays is Rome Fiumicino, followed by Milan Linate, Venice and Malpensa. The potential delay associated to the target of the individual airports and their past traffic share is 5% lower than the delay associated to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Milan/ Malpensa (LIMC)	GROUP III	0.12	0.11	-0.00	0.09	-0.03
Bergamo (LIME)	GROUP III	0.12	0.04	0.08	0.03	0.09
Milan/ Linate (LIML)	GROUP III	0.12	0.05	0.06	0.48	+0.43
Venice (LIPZ)	GROUP II	0.23	0.54	+0.31	0.38	+0.15
Rome/Fiumicino (LIRF)	GROUP I	0.65	0.42	-0.24	0.48	-0.17

* 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 $< 80,000$

All Italian airports included in the performance plan, except for Venice, showed better performance than similar airports during RP2. 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 similar airports.

3.3.5 PRB Key Points

- Italy included five airports in the performance plan. The proposed targets show a decreasing trend, starting from the level of RP2 targets and reaching a significantly lower level in 2024. Despite the decrease, the final value of the targets is still higher than the average past performance.
- Based on the average traffic share in RP2, the delay associated with the airport targets is 5% lower than the national target. The main contributor for airport arrival delays are Rome Fiumicino and Milan Linate. The target for Milan Linate is more than four times higher than the observed performance in RP2.
- Milan Malpensa, Bergamo and Rome Fiumicino are expected to perform better than the group of similar airports, while Milan Linate and Venice are expected to perform significantly worse than their respective group of similar airports.
- Based on the capacity enhancement measures, the traffic forecast and the observed past performance, more ambitious targets on airport arrival ATFM delays would be realistic in Italy.

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.001 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			0.11	0.11	0.11
Alert threshold (Δ Ref. value in fraction of min)			±0.080	±0.080	±0.080
Performance Plan targets			0.11	0.11	0.11
Pivot values for RP3			0.11	0.11	0.11

Threshold and pivot value review

The annual pivot value is fixed at the NOP reference value, equal to the national target for all causes of delay. There is a dead band of +/-0.001 minutes around the pivot value before penalties / bonuses apply. The dead band is beyond the granularity of the performance dashboard (+/-0.01), which may mean the penalties / bonuses are applicable when the dashboard indicates that the performance target has just been achieved. Maximum bonus / penalty is applicable at +/-0.08 from pivot value.

Modulation review

There is no modulation of the performance target although the performance plan states that only certain ATFM delays codes are applicable. This has the effect of increasing the performance target above the delay figure from the NOP.

Review of financial advantages/disadvantages

A maximum penalty to 2% of DC is countered with a maximum bonus of the same magnitude. Historically Italy has had no capacity problems and would have achieved the maximum bonus for every year of RP2 according to this scheme.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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?	?
If yes, is the modulation CRSTMP?	n/a

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)			±0.020	±0.020	±0.020
Performance Plan targets			0.33	0.33	0.30
Pivot values for RP3			0.04	0.04	0.04

Threshold and pivot value review

The terminal incentive scheme includes a dead band of +/-0.002 minutes (+/-4%) of the CRSTMP pivot value (dead band: 0.038 - 0.042 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. The pivot value, CRSTMP modulated, is four times the reported CRSTMP delays in RP2, so it does not incentivise to maintain or improve performance.

Modulation review

Italy has chosen to modulate the pivot values according to CRSTMP causes. The pivot value (0.04 minutes per arrival), although low, is still higher than the observed performance in RP2 (average CRSTMP delays: 0.01 minutes per arrival).

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:

- Italy has chosen not to modulate the pivot values, which are set equal to the reference values.
- Maximum bonus and penalty is set at 2%.
- The performance plan claims that only certain delay codes are applicable in the incentive scheme, thus effectively resulting in pivot values which are higher than the national targets.
- The dead band is set at 0.001 minutes, which is too small to allow for minor deviations in performance.

Terminal:

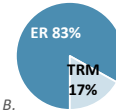
- Italy has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values. The indicated pivot values are four times higher than the average CRSTMP delays during RP2, thus the scheme does not incentivise to maintain or improve performance.
- Maximum bonus and penalty is set at 1%.
- The dead band is set at 0.002 minutes, which is too small to allow for minor deviations in performance.
- 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.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	161.6	140.8	137.4	139.8	142.0	721.6
	En route	134.1	117.8	114.2	115.9	117.6	599.7
	Terminal	27.5	23.0	23.2	23.8	24.4	121.8

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 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	TRM
1	AMPLIAMENTI E RISTR. ACC	<i>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 works are also foreseen in Padua and Roma 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.</i>	73.6	Yes	No	14.8	0.0
2	NUOVO SISTEMA ATM ACC	<i>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.</i>	105.5	Yes	Yes	29.9	0.0
3	NUOVE TWR/BT	<i>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</i>	49.3	Yes	Yes	0.0	18.0
4	AUTOMAZIONE OPERATIVA ACC	<i>ENAV plans to consolidate a number of Approach Centres, currently located within local Control Towers, into the Area Control Centers. 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.</i>	84.7	Yes	Yes	40.7	0.0
5	RADAR	<i>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.</i>	52.6	No	No	14.1	1.6
6	TORRI REMOTE	<i>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</i>	115.7	No	No	0.0	14.4
7	CENTRI RADIO TBT DEGLI ACC	<i>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.</i>	21.2	Yes	No	14.0	0.0
8	MANUTENZIONE EVOLUTIVA	<i>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</i>	42.8	Yes	No	24.4	0.0
9	AMPLIAMENTI E RISTR. EDIFICI	<i>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 and peripheral offices in order to optimise resources and space.</i>	18.6	No	No	6.8	0.8
10	RADIOASSISTENZE Rotta/APT	<i>Navigation 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.</i>	21.3	No	No	4.3	4.3
11	RETE E-NET	<i>The current ground network interconnecting all ENAV sites and operational systems, dates back to 2010 and a general replacement is required, both to include the capabilities of new generation equipment and to support the expected increase of network requirements, especially needed for the remote tower implementation and for the overall implementation of AF5/SWIM services. A general increase of 10 or 100 times in the transmission speed is expected.</i>	15.5	Yes	No	4.2	4.2

12	INTERVENTI NON PROGR. CNS/ATM	<i>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</i>	33.9	No	No	6.7	6.7
13	RADAR DI SUPERFICIE	<i>This project implements the replacement of surface radars, operational in major Italian airports, as soon as they reach the end of operational life. The project covers the procurement of the equipment, the installation and, if required, the modifications to the hosting civil infrastructure.</i>	7.6	Yes	No	0.0	5.0
14	SISTEMI METEO CENTRALI	<i>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.</i>	19.7	Yes	No	7.6	0.0
15	SISTEMI INFORMATIVI	<i>This set of investment is comprising a number of interventions related to non-operational IT systems of the company that will strongly increase digitalisation and modernisation of all support and management services of the company, with the target to increase resilience and enhance cost efficiency. The investment will comprise a new Cloud ERP system as well as renovation of assets and licences</i>	33.6	No	No	8.5	8.5
Total:						176.0	63.5

Airspace user feedback regarding major investments

The airspace users requested more details especially about the industrial scheme of ENAV, deployment dates of investments and their allocation. Italy provided the requested details and provided further clarifications regarding two major investments not mandated by regulation, noting that the consolidation plan of ENAV for two Area Control Centres (ACCs) and two Remote Tower Control Centres (RTCCs) are expected to bring a number of benefits that will manifest incrementally in the coming years.

Review of investments

Several investments were included in the RP2 performance plan and will continue throughout RP3. New major investments represent 33% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 76% of the planned values for the same period and the amount underspent was 173.1M€. In terms of depreciation and cost of capital, the airspace users financed 63.7M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

Moreover, the value of the assets allocated to ANS in the scope of the performance plan should not be equal to the sum of determined costs of investments over RP3 but should represent the capital expenditure (CAPEX) of the assets.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	RADAR	Local	Safety, Environment, Capacity, Cost-efficiency*	This intervention will bring improved performances and service continuity and will contribute to the seamless operations delivered to the users. No specific issue or question was raised from the users' consultation.
2	TORRI REMOTE	Local	Safety, Environment, Capacity, Cost-efficiency*	Remote Tower implementation will impact the local management of traffic and will be beneficial for performances taking into account the optimisation brought by the Remote Tower Control Centre. No specific issue or question was raised from the users' consultation.
3	AMPLIAMENTI E RISTR. EDIFICI	Network, Non-performance	Safety, Environment, Capacity, Cost-efficiency*	This project is a fundamental enabler in order to increase defragmentation of local infrastructures. No specific issue or question was raised from the users' consultation.
4	RADIOASSISTENZE Rotta/APT	Network	Safety, Environment, Capacity, Cost-efficiency*	This project is a fundamental enabler for the continuity of service and to provide relevant and continuous information to the users. No specific issue or question was raised from the users' consultation.
5	INTERVENTI NON PROGR. CNS/ATM	Network	Safety, Environment, Capacity, Cost-efficiency*	n/a
6	SISTEMI INFORMATIVI	Local	Cost-efficiency	No specific issue or question was raised from the users' consultation.

Additional information

Information about the investments with an * in the table above mentions impacting the KPAs, however no quantitative impact is given, as "The investment is clustering a number of projects, therefore it is not possible to define a quantitative value".

RADAR - This project falls into the overall objective to rationalise and improve with new available technology the SUR infrastructure as per "CNS infrastructure and services" ATM Master Plan Essential operational change. Such a modernisation campaign is required in order to deliver performances and in order to avoid decrease in capacity and quality of service due to outdated devices.

TORRI REMOTE - This project respond to the ATM master Plan implementation objective AOP14 - Remote Tower Services.

AMPLIAMENTI E RISTR. EDIFICI - This project is linked to ATM Improvements and falls into the overall objective to rationalise and improve working spaces and arrangements in order to accommodate the operational improvements scheduled. Such a modernisation campaign is required in order to deliver performances through timely implementation of investment objectives.

RADIOASSISTENZE Rotta/APT - This project falls into the overall objective to rationalise the NAV infrastructure as per "CNS infrastructure and services" ATM Master Plan Essential operational change. NAV infrastructure is a very important enabler for operations and their replacement is a continuous guarantee for service continuity and performances.

INTERVENTI NON PROGR. CNS/ATM - This project is an important enabler to achieve PCP/CP1 requirements.

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 RP3 (M€)
Other new investments	284.5	104.6	8.5	12.9	21.3	36.0	26.0	104.6
Existing investments			31.4	25.3	31.3	32.4	29.6	149.9

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	ADEGUAMENTI E MESSA A NORMA	9.1	3.6	0.6	0.9	0.7	0.7	0.8	3.6	This category of investments is grouping measures related to interventions over ATS infrastructures and buildings
2	INFRASTRUTTURE E IMPIANTI	76.7	37.9	1.3	2.2	6.4	17.5	10.4	37.9	This category of investments is grouping measures related to interventions over ATS infrastructures and buildings, with all related new machineries and technical systems
3	NUOVI SIST.MONIT.MANUT.	6.9	6.8	1.0	1.4	0.7	3.2	0.4	6.8	This category of investments is grouping measures related to new systems for maintenance and monitoring
4	PROCEDURE ATM E SPAZI AEREI	9.7	4.7	0.1	0.2	0.8	3.0	0.4	4.7	This category of investments is grouping measures related to new systems and tools for airspace design
5	SECURITY	9.8	4.6	1.0	0.7	0.7	0.8	1.5	4.6	This category of investments is grouping measures related to new security systems
6	SIST. E IMPIANTI DI NAVIG.	8.3	3.5	0.3	0.8	1.2	0.5	0.6	3.5	This category of investments is grouping measures related to new Navigation systems and devices
7	SIST. E RETI DI COMUNICAZIONE	41.7	20.7	2.8	3.6	5.2	3.0	6.0	20.7	This category of investments is grouping measures related to new Communication systems and devices
8	SIST. PER LA METEOROLOGIA	6.4	1.9	0.0	0.0	0.8	1.1	0.0	1.9	This category of investments is grouping measures related to new Meteorological systems and devices
9	SISTEMI ATM	20.9	7.3	0.6	0.8	1.8	2.0	2.1	7.3	This category of investments is grouping measures related to New ATM Systems and ATC Tools
10	SISTEMI DI SORVEGLIANZA	80.1	4.2	0.1	0.2	0.8	1.0	2.1	4.2	This category of investments is grouping measures related to new Surveillance systems and devices
11	SPERIM. PIATT.VALIDAZIONE	14.8	9.5	0.6	2.0	2.1	3.2	1.6	9.5	This category of investments is grouping measures related to new operational IT systems, test systems and Platforms

3.5.3 Review of investments contribution to capacity**a) Investments contribute to the rectification of identified capacity shortfalls?**

All four Italian ACCs are expected to be able to deliver capacity in accordance with the reference values with 0% over/under capacity during RP3.

There are several (15) new major investments defined for RP3 and six of them are linked to PCP/CP1 ATM Functionalities (AF1, AF2, AF3, and AF5). The operational deployment dates of the investments is not clearly defined, all investments are noted to enter operations "Every year starting 31-12-2020."

The main investment contributing to en route capacity is the Nuovo Sistema ATM ACC investment while the Nuove TWR/BT and Automazione Operativa ACC investments contribute to airport/TMA capacity enhancement. Interventi Non Progr. CNS/ATM investment description does not allow for assessing the impact of the investment on capacity due to lack of details included.

The investments in general contribute to resilience, scalability and flexibility and are in line with the overall European ATM evolution.

Other (non-major) investments include investments to communications, navigation, surveillance and ATM-systems but the level of details concerning these investments is sparse.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 

The Nuovo Sistema ATM ACC investment is expected to improve en route capacity through the introduction of a next generation ATM ACC platform with advanced flight data processing functions (trajectory prediction, modelling of aircraft behaviour, airspace structures, coordination capabilities, etc.). The Nuove TWR/BT investment will upgrade tower systems and improve interoperability between ATS units and the Automazione Operativa ACC investment consolidates approach and area control units and introduces new automation tools.

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

It is not possible to fully assess the timelines of the investments or how they may contribute to capacity during and beyond RP3 due to the inaccurate nature of the planned date of entry into operation information provided. However, there does not seem to be a capacity shortage in Italy during RP3.

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 76% of the planned values for the same period and the amount underspent was 173.1M€. In terms of depreciation and cost of capital, the airspace users financed 63.7M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- The value of the assets allocated to ANS in the scope of the performance plan should not be equal to the sum of determined costs of investments over RP3 but should represent the capital expenditure of the assets.
- There is no capacity surplus/shortage expected in Italy during RP3.
- There are capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities AF1, AF2, AF3, and AF5, but the operational deployment of the investments is not clearly defined.
- Other investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

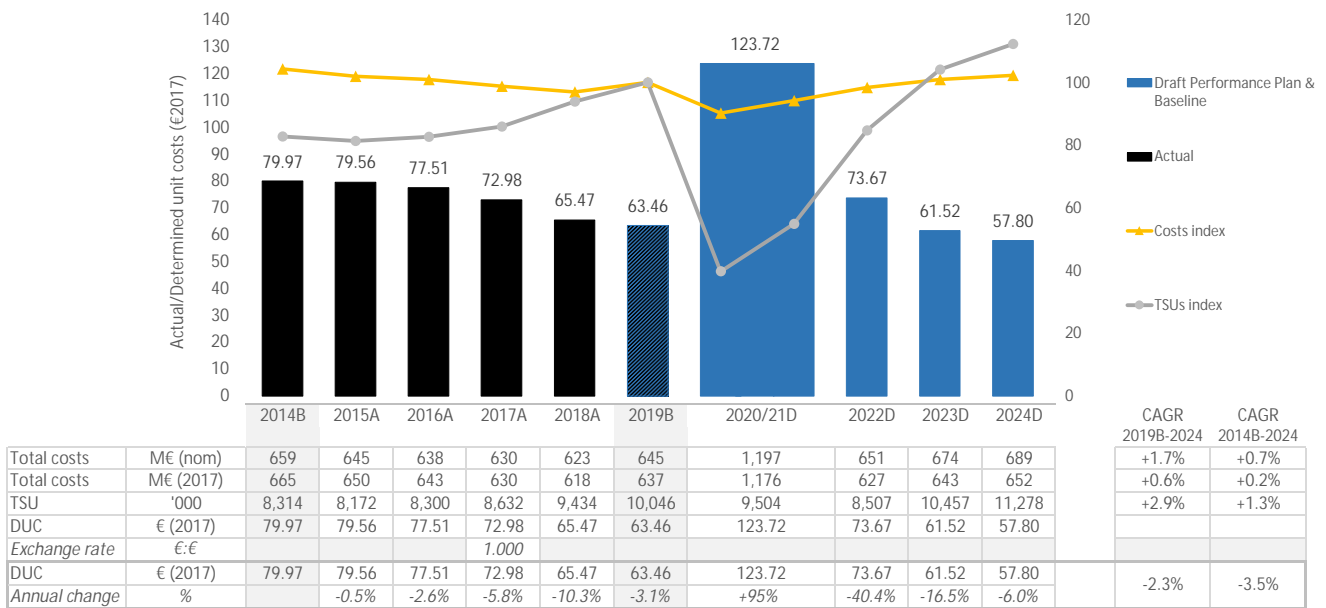
ITALY

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Italy - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	63.46 €2017	✓
No major issues identified.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	-2.3%	✓
The DUC is planned to decrease on average by -2.3% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-3.5%	✓
The DUC is planned to decrease on average by -3.5% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (A) average (59.18 €2017)?	+7.2%	✗
The 2019 DUC level is +7.2% 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

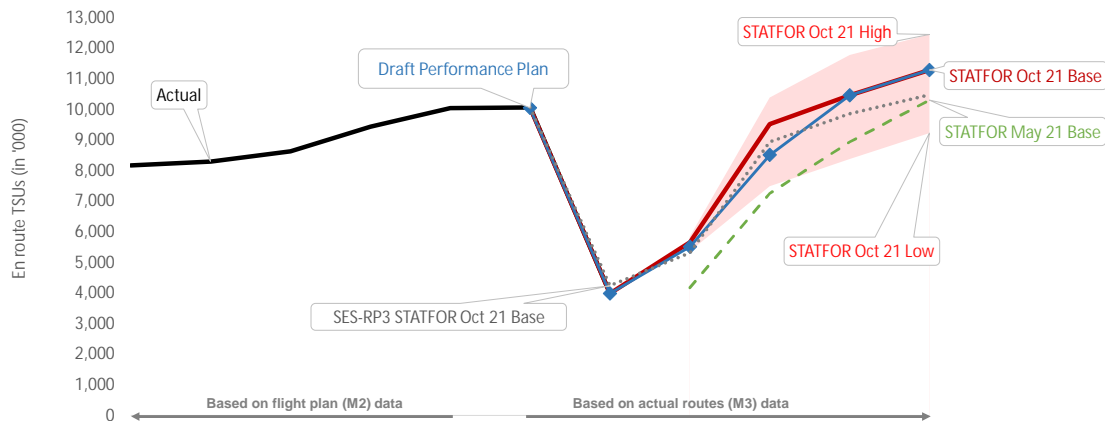
The PRB concludes that the cost-efficiency targets proposed by Italy should be approved.

- Italy is consistent with the RP3 DUC trend in terms of average reduction.
- Italy is consistent with the long-term Union-wide DUC trend.
- Italy is not consistent with the average DUC baseline of the comparator group.
- Italy should report the real WACC parameters instead of notional WACC parameters.

4.2 Review traffic forecasts and baseline

Italy - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	8,172	8,300	8,632	9,434	10,046	10,060	3,990					
Annual change	%		+1.6%	+4.0%	+9.3%	+6.5%	+6.6%	-60.3%					
STATFOR Oct 21 Base	'000 TSUs								5,667	9,518	10,457	11,278	+12.1%
Annual change	%								+42.0%	+68.0%	+9.9%	+7.9%	
STATFOR May 21 Base	'000 TSUs								4,170	7,252	8,933	10,298	+2.4%
Annual change	%								+4.5%	+73.9%	+23.2%	+15.3%	
Performance Plan	'000 TSUs					10,046	3,990	5,514	8,507	10,457	11,278	+12.3%	
Annual change	%					+6.5%	-60.3%	+38.2%	+54.3%	+22.9%	+7.9%		

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	10,046		2014B (PP baseline)	8,314	
2019A (as in the Reporting tables, M2)	10,046		2014A (as in the Reporting tables, M2)	8,314	
2019B/ 2019A	0.00%	+0.14%	2014B/ 2014A	0.00%	+0.14%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

According to the information provided in Annex T to the performance plan, Italy has decided "not to take advantage of the correction factor [...] in order to maintain a realistic baseline for the years 2019 and 2014". As a result, the 2014 and 2019 baseline traffic figures provided by Italy are expressed in the M2 methodology. No justification explaining the decision not to apply the CRCO correction factors to the baseline values is provided in the corresponding sections of the body of the performance plan.

Review of 2014 and 2019 traffic baseline

Considering the CRCO adjustment coefficients (+0.14% for 12 months), the impact of this discrepancy on the 2019 traffic baseline is limited.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

Italy applies a local forecast, which is broadly based on the STATFOR October 2021 base forecast, but anticipates slightly weaker traffic growth at the beginning of RP3 due to:

- Actual trend of service units recorded in the first 10 months of 2021;
- Recent developments and in particular the launch of a new carrier - ITA Airways;
- Potentially weak demand from Asia.

Review of the PP traffic forecast

The forecast proposed by Italy diverges from STATFOR October 2021 base forecast only for the first-half of the period (2021 and 2022), while it is in line with STATFOR October for the remainder of RP3. The figures for the years 2021 and 2022 reflect the average between STATFOR October 2021 base and low forecast values for these years and as a result are, respectively, -2.7% and -10.6% below STATFOR October 2021 base forecast.

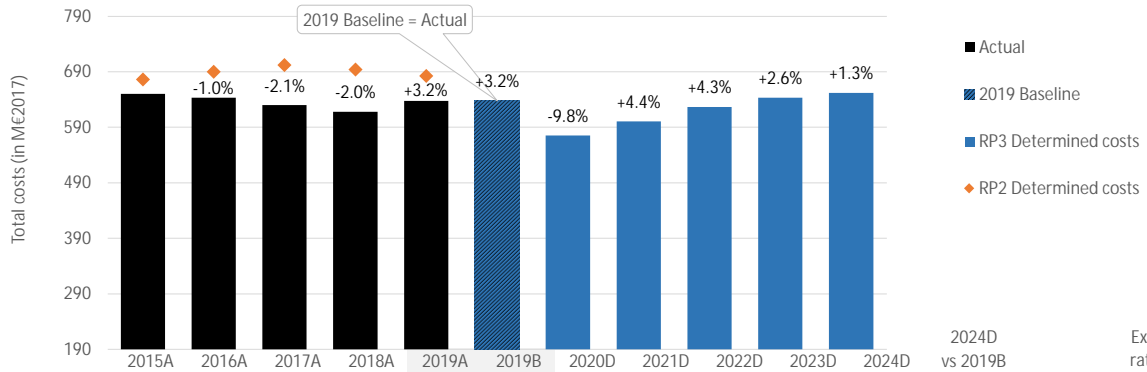
4.2.4 PRB Key Points

- Italy did not apply the M2/M3 coefficient to the baseline value.
- Italy applied a local forecast for the en route service units. For 2020 and 2021, the local forecast is the average of STATFOR October 2021 base and low scenarios. The remaining years are aligned to STATFOR October 2021 base forecast.

4.3 Review of determined costs and baseline

Italy - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	645	638	630	623	645	645	582	615	651	674	689	+6.8%
Annual change	%		-1.1%	-1.2%	-1.2%	+3.6%	+3.6%	-9.8%	+5.7%	+5.8%	+3.5%	+2.3%	+6.0%
Inflation index	2017 = 100	98.8	98.7	100.0	101.2	101.8	101.8	101.8	103.5	105.3	106.6	107.9	+2.3%
Total costs	M€ (2017)	650	643	630	618	637	637	575	601	627	643	652	+2.3%
Annual change	%		-1.0%	-2.1%	-2.0%	+3.2%	+3.2%	-9.8%	+4.4%	+4.3%	+2.6%	+1.3%	+2.3%
Total costs	M€ (2017)	650	643	630	618	637	637	575	601	627	643	652	+2.3%

Exchange rate 2017	€:€
	1.00000

✗ Is inflation in PP in line with IMF (April 2021 forecast)?	No
✓ Is inflation in PP in line with IMF (October 2021 forecast)?	Yes

Italy has updated the inflation in line with the IMF October 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
No adjustments applied to the 2014 or 2019 cost baselines.

2014/2019 baseline analysis

The 2014 and 2019 cost baselines are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

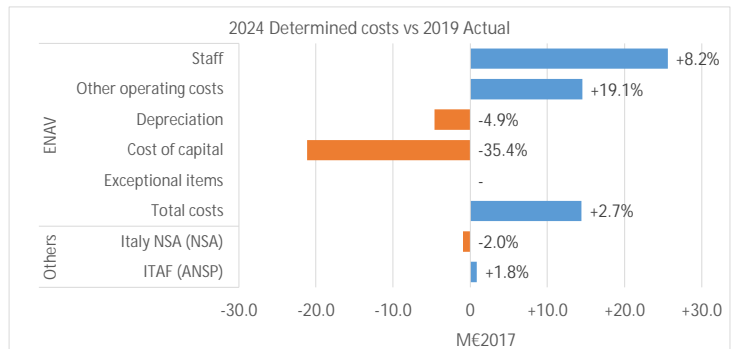
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



Total costs of Italy between 2019 and 2024 are planned to grow by +2.3%, resulting in an overall increase of +14.4M€2017 over the period. The major contributor to this planned increase in costs is ENAV (+2.7%, or +14.4M€2017).

For ENAV, the increase in costs reflects significant planned growth in:

- Staff costs (+8.2%, or +25.6M€2017), that are primarily driven by recruitment of operational staff as well as training and development of personnel already in place. It is understood that the recruitment of operational staff is linked to the planned consolidation of Brindisi and Rome ACCs on a single site (Rome ACC), which is scheduled to start in 2023. It is further understood that part of the planned growth in staff costs over 2023-2024 period is linked to the negotiations with the trade unions on the new employment contract.
- Other operating costs (+19.1%, or +14.5M€2017), that reflect: i) planned consolidation of Brindisi and Rome ACCs, ii) development of new digital operational telecommunication network (ENet 2), and iii) process of gradual centralisation of air traffic control services in Brindisi for the remote management of southern airports, which results in higher training costs.
- At the same time, ENAV is planning reductions in depreciation costs (-4.9%, or -4.6M€2017), reflecting the commissioning of planned investments (see section 3.5 of this document for more information), and the cost of capital (-35.4%, or -21.1M€2017) reflecting the use of lower rate of return on equity as well as changes to the debt-equity ratio (gearing) on ENAV (see section 4.3.A of this document for details).

The costs for the other ANSP operating in the charging zone, Italian Air Force (ITAF) are also planned to increase (+1.8%, or +0.9M€2017). On the other hand, the costs for the NSA are planned to reduce slightly (-2.0%, or -0.9M€2017).

En route service units are forecast to reach 2019 levels in 2023, en route costs are also planned to reach 2019 actual level in 2023.

4.3.4 PRB Key Points



- There are no adjustments to the baselines.
- Between 2019 and 2024, the total costs for ENAV are planned to increase by +2.7% (or +14.4M€2017).
- The main cost increases are related to the consolidation of Brindisi and Rome ACCs.

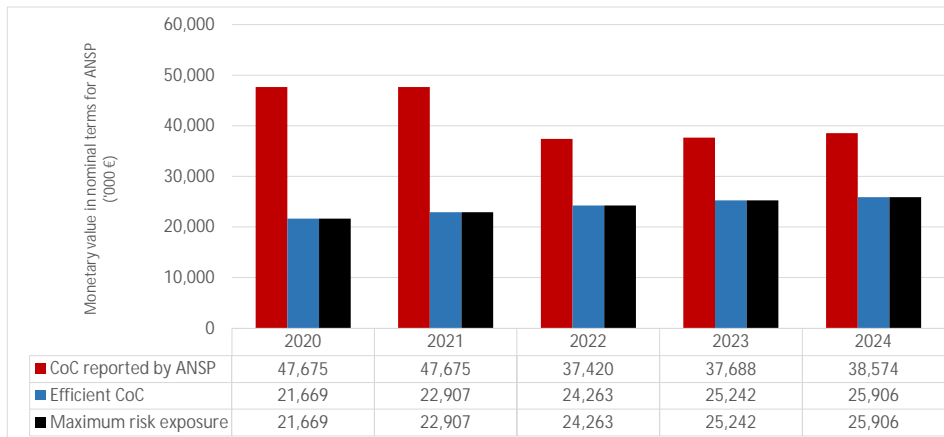
4.3.A Cost of capital

ENAV - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	492,482	520,610	551,426	573,690	588,781
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 vs Efficient ('000 €)	2020	2021	2022	2023	2024
	26,005	24,768	13,158	12,446	12,667

Total 2020-2024
89,044

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	6.6%	n/a	5.0%	n/a	4.4%	n/a	4.9%	n/a	5.0%	n/a
Interest on debts	1.9%	n/a	1.9%	n/a	1.9%	n/a	1.9%	n/a	1.9%	n/a
Capital structure (% debt)	25.0%	n/a	25.0%	n/a	25.0%	n/a	25.0%	n/a	25.0%	n/a
WACC	5.4%	2.4%	4.2%	2.0%	3.7%	2.4%	4.1%	2.8%	4.2%	2.9%

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

- ENAV capped its cost of capital during RP3. Where the real cost of capital would be 64.2M€, 81.6M€, 72.8M€, 66M€, and 65.9M€ respectively for the years 2020-2024, the reported cost of capital is 47.7M€, 47.7M€, 37.4M€, 37.7M€, and 38.6M€ respectively for the years 2020-2024.
- Notional WACC parameters have been reported instead of the real WACC parameters. Considering this, the notional interest on debts is in line with the competitive market practices.
- The efficient cost of capital is computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 89M€ above the efficient cost of capital. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provided notional parameters for the WACC.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	794,233	775,932	683,320	650,790	670,988
Net current assets	90,246	348,335	320,111	258,911	236,807
Adjustments total assets	0	0	0	0	0
Total asset base	884,478	1,124,267	1,003,431	909,701	907,796

- The fixed asset base is planned to decrease over RP3. This is not fully in line with the investments as detailed in section 3.5 of this document, which will remain rather stable.
- The net current assets will significantly increase over RP3. No explanation has been provided for this increase. Moreover, the net current assets seem excessive compared to the expected cash flows in RP3.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to increase over RP3, driven by the increase in net current assets.

4.3.A.5 PRB Key Points

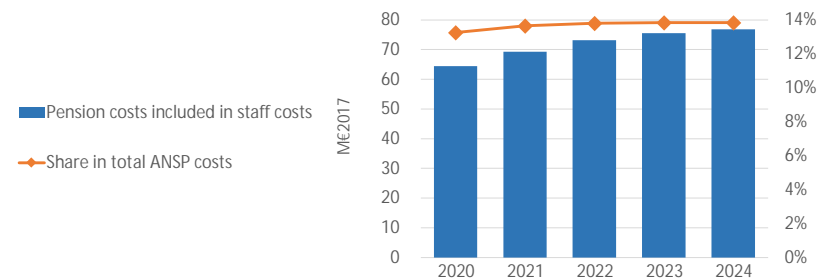


- Notional WACC parameters have been reported instead of the real WACC parameters.
- Although ENAV capped its cost of capital during RP3, the reported cost of capital is 89M€ above the efficient cost of capital.
- The net current assets will significantly increase over RP3. No explanation has been provided for this increase. Moreover, the net current assets seem excessive compared to the expected cash flows in RP3.

4.3.B Pensions

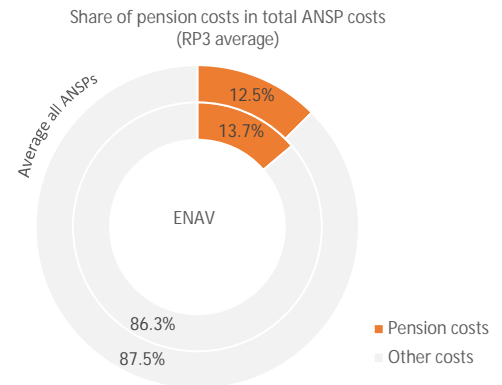
ENAV - En route

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		+7.5%	+5.6%	+3.3%	+1.7%
Share in total ANSP costs	%	13.3%	13.7%	13.8%	13.8%	13.8%
Year on year variation	p.p.		0.4p.p.	0.2p.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 Union-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
--	----

No defined benefit scheme.

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

Italy did not report any assumptions regarding the State pension costs or the level of pension contributions in the performance plan.

According to Italy: "In Italy the contribution system foresees that when the employee is retired, the pension is paid by the social Institutions, on the basis of the rules enclosed in the national Law. Therefore, the ANSP does not bear pension costs. Please note that the estimated values for pension are reported for information only and are calculated in a proportional way, according to the latest actual values available".

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

No occupational defined contribution scheme.

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

No defined benefit scheme.

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 Methodology for cost allocation between ER and TRM

4.3.C.1 Cost allocation overview

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

- 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 20km 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

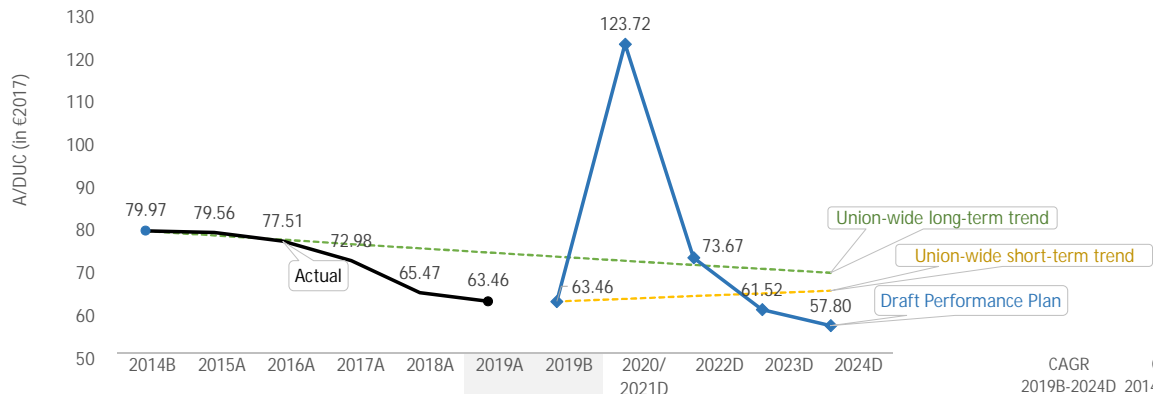


- Italy did not mention changing the cost allocation methodology with respect to RP2.
 - No major issues identified.

4.4 Determined unit costs (DUC)

Italy - En route CZ

4.4.1 Overview and trends of the DUC



	€2017	2014B	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D
DUC		79.97	79.56	77.51	72.98	65.47	63.46	63.46	123.72	73.67	61.52	57.80
Annual Change	%		-0.5%	-2.6%	-5.8%	-10.3%	-3.1%	-3.1%	+95%	-40.4%	-16.5%	-6.0%
Union-wide target	%								+120%	-38.5%	-13.2%	-11.5%

CAGR	CAGR
2019B-2024D	2014B-2024D
-2.3%	-3.5%

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-2.3%	+1.0%	-3.3p.p.
Trend (CAGR 2014B-2024)	-3.5%	-1.3%	-2.2p.p.
	Performance Plan	Average comparator group	Difference
2019 baseline	63.46	59.18	+7.2%

- The DUC is planned to decrease on average by -2.3% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -3.5% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +7.2% higher than the average of the comparator group.

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

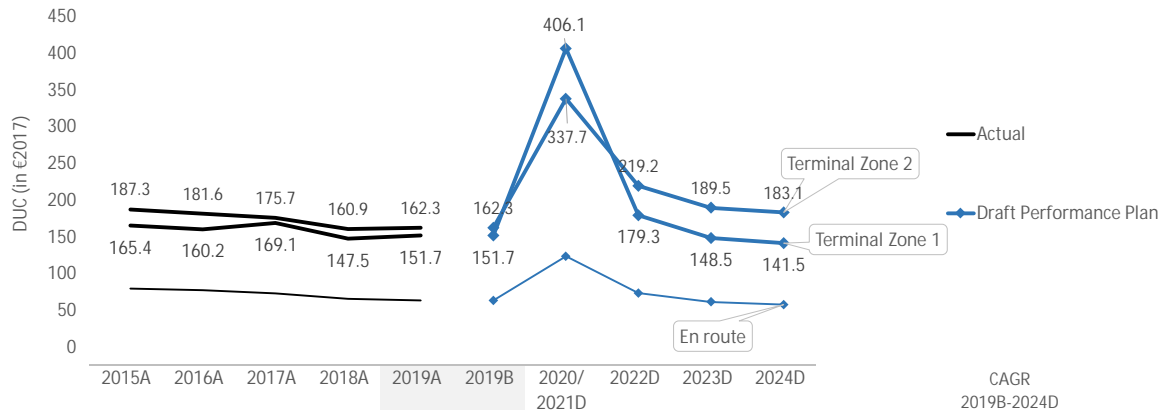
4.4.4 Analysis of the DUC deviation due to restructuring costs n/a

4.4.5 PRB Key Points ✓

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

4.5 Terminal

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal Zone 1	€2017	165.4	160.2	169.1	147.5	151.7	151.7	406.1	179.3	148.5	141.5	-1.7%
Annual Change	%		-3.1%	+5.5%	-12.8%	+2.9%	+2.9%	+168%	-55.8%	-17.2%	-4.7%	
DUC - Terminal Zone 2	€2017	187.3	181.6	175.7	160.9	162.3	162.3	337.7	219.2	189.5	183.1	+3.1%
Annual Change	%		-3.1%	-3.2%	-8.5%	+0.9%	+1%	+108%	-35.1%	-13.6%	-3.3%	
DUC - En route	€2017	79.6	77.5	73.0	65.5	63.5	63.5	123.7	73.7	61.5	57.8	-2.3%
Annual Change	%		-2.6%	-5.8%	-10.3%	-3.1%	-3.1%	+95%	-40.4%	-16.5%	-6.0%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Milan/ Malpensa (LIMC)	GROUP III	166.6	158.5	-4.8%	234.2	196.1	-16.3%
Bergamo (LIME)	GROUP III	166.6	198.3	+19.1%	234.2	228.8	-2.3%
Milan/ Linate (LIML)	GROUP III	166.6	241.4	+44.9%	234.2	326.3	+39.3%
Venice (LIPZ)	GROUP II	168.6	126.9	-24.8%	191.3	188.4	-1.5%
Rome/Fiumicino (LIRF)	GROUP I	137.7	158.8	+15.3%	177.4	210.8	+18.8%

* 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 average DUC for Roma Fiumicino airport (the only airport in TCZ1) was +15.3% above median DUC of its comparator group over RP2, and it is planned to be +18.8% over RP3.

- The average DUCs of the four airports comprising TCZ2 are planned to range from -16.3% below to +39.3% above the median DUCs of their respective comparator group over RP3.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

n/a

2019 baseline analysis

The 2019 traffic and cost baselines are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

	I Z1	I Z2
Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	No	No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

Italy applies a local forecast for its terminal charging zones 1 and 2, which are broadly based on the STATFOR October 2021 base forecast for these respective TCZs, but anticipates slightly weaker traffic growth at the beginning of RP3 due to:

- Actual trend of service units recorded in the first 10 months of 2021;
- Recent developments and in particular the launch of a new carrier, ITA Airways;
- Potentially weak demand from Asia.

Review of the PP traffic forecast

The terminal forecasts proposed by Italy for TCZ1 and TCZ2 diverge from STATFOR October 2021 base forecast only for the first-half of the period (2021 and 2022), while it is in line with STATFOR October for the remainder of RP3. The figures for the years 2021 and 2022 reflect the average between STATFOR October 2021 base and low forecast values for these years and as a result are below STATFOR October 2021 base forecast (-1.0% and -11.4% for TCZ1, and 1.7% and -11.1% for TCZ2). The approach is equal to the one applied to the en route forecast.

Determined costs (terminal)

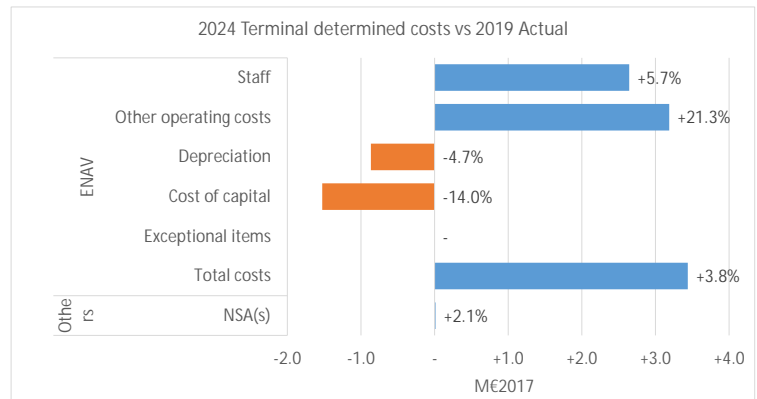
✘ Is inflation in PP in line with IMF (April 2021 forecast)?	No
✔ Is inflation in PP in line with IMF (October 2021 forecast)?	Yes

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 service units are not expected to recover to 2019 levels before the end of RP3 for either TCZ1 or TCZ2. At the same time, terminal costs for TCZ2 are planned to reach 2019 actual level in 2022, while for TCZ1 the costs are foreseen to remain below 2019 level throughout RP3.
- The terminal WACC and its parameters are equivalent the ones for en route.
- The terminal DUC trend over RP3 for TCZ1 is -1.7% and +3.1% for TCZ2, both are worse than the en route DUC (-2.3%).
- Terminal costs (both TCZ1 and TCZ2) reflect some 15% of the total gate-to-gate determined costs, which is broadly consistent with the share of investment and pension costs.
- Between 2019 and 2024 the combined terminal ANS costs for both charging zones are planned to increase by +3.8% (or +3.4M€2017), reflecting planned growth in costs for ENAV (+3.8%, or +3.4M€2017) and the NSA (+2.1%). However, the trends differ considerably between the two charging zones since the costs for TCZ1 are planned to decrease (-8.2%, or -2.9M€2017), while the costs for TCZ2 are foreseen to increase (+11.3%, or +6.3M€2017) during RP3. No detailed drivers for these diverging trends in terminal ANS costs are provided in the performance plan.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend for TCZ1 is -1.7% and +3.1% for TCZ2, both are worse than the en route DUC (-2.3%).
- The terminal RP3 DUC trend is -1.7% for TCZ1, which is worse than the terminal RP2 DUC trend of -2.1%. The terminal RP3 DUC trend is +3.1% for TCZ2, which is worse than the terminal RP2 DUC trend of -3.5%.
- Rome Fiumicino Airport, the main airport (included in TCZ1), had a DUC higher (+15.3%) than the median of its comparator group over RP2. The difference is expected to be +18.8% over RP3. The airports included in TCZ2 had a DUC ranging from -24.8% lower to +44.9% higher than the average of their comparator group over RP2. The differences are expected to range from -16.3% lower to +39.3% higher over RP3.
- Italy applies a local forecast for terminal service units. The approach is similar to the one applied in the en route forecast.
- There is a difference in cost evolution between terminal charging zones. No detailed justifications are provided.

PRB Assessment

LATVIA

Draft Performance Plan

Context and scope

Latvia

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4593, F4532, F4533, F4534, F4535, F4536, F4544, F4545, F4546, F4728, F4540, F4541, F4542

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 2.1%
 % Serv. Units vs SES 0.8%
 % Costs vs SES 0.4%

Scope

FAB: _____ NEFAB _____

 ANSPs: _____ LGS _____
 _____ LVGMC _____

 Other entities (as per Article 1(2) last para. of Regulation 2019/317): _____ Latvian Civil Aviation Agency _____

ATS, CNS, MET, AIS
 MET forecasting

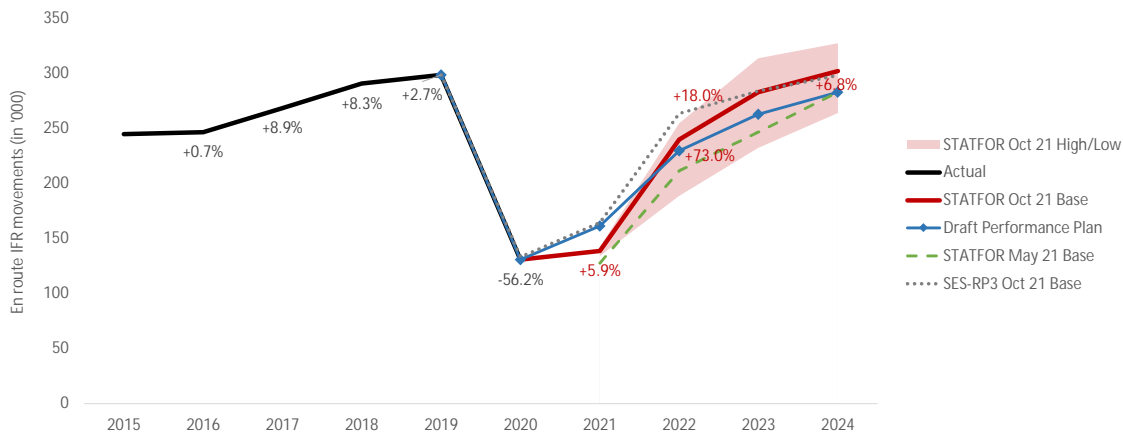
 Competent Authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Latvia	n/a	No	No	No	
Terminal (TRM)	Latvia - TCZ	3	No	No	No	
Changes in the CZs from RP2		No				
There is no change in CZs scope stricto sensu, however the (en route) services that LGS provides in Lithuania FIR (re.NINTA-ADAXA) and related TSUs are accounted for by Lithuania with effect from January 2020 (previously by Latvia).						

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

Currency: _____ € _____ Exchange rate: _____ 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety 


Safety PP 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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment 


Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.30%	1.25%	1.25%	1.25%	1.25%

PRB assessment

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

- Latvia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Latvia did not achieve the 2021 target of 1.25% in its performance plan. For this reason, Latvia has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity 

Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.06	0.01	0.03	0.03	0.03
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.

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- There is a lack of clarity as regards the maximum applicable bonus in the en route capacity incentive scheme.

4. Cost-efficiency 

Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	40.07	31.28	29.14	26.83	+3.3%	-0.4%
Target for determined unit cost (DUC) (€2017) - Terminal	301.22	148.32	154.25	140.79	n/a	-0.5%

PRB assessment

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

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

5. PRB recommendations

SAFETY

- Latvia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Latvia should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Latvia should clarify the maximum applicable bonus parameter in the en route capacity incentive scheme.

COST-EFFICIENCY

- Latvia should update its traffic forecast to the most recent version.

- Latvia should adjust the baseline to take into account the "NINTA – ADAXA" (Vilnius FIR) segment.

- Latvia should consider in the RP3 cost base the 10.9M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.

- Latvia should justify the cost of capital assumptions and should revise downwards the cost of capital.

- Latvia should justify or revise the terminal RP3 cost-efficiency targets in regards to the determined unit cost trend against RP2.

LATVIA

Safety KPA

1.1 Summary of safety key data and assessment results

Latvia

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. The LGS plans to exceed the RP3 targets in 2023.

1.1.2 Measures planned to reach the target (if applicable)

The ANSP intends to exceed the RP3 targets and general measures are 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 would not be deteriorated.

1.1.4 Change Management

The change management practices are defined and supported by the NSA. The plan does not provide more details about change management procedure.

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 sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Latvia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
LGS	Safety policy and objectives	C	C	C	C	D	D	✓	
	Safety risk management	C	C	C	C	D	D	✓	
	Safety assurance	C	C	C	C	D	D	✓	
	Safety promotion	C	C	C	C	D	D	✓	
	Safety culture	C	C	C	C	D	D	✓	

The EoSM targets have been defined for each year of RP3 and are set in accordance with the RP3 Union-wide safety targets. LGS has already reached the RP3 safety targets in four out of five management objectives. During the RP3 period, the LGS intends to exceed the RP3 safety targets and achieve level D in all management objectives. The 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 relate to safety risk management area that requires improvements as per regulation. Additionally, specific NSA derived measures should be included.

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 performance plan declares that the change management is regulated by ANSP's specific management procedure, that was recently updated and approved by NSA.

LATVIA

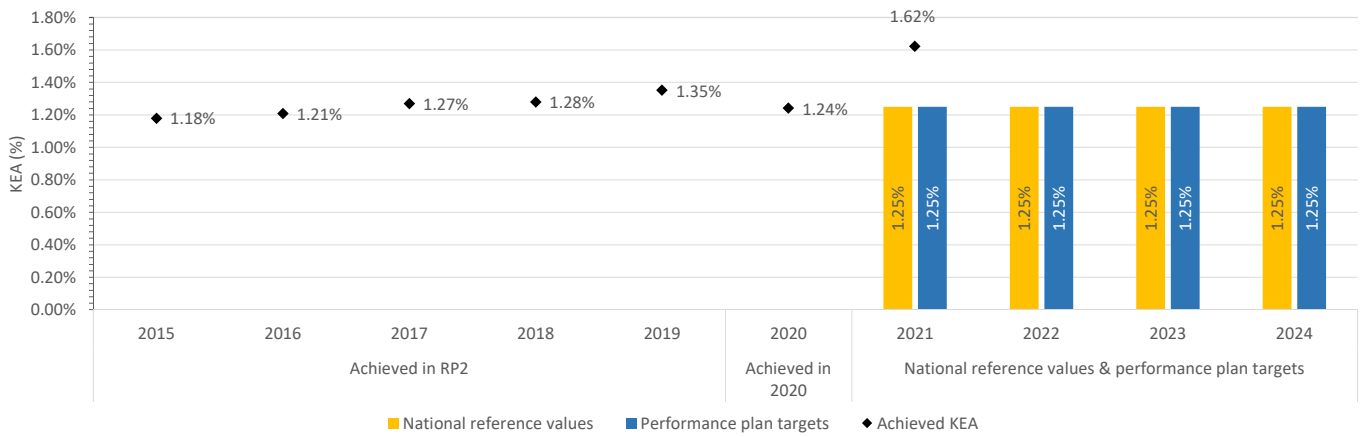
Environment KPA

2.1 Summary of 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
National reference values	1.30%	1.25%	1.25%	1.25%	1.25%
Performance plan targets	1.30%	1.25%	1.25%	1.25%	1.25%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Latvia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Latvia did not achieve the 2021 target of 1.25% in its performance plan. For this reason, Latvia has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Latvia should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Latvia

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
Latvia implemented free route airspace (FRA) above FL095 and offered cross-border FRA within the Baltic FAB from 12 November 2015.			3.2.1(c)	Page 40
Major ERNIP Recommended Measures:		4	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(c)	Page 165
PBN transition plan		✓	n/a	Page 177
JAMP 2020+ step 1		✗	3.2.1(c)	Page 139
Point merge implementation – Riga airport		✓	n/a	Page 198
FIR boundary points Riga – Minsk FIRs		✗		
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Latvia achieved a KEA of 1.24% in 2020. In 2021, Latvia achieved a KEA of 1.62%, which means it did not achieve the 2021 target of 1.25% in its performance plan.

In 2015, Latvia has implemented free route airspace (FRA) above FL095 and cross-border FRA within the Baltic FAB.

Latvia did not provide further reasoning about the deterioration of their horizontal flight efficiency.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Latvia plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

LATVIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Capacity targets align with the reference values slightly above the scenario 1 delay forecast.

Capacity plans indicate that LGS will have more than sufficient capacity (up to +48%) to accommodate the forecast traffic levels the forecast traffic levels. Increased traffic levels together with the introduced measures are estimated to support achieving the national performance targets.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

There are three airports included in the performance plan. National targets are set lower than in RP2 and are in line with average past performance.

Riga represents 99.6% of the traffic, thus it is the main driver of performance as well. All airports perform in line with the performance of the group of similar airports, with Riga expected to perform marginally worse than zero delays as indicated by the targets.

3.1.3 Incentives

En route:

Latvia has chosen not to modulate the pivot values which are set equal to the national reference values.

Maximum bonus and penalty is set at 2%, however, based on the information provided in the performance plan, the maximum bonus is capped at 1%, as it is not possible to achieve negative delays.

Terminal:

Latvia has chosen not to modulate the pivot values which are set equal to the national targets.

Maximum bonus and penalty is set at 2%.

3.1.4 Investments

Latvia expects a significant capacity surplus in the beginning of RP3 (48%), reducing to 15% by the end of RP3.

Two major investments (linked to unidentified PCP/CP1 ATM Functionalities) will contribute to en route capacity – one directly and the other indirectly. These investments also contribute to resilience, scalability and flexibility.

Other investments contribute to scalability and flexibility.

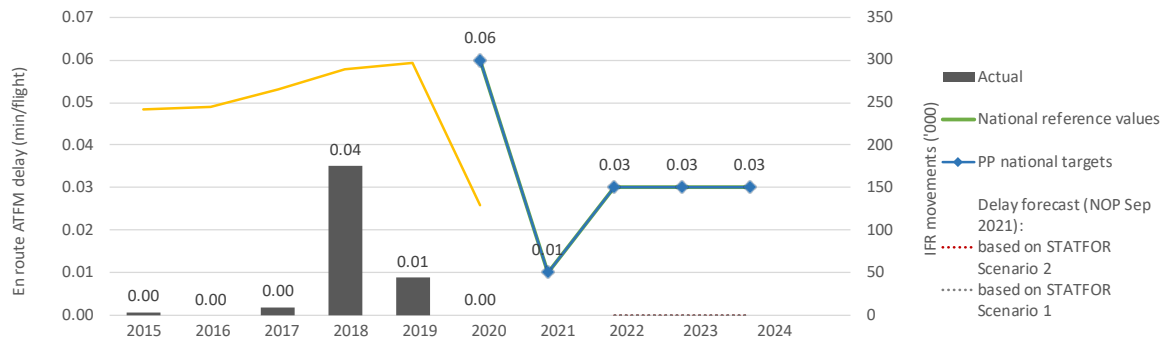
3.1.5 PRB conclusions

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

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.
- There is a lack of clarity as regards the maximum applicable bonus in the en route capacity incentive scheme.
- Latvia should clarify the maximum applicable bonus parameter in the en route capacity incentive scheme.

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
Traffic variation	+1%	+0.7%	+8.8%	+8.6%	+2.7%	-56.4%				
Actual delay/flight	0.00	0.00	0.00	0.04	0.01	0.06	0.01	0.03	0.03	0.03
National reference values						0.06	0.01	0.03	0.03	0.03
PP national targets						0.06	0.01	0.03	0.03	0.03
Based on STATFOR Scenario 1							-	0.00	0	0.00
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✔

Assessment of capacity enhancement measures and review against NOP

During RP2, Latvia experienced no capacity gap with exception of 2018 when staffing issues created en route delays, although still below the national targets. Over the rest of the years, Latvia has registered close to zero delays.

The performance plan contains only generic description of the capacity enhancement measures, which are in line with the measures introduced in the NOP. :

- Ensuring appropriate ATCO staffing and different sectorization scenarios, based on traffic flows,
- New ATCO training programme (scheduled to end in 2021),
- Possible changes in airspace structure.

The plan does not identify explicitly the modernisation of the ATM system as a capacity enhancement measure.

The planned number of ATCO FTEs shows an increase of 17.8%, which is planned for 2021, and is followed by relatively stable FTE numbers until the end of the period. This sharp increase is partly due to the re-employment of the staff that has been laid off/on furlough due to the COVID-19 pandemic.

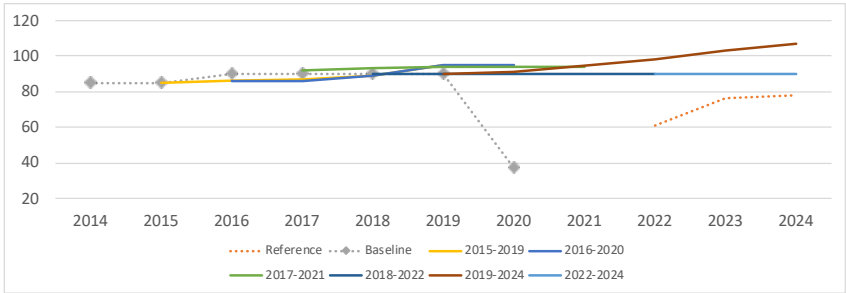
The introduced measures do support achieving the performance targets.

ATCO Planning (FTEs)

	2018A	2019A	2020A	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	
	ATCOs in OPS to stop working in the OPS room	0	1	1	3	2	1	
	ATCOs in OPS to be operational at year-end	56	56	60	65	64	65	+10
Total - LGS (en route)	Additional ATCOs in OPS to start working in the OPS room	56	1	5	8	1	2	
	ATCOs in OPS to stop working in the OPS room	0	1	1	3	2	1	
	ATCOs in OPS to be operational at year-end	56	56	60	65	64	65	+10

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Riga ACC (EVRR)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									61	76	78
Baseline	85	85	90	90	90	90	37				
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
2022-2024									90	90	90
Latest vs Reference									48%	18%	15%

- Historical data shows the increase of baseline value by around 6% in 2016, while the baseline values remained stable during the rest of the period. Planned values were mostly in line with the baseline.

- Latest planned capacity profile is a continuation of the 2019 values, and is kept stable in 2022-2024. The planned values are well above the reference profiles: Riga ACC is expected to have a major capacity surplus of 48% in 2021, 18% in 2022 and 15% in 2024.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

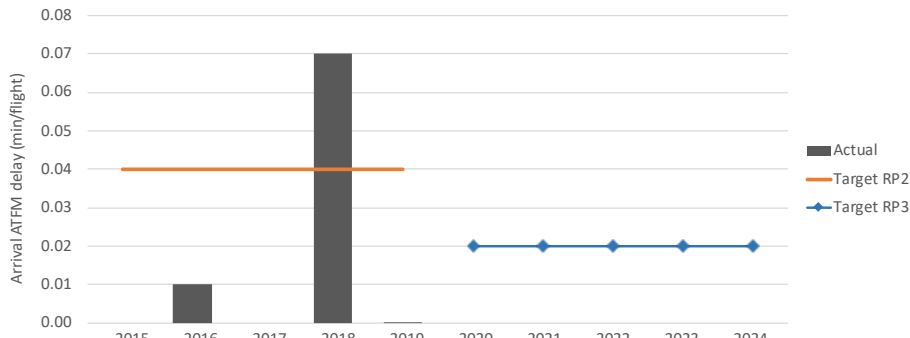
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- Capacity targets align with the reference values slightly above the scenario 1 delay forecast.
- Capacity plans indicate that LGS will have more than sufficient capacity (up to +48%) to accommodate the forecast traffic levels the forecast traffic levels.
- Increased traffic levels together with the introduced measures are estimated to support achieving the national performance targets.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02
Target (RP2/RP3)	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02
Actual	0.00	0.01	0.00	0.07	0.00	0.00	-	-	-	-
Liepaja (EVLA)	0.00	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	0.00	0.00	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	0.00

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

Although Latvia includes 3 airports in the CZ affected by the performance plan, traffic at Riga represents more than 99.6% of the terminal traffic, therefore driving the national performance. During RP2, there were almost no arrival ATFM delays registered at Riga, only in July 2018 there were some more regulations affecting the airport that made the national performance miss the target. In 2019 no delays at all were observed.

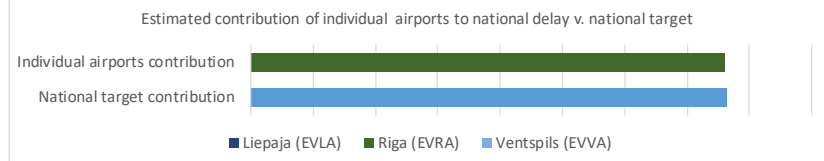
A-CDM implementation at Riga airport and implementation of PBN procedures at Riga and Liepaja are foreseen during RP3.

The proposed targets for the RP3 are in line with this absence of delays, and represent a decrease with respect to RP2 targets by 50%.

Ventspils does not even have ATC services.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Liepaja (EVLA)	0.00
Riga (EVRA)	0.02
Ventspils (EVVA)	0.00
National Target	0.02



According to the targets, Liepaja and Ventspils are not expected to generate any delays during RP3. Therefore Riga is the only contributor in terms of delay (and almost the only contributor in terms of IFR movements), so the potential delay associated with Riga corresponds to the delay associated to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Liepaja (EVLA)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00
Riga (EVRA)	GROUP IV	0.00	0.02	+0.02	0.02	+0.00
Ventspils (EVVA)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00

* 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

Riga, due to the delays observed in July 2018, shows slightly worse performance than similar airports during RP2. The other two airports did not generate any delays at all. The new targets are very close to the performance of similar airports, that normally have no delays at all.

3.3.5 PRB Key Points

- There are three airports included in the performance plan. National targets are set lower than in RP2 and are in line with average past performance.
- Riga represents 99.6% of the traffic, thus it is the main driver of performance as well. All airports perform in line with the performance of the group of similar airports, with Riga expected to perform marginally worse than zero delays as indicated by the targets.

3.4 Capacity Incentive schemes

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			0.03	0.03	0.03
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.03	0.03	0.03
Pivot values for RP3			0.03	0.03	0.03

Threshold and pivot value review

The pivot value is the reference value from the NOP. There is a dead band of +/-0.01 minutes around the pivot value before penalties / bonuses are applicable. The maximum penalty is applicable when performance is > +0.05 minutes from the pivot value. A maximum bonus of 1% of determined costs is possible with zero delay, according to the graphic.

Modulation review

No modulation is applicable.

Review of financial advantages/disadvantages

Maximum bonus and maximum penalty are fixed at 2% of determined costs, however it is impossible for the bonus to exceed 1% according to the information provided in the performance plan - further clarification is required.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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
Bonus/penalty range Δ (in fraction of min)			±0.010	±0.010	±0.010
Performance Plan targets			0.02	0.02	0.02
Pivot values for RP3			0.02	0.02	0.02

Threshold and pivot value review

The terminal incentive scheme includes a dead band of +/-0.01 minutes per arrival (+/-0%) that might be just enough to allow small variations in the arrival ATFM delay with no resulting bonuses or penalties. The pivot value is not modulated and is equal to the national target, which represents very low delays with a reasonable margin.

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 high maximum bonuses and penalties (2%). Together with the narrow dead band and the reasonable target, makes this a strong incentive scheme.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points



En route:

- Latvia has chosen not to modulate the pivot values, which are set equal to the national reference values.
- Maximum bonus and penalty is set at 2%, however, based on the information provided in the performance plan, the maximum bonus is capped at 1%, as it is not possible to achieve negative delays.

Terminal:

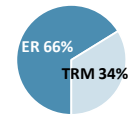
- Latvia has chosen not to modulate the pivot values which are set equal to the national targets.
- Maximum bonus and penalty is set at 2%.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	5.3	6.0	5.4	6.8	6.0	29.6
En route	M€ (nominal)	3.3	3.7	3.7	4.7	4.1	19.6
Terminal	M€ (nominal)	2.0	2.3	1.7	2.1	1.9	10.0

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	TRM
1	New technical, ACC and tower building	Current ATC tower was built in 1970s. During that time Riga Airport underwent major improvements, such as extension of runway, new terminal building which impair the visibility of the ATCOs and subsequently impair the safety at Riga Airport. In order to mitigate the risks, several new systems have been deployed. In addition, the current configuration of the ATC Tower at Riga airport prevents the introduction of remote TWR technologies. Further expansion of Riga Airport may be affected due to limited ATC Tower capacity in longer term. The construction works will be started at the end of the 2022. Currently, due to pandemic, there are no major capacity issues, however, in 2019 there were some delays associated with ATC Capacity. In order to solve the situation, re-design of the Latvian airspace was made. The before mentioned re-design asks for more ATCO working positions that physically can not be placed in current ACC. Whenever the traffic will reach FY2019 levels the ATC_CAP code can return.	34.1	No	No	0.5	0.7
2	Integration of new systems in Tech & TWR buildings	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. Tower Integrated Working position consists of the set of different special TWR systems, which are integrated either technically or procedurally. The major aim of those systems is provide the safe and efficient control of take-offs, landings and movements of aircrafts on Riga aerodrome. Systems modernization will introduce the new technologies, which will help to improve the capacity and reduce the waiting and taxi time. Those measures will impact on fuel consumption and reduce CO2 emission. The new technical building will allow to introduce the enlarged data-center that is important in the light of future digitalisation.	8.0	No	No	0.0	0.0
3	ATC System modernization	Currently LGS operates air traffic control system named "ATRACC". According to ICAO practices ANSP should operate so called "fall-back" system in order to minimize the possible risks of system's outage. Several scenarios have been developed and Cost benefit analysis show that the most preferred option is to buy a new "dual" ATC system. Furthermore systems that are bought from biggest suppliers are easier and cheaper to maintain.	9.5	No	Yes	0.3	0.0
4	Radar modernization and WAM	Routine replacement of the SUR systems with systems capability improvements based on the evolution of surveillance technology	10.7	No	No	0.3	0.0
Total:						1.1	0.8

Airspace user feedback regarding major investments

The airspace users raised questions about the increase of the asset base. Latvia clarified that all existing active agreements were honoured and thus some investments have started to depreciate in 2020.

The airspace users also raised questions about the ATC System. The ANSP clarified that CBAs have been carried out, which result in capacity and financial benefits.

Review of investments

New major investments represent 6% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 92% of the planned values for the same period and the amount underspent was 2.7M€. In terms of depreciation and cost of capital, the airspace users financed 10.9M€ for investments that have not been materialised. It is unknown 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	New technical, ACC and tower building	Network	Safety, Environment, Capacity, Cost-efficiency	Investment must be completed in order to implement rTWR technology. Increased capacity of both en route and terminal services.
2	Integration of new systems in Tech & TWR buildings	Local	Safety, Environment, Capacity, Cost-efficiency	This will be the "mix" of the new systems and system's upgrades, which is required to equip the new ATM infrastructure.
3	ATC System modernization	Local	Safety, Capacity	n/a
4	Radar modernization and WAM	Local	Safety	n/a

Additional information

Integration of new systems in Tech & TWR buildings: this investment directly relates to the number of ATM Master Plan objectives.

ATC System modernisation: such investment is partly related to CP-1 too, mostly because of necessity to foresee the future TBO operations and SWIM.

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 RP3 (M€)
Other new investments	9.5	9.4	0.3	1.8	1.5	3.1	2.7	9.5
Existing investments			5.0	4.1	3.6	3.1	2.5	18.3

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?

Riga ACC is expected to have a major capacity surplus in 2022 (48%) and this is expected to be gradually reduce to 15% in 2024.

The one major investment planned in Latvia during RP3 contributing to enroute capacity is the ATC system modernisation investment. The investment is linked with PCP/CP1 ATM Functionalities related to trajectory based operations and SWIM, although the performance plan does not specify the actual ATM Functionalities. Additionally, the New technical, ACC and TWR building investment can be seen as an enabler for capacity growth. In the performance plan, Latvia recognises the New technical, ACC and TWR building investment as a direct capacity contributor and the ATC system modernisation investment as an indirect capacity contributor, but it can be argued that this should be the other way around.

The Integration of new systems in TECH & TWR buildings investment may yield capacity benefits in the airport/TMA domain and contributes to flexibility. The ATC system modernisation investment contributes to resilience, scalability and flexibility. The New technical, ACC and TWR building investment contributes to scalability and the remaining major investment Radar modernisation and WAM contributes to resilience.

Other (non-major) investments concern CNS/ATM support, AIS/AIM systems, airport MET systems, SWIM, NAV and COM systems and infrastructure. An IT investment for data centre is planned, which can be expected to contribute to scalability and flexibility.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

The ATC system modernisation investment details are not elaborated in the performance plan but it is referenced as a new system being bought from the 'biggest suppliers' and therefore can be expected to include state-of-the-art features and capabilities contributing to capacity enhancement. The New technical, ACC and TWR building investment can be seen as an enabler for capacity growth as it facilitates an increase in the number of ACC CWPs to take full advantage of the airspace structures that have been redesigned. The Integration of new systems in TECH & TWR buildings investment introduces new TWR CWPs with integrated data and advanced controller tools.

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

The capacity surplus in Latvia is decreasing during RP3 but should still be sufficient at the end of the period. However, the three (including airport/TMA) capacity contributing major investments are not planned to enter operations until 2027 and ATM-system implementation related projects and investments are sensitive to delays. Thus, monitoring of the situation is required to ensure enroute capacity availability beyond RP3.

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 92% of the planned values for the same period and the amount underspent was 2.7M€. The airspace users financed 10.9M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- Latvia expects a significant capacity surplus in the beginning of RP3 (48%), reducing to 15% by the end of RP3.
- Two major investment (linked to unidentified PCP/CP1 ATM Functionalities) will contribute to en route capacity – one directly and the other indirectly. These investments also contribute to resilience, scalability and flexibility.
- Other investments contribute to scalability and flexibility.

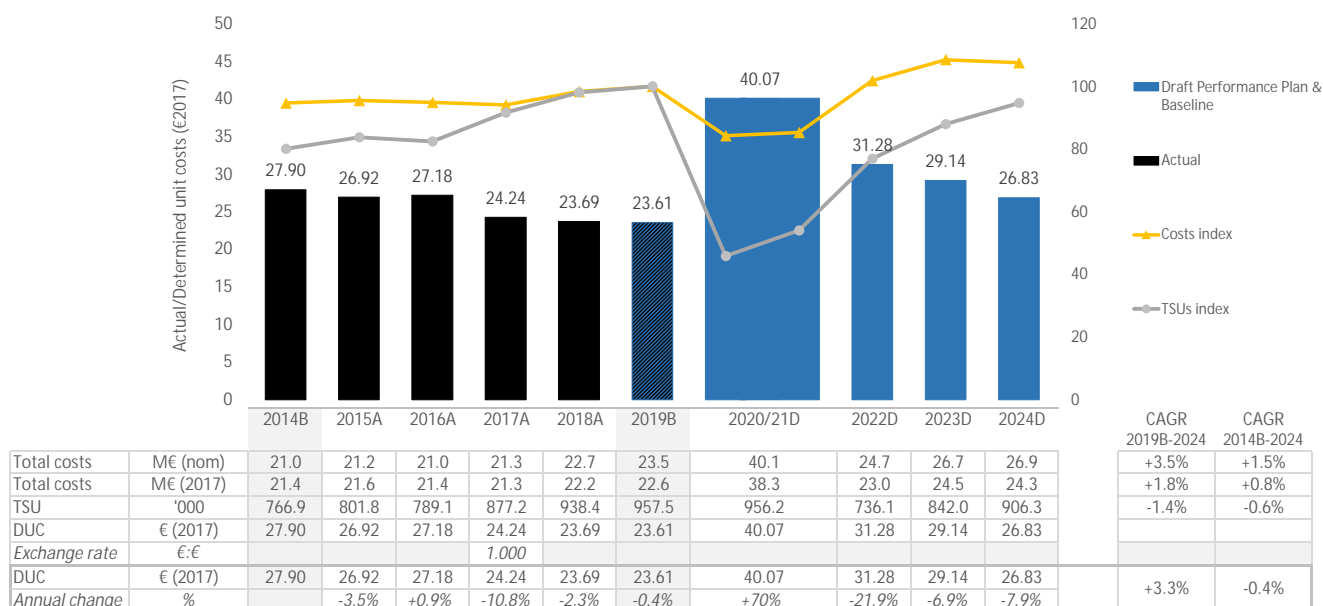
LATVIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Latvia - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	23.61 €2017	✘
The 2014 and 2019 baselines should be adjusted by the costs and traffic related to "NINTA – ADAXA" (Vilnius FIR) segment.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	+3.3%	✘
The DUC is planned to increase on average by +3.3% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-0.4%	✘
The DUC is planned to decrease on average by -0.4% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (D) average (28.51 €2017)?	-17.2%	✔
The 2019 DUC level is -17.2% lower 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 Latvia should not be approved.

- Latvia is not consistent with the RP3 DUC trend in terms of average reduction.
- Latvia is not consistent with the long-term Union-wide DUC trend.
- Latvia is consistent with the average DUC baseline of the comparator group.
- Latvia should update its traffic forecast to the most recent version.
- Latvia should adjust the baseline to take into account the "NINTA – ADAXA" (Vilnius FIR) segment.
- Latvia should consider in the RP3 cost base the 10.9M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- Latvia should justify the cost of capital assumptions and should revise downwards the cost of capital.
- Latvia should justify or revise the terminal RP3 cost-efficiency targets in regards to the determined unit cost trend against RP2.

4.2 Review traffic forecasts and baseline

Latvia - En route CZ

4.2.1 Overview of service units forecasts for RP3



	2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	802	789	877	938	958	951	439				
Annual change	%		-1.6%	+11.2%	+7.0%	+2.0%	+1.4%	-53.8%				
STATFOR Oct 21 Base	'000 TSUs							517	852	997	1,060	+11.4%
Annual change	%							+17.8%	+64.8%	+17.0%	+6.3%	
STATFOR May 21 Base	'000 TSUs							423	652	752	860	-9.6%
Annual change	%							-3.7%	+54.3%	+15.3%	+14.3%	
Performance Plan	'000 TSUs					958	439	517	736	842	906	-5.3%
Annual change	%					+2.0%	-54.1%	+17.7%	+42.4%	+14.4%	+7.6%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	958		2014B (PP baseline)	767	
2019A (as in the Reporting tables, M2)	958		2014A (as in the Reporting tables, M2)	767	
2019B/ 2019A	0.00%	-0.64%	2014B/ 2014A	0.00%	-0.64%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

For both the 2014 traffic baseline and the 2019 traffic baseline, there is no adjustment corresponding to the CRCO M2/M3 correction factor (over 12 months) which is -0.64%. In addition, there is no adjustment of the 2014 and 2019 traffic baselines to account for the change in recording of TSUs for "NINTA-ADAXA" (around +20,000 TSUs for Lithuania and -20,000 TSUs for Latvia).

Review of 2014 and 2019 traffic baseline

There is no adjustment to both the 2014 and 2019 traffic baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

The local forecast for en route service units is based on two assumptions that are different from the STATFOR October 2021 forecast and are applicable to Latvia:

- The amount of IFR flights are derived as follows: STATFOR October 2021 forecast is adjusted by the possibility of Belarussian airspace restrictions. It is anticipated that the restrictions will most likely (75% probability) stay in force. A possibility of 50% for the rest of RP3 is anticipated. Since these re-routings are a material part of IFR movements in Latvian airspace, the risk-sharing approach between ANSP and airspace users is considered to be equitable.
- The number of service units is forecasted by multiplying the number of IFR flights by the average number of service units prior to the pandemic (3.21 in 2019). The number of actual service units and hence average number of service units per flight (which represent the average weight and distance flown) in 2020 and 2021 can not be representative due to the volatility in the aviation sector. Indirectly this is confirmed by STATFOR (as in Annex D) that the increase of the average weight or distance flown in the October 2021 forecast is an assumption and that the average service unit per flight values should return to what they were prior to the COVID-19 outbreak.

Review of the PP traffic forecast

The 2014 traffic baseline and the 2019 traffic baseline are not in line with STATFOR October 2021 base forecast and not adjusted for the change in distance factor (-0.64% or circa -5,000 and -6,000 service units) nor adjusted for the change due to "NINTA-ADAXA" (circa -20,000 service units).

- For en route TSU forecast, Latvia selected a local forecast which is between -13% to -15% below STATFOR October 2021 base forecast for 2022-2024.

The justifications are mainly twofold and relate to:

- uncertainties related to re-routed traffic (because of restrictions on Belarussian airspace, an average of 125 additional flights or 1/5 of total IFR traffic are reported at the moment in Latvian airspace) and other potential route changes (e.g. traffic from Russia); and,
- on different assumptions than STATFOR regarding the number of service units generated per flight on average in the future and based on the pre-COVID-19 pandemic level.

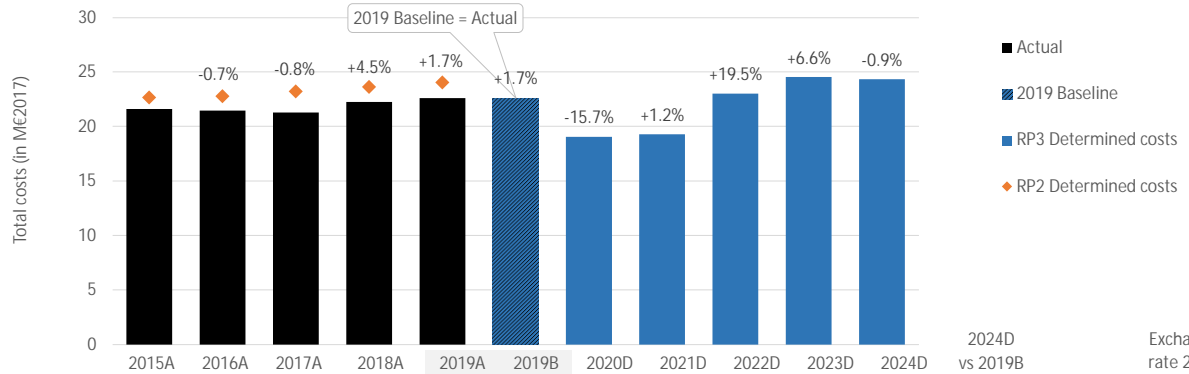
4.2.4 PRB Key Points



- The 2014 and 2019 traffic baseline are not adjusted for the change in distance factor (-0.64%, or around -5,000 and -6,000 service units), nor adjusted for the change due to "NINTA-ADAXA" (circa -20,000 service units).
- Latvia applies a local forecast to take into account restriction on Belarussian airspace and local assumption regarding the service units generated.
- The terminal and en route traffic are not aligned.

4.3 Review of determined costs and baseline

4.3.1 Overview of en route costs in RP2 and RP3



	ME (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B	Exchange rate 2017
Total costs	ME (nom)	21	21	21	23	23	23	20	20	25	27	27	+14.5%	€:€
Annual change	%		-0.6%	+1.0%	+6.5%	+3.7%	+3.7%	-15.8%	+2.6%	+21.9%	+7.9%	+0.9%	+8.6%	1.00000
Inflation index	2017 = 100	97.1	97.2	100.0	102.6	105.4	105.4	105.5	107.7	110.0	112.1	114.5		
Total costs	ME (2017)	22	21	21	22	23	23	19	19	23	25	24	+7.6%	
Annual change	%		-0.7%	-0.8%	+4.5%	+1.7%	+1.7%	-15.7%	+1.2%	+19.5%	+6.6%	-0.9%	+7.6%	
Total costs	ME (2017)	22	21	21	22	23	23	19	19	23	25	24	+7.6%	

Is inflation in PP in line with IMF (April 2021 forecast)?	Deviation from index < 1p.p. in 2024
Is inflation in PP in line with IMF (October 2021 forecast)?	No

There is no detailed justification in the performance plan for the slight discrepancy with IMF April 2021 inflation forecasts. The performance plan inflation index is very close to the inflation index based on April 2021 IMF inflation forecasts.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments applied to 2014 and 2019 cost baselines.

2014/2019 baseline analysis

The 2014 cost baseline and the 2019 cost baseline are equal to the 2014 actual costs and 2019 actual costs respectively. Following a question at the consultation of the performance plan, on the treatment of the costs related to "NINTA – ADAXA" (Vilnius FIR) it was explained that these are "part of the Lithuanian cost base, and proportionally (2%) deducted from ANSP en route costs on those services that are rendered there. No double accounting of costs exists."

This is understood to be the case from 2020 onwards, however there may be a need to adjust the 2014 baseline costs and 2019 baseline costs to ensure comparability/consistency with the 2024 planned costs.

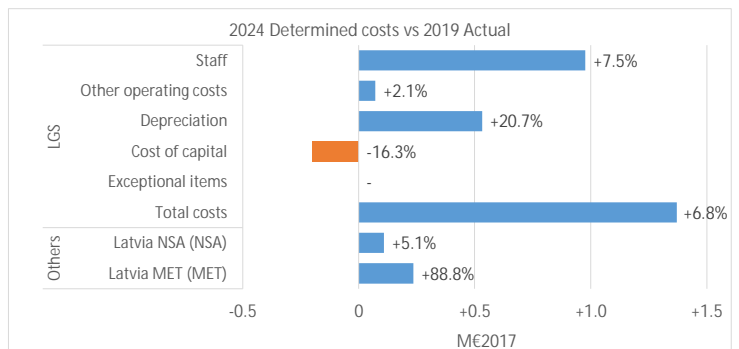
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	ME2017	%
2020 determined vs actual	-0.0	-0.1%

- 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?	Yes
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



The total costs of Latvia are planned to increase by +7.6%, or 1.7M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is LGS (+6.8%, or +1.4M€2017 overall).

For LGS, the main ANSP, except for the cost of capital, all cost items are planned to be higher in 2024 than in 2019 (overall: +6.8%, or 1.4M€2017).

- The increase is mainly driven by higher staff costs (+7.5%; or +1.0M€2017) and depreciation costs (+20.7%, or +0.5M€2017). For more details see section 3.5 of this document.

- The staff costs increase is reported to be due to the following factors: an increase of salaries in Latvia faster than inflation and a new ATCO training program with ATCOs arriving in 2020-2021. Also that the management reactions to the COVID-19 pandemic to contain costs in 2020, in terms of reduction of headcounts, collective agreement and reduction of working hours for employees, would be reversed from 2022 in particular to cope with air traffic growth (more details provided in the additional information I.1. f of the performance plan).

The other MET service provider (as LGS is also providing MET services) and the NSA, both plan higher costs in 2024 than in 2019, +88.8%, or +0.2M€2017 and +5.1%; or +0.1M€2017, respectively.

Total en route service units are forecast to reach the 2019 level by 2023, following STATFOR October forecast (when considering the forecast applied by Latvia, 2019 traffic will be reached in 2024 by 95%), while en route costs are planned to reach the 2019 level in 2022.

4.3.4 PRB Key Points



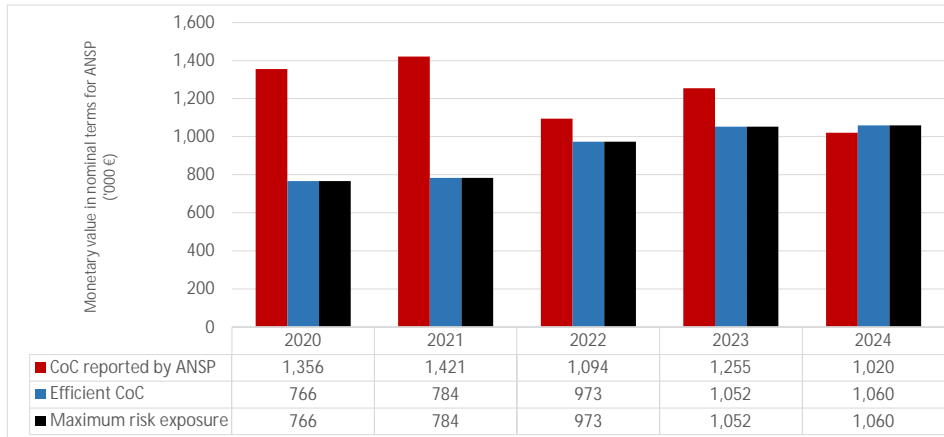
- There are no adjustments to the cost baselines. However, the baselines should be adjusted by the costs related to the NINTA-ADAXA to avoid double counting.
- Between 2019 and 2024, the total costs for LGS are planned to increase by +6.8% (or +1.4M€2017).
- Latvia indicates an increase in staff costs due to increases in salaries and to a new ATCO training program.
- In RP2, in terms of depreciation and cost of capital, airspace users have financed 10.9M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

4.3.A Cost of capital

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	17,419	17,821	22,119	23,919	24,097
Monetary value of Return on Equity	1,356	1,421	1,093	1,255	892
Ratio RoE/DC (%)	7.8%	8.0%	4.9%	5.2%	3.7%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	590	637	121	203	-40

Total 2020-2024
1,509

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	0.0%	n/a	6.6%	n/a	5.4%	n/a	5.4%	n/a	5.4%	n/a
Interest on debts	0.0%	n/a	0.0%	n/a	1.1%	n/a	1.1%	n/a	1.1%	n/a
Capital structure (% debt)	0.0%	n/a	0.0%	n/a	0.1%	n/a	0.1%	n/a	41.2%	n/a
WACC	6.6%	3.7%	6.6%	3.6%	5.4%	4.8%	5.4%	4.5%	3.6%	3.8%

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

- LGS is currently fully financed through equity. However, loan facilities are planned to be at their disposal as of 2022. Considering this, the interest rate is in line with competitive market practices for 2022-2024.
- The WACC reported in the performance plan has been calculated based on the CAPM. However, details of the model have not been provided.
- The efficient cost of capital has been computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 1.5M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 3.7% to 8%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	19,716	20,441	21,101	24,634	28,409
Net current assets	833	1,087	-796	-1,331	-258
Adjustments total assets	0	0	0	0	0
Total asset base	20,549	21,528	20,305	23,303	28,151

- The fixed asset base is planned to increase over RP3. This is partially in line with the increase in investments as detailed in section 3.5 of this document.
- The net current assets will turn negative as of 2022, but do not seem to present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to increase over RP3, this is due to the increase in the fixed asset base.

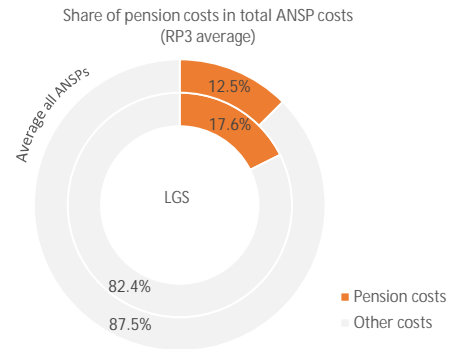
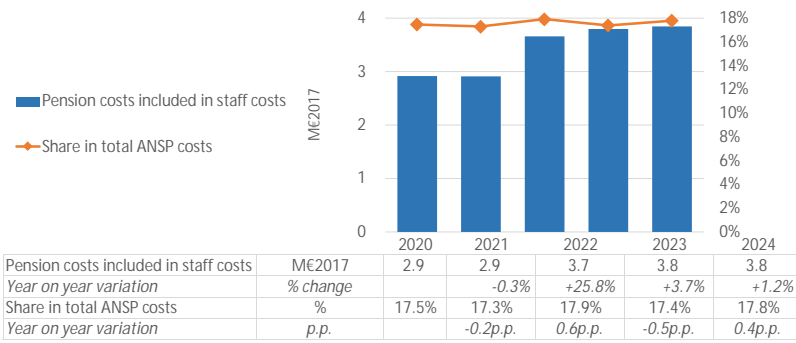
4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is slightly (1.5M€) above the efficient cost of capital.
- The monetary value of the return on equity is not commensurate to the total determined costs over RP3 (ranging between 3.7% to 8%).

4.3.B Pensions

LGS - En route

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? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the Union-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?	n/a
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

"Political decision, can not be controlled." Currently the State pension scheme applies to all employees, irrespective of their salary. Employer's contribution is 23.59%, whilst employee's contribution is 10.5% of their gross salary.

4.3.B.4 PRB Key Points

- The proportion of pension costs is above the Union-wide average.
- Only the State pension is reported, no specific risk management actions reported.

4.3.C Methodology for cost allocation between ER and TRM

Latvia

4.3.C.1 Cost allocation overview

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

- Latvia did not mention changing the cost allocation methodology with respect to RP2.
- Costs are directly allocated to the charging zone depending on the zone in which they incurred.
- Costs that incurred in both charging zones are allocated based on statistical criteria, such as kilometres flown in the area, number of flights, 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

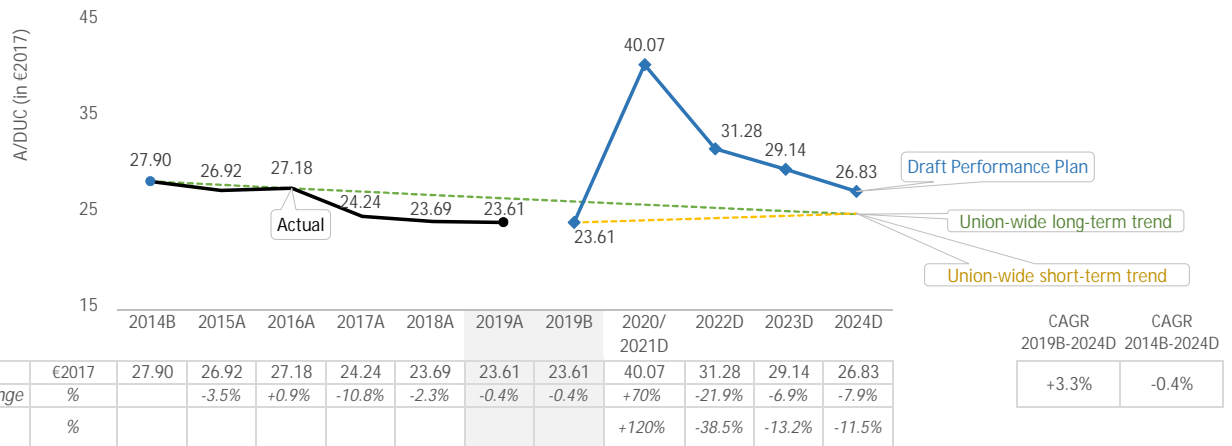


- Latvia did not mention changing the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

Latvia - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

✗ DUC consistency with the Union-wide RP3 DUC trend	Trend (CAGR 2019B-2024)	Performance Plan +3.3%	Union-wide +1.0%	Difference +2.3p.p.
✗ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	-0.4%	-1.3%	+0.9p.p.
✓ DUC level consistency	2019 baseline	Performance Plan 23.61	Average comparator group 28.51	Difference -17.2%

- The DUC is planned to increase on average by +3.3% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -0.4% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -17.2% lower than the average of the comparator 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

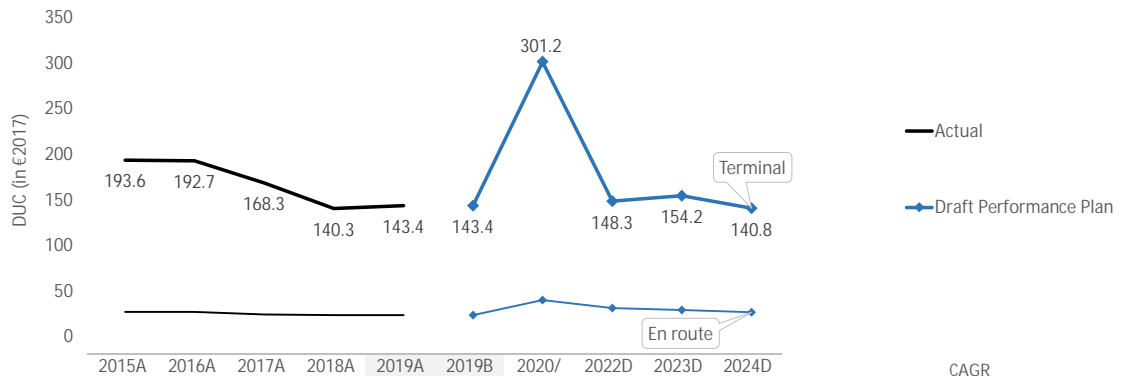
4.4.5 PRB Key Points

✗

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

4.5 Terminal

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal	€2017	193.6	192.7	168.3	140.3	143.4	143.4	301.2	148.3	154.2	140.8	-0.5%
Annual Change	%		-0.4%	-12.7%	-16.6%	+2.2%	+2.2%	+110%	-50.8%	+4.0%	-8.7%	
DUC - En route	€2017	26.9	27.2	24.2	23.7	23.6	23.6	40.1	31.3	29.1	26.8	+3.3%
Annual Change	%		+0.9%	-10.8%	-2.3%	-0.4%	-0.4%	+70%	-21.9%	-6.9%	-7.9%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Riga (EVRA)	GROUP IV	698.0	155.5	-77.7%	1002.2	170.4	-83.0%
Liepaja (EVLA)	GROUP IV	698.0	374917.8	+53615.0%	1002.2	4972.2	+394.1%
Ventspils (EVVA)	GROUP IV	698.0	9846.4	+1310.7%	1002.2	6532.5	+551.8%

* 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 $< 80,000$

All three airports composing the terminal charging zone are in the Group IV (below the 80,000 IFR movements threshold). Only Riga airport (EVRA) average DUC is planned to be below (-83.0%) the median DUC of the comparator over RP3, while for EVLA (4,972.2€) and EVVA (8,532.5€) the average DUC will be significantly above the median of the comparator group of airports.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

n/a

2019 baseline analysis

Both the 2019 baseline traffic and costs are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

Differently from en route, the selected forecast underpinning the proposed terminal ANS cost-efficiency targets for RP3 is in line with STATFOR October 2021 base forecast.

Determined costs (terminal)

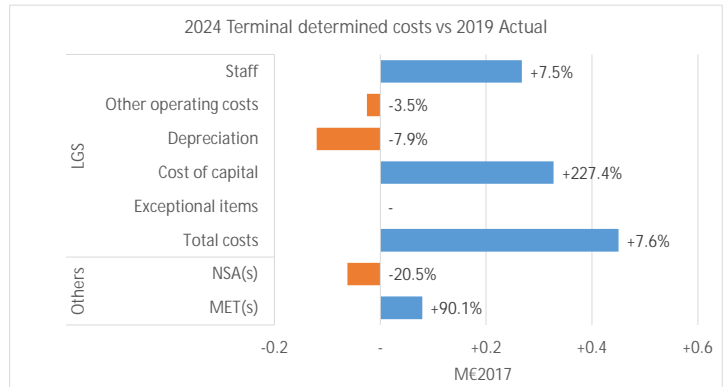
Is inflation in PP in line with IMF (April 2021 forecast)?	Deviation from index < 1 p.p. in 2024
Is inflation in PP in line with IMF (October 2021 forecast)?	No

Cost elements - LGS (terminal)

- ✓ Investments (see details in 3.5)
- ① Cost of capital
 - Interest on loans
 - RoE
 - WACC
- ① Pension costs

Incentives (terminal) (see details in 3.4)

Traffic risk sharing parameters modulated?	Yes
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



- The share of terminal investment costs (34%) is higher than the share of terminal total costs (24%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The share of terminal pension costs in total pensions costs (21%) is lower than the share of terminal costs in total determined costs (24%).
- Total costs in 2024 are planned to be (+7.4%, or +0.5M€2017) above the 2019 level. For LGS, the bulk of cost differences between 2019 and 2024 is related to higher staff costs (+7.5%, or +0.3M€2017), as for en route, and higher cost of capital (three times higher than in 2019, or +0.5M€2017). It is noted that the return on equity increased five fold between 2019 and 2020. On the other hand, depreciation costs are planned to be lower in 2024 than in 2019 (-7.9%, or -0.1M€2017). A detailed analysis of investments is provided in section 3.5 of this document.
- The selected forecast for terminal RP3 is in line with STATFOR October 2021 base forecast, whereas the en route forecast for RP3 differs from the STATFOR October 2021 base forecast.
- The terminal service units are forecast to reach the 2019 level by 2023 as for the terminal costs.

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 +3.3%.
- The terminal RP3 DUC trend is -0.5%, which is worse than the terminal RP2 DUC trend of -7.2%.
- Riga, the main airport, had a DUC -77.7% lower than the median of its comparator group over RP2. The difference is expected to be -83.0% over RP3.
- Latvia used the STATFOR October 2021 base forecast for terminal traffic. The terminal traffic forecast differs from the local approach used for en route.
- Terminal costs of LGS increase over the period, due to increases in staff costs and cost of capital.

PRB Assessment

LITHUANIA

Draft Performance Plan

Context and scope

Lithuania

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
 Updated: 17/11/2021
 Documents no: F4796, F4797, F4798, F4799, F4800, F4801

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 2.2%
 % Serv. Units vs SES 0.5%
 % Costs vs SES 0.3%

Scope

FAB: Baltic FAB

ANSPs: SE Oro Navigacija
 Lietuvos hidrometeorologijos tarnyba (Lithuanian Hydrometeorological Service, LHMS)
 Latvijas Gaisa Satiksme, LGS (Latvian ANSP)

Other entities (as per Article 1(2) last para. of Regulation 2019/317): EUROCONTROL
 Transporto kompetenciju agentūra (Transport Competence Agency)
 Latvia's Civil Aviation Agency

ATS, ASM, ATFM, CNS, AIS, SAR
 MET services
 ATM, ATS (FIS, Alerting, ATC), ATFM, CNS (COM, NAV, SUR), AIS, SAR

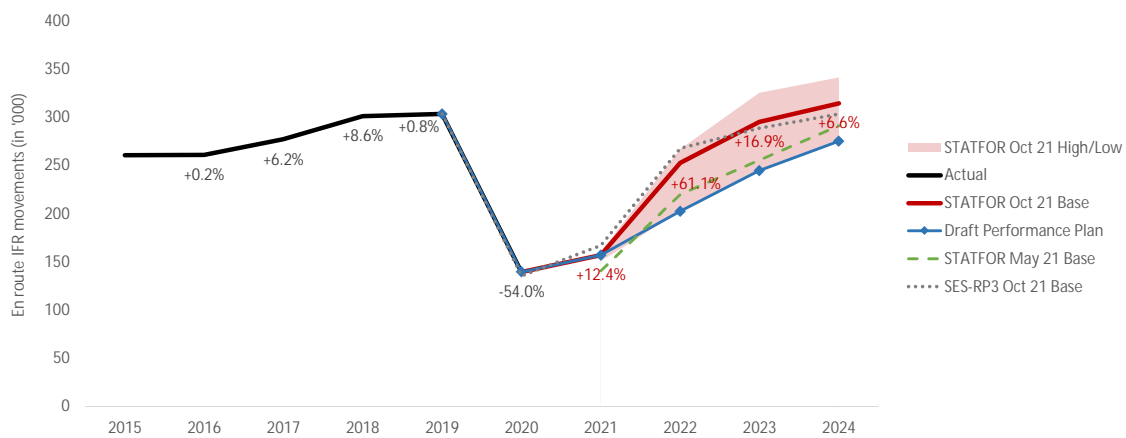
NM, CRCO
 National supervisory Authority/
 National Competent Authority
 National supervisory Authority/
 National Competent Authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP	
En route (ER)	Lithuania	n/a	No	No	No		
Terminal (TRM)	n/a	0	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 NINTA-ADAXA costs are presented in Lithuanian Annex A.							

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

Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



PRB assessment

Lithuania - Draft Performance Plan

1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
Oro Navigacija	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	B	C	C	C	C

PRB assessment

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.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.90%	1.93%	1.92%	1.92%	1.92%

PRB assessment

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

- Lithuania's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Lithuania did not achieve the 2021 target of 1.93% in its performance plan. For this reason, Lithuania has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Lithuania's performance may be affected by the geo-political situation in Eastern Europe.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.05	0.01	0.03	0.03	0.03
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.

- There is a discrepancy between capacity enhancement measures and planned capacity profiles, but the effect of capacity measures is expected to further increase capacity, thus this is not a capacity critical issue.
- There is a lack of clarity as regards the maximum bonus applicable: based on the information provided in the performance plan, bonuses are capped at 0.6%, as negative delays are not possible.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	50.51	44.40	41.02	37.52	-0.1%	-2.0%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	-

PRB assessment

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

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

5. PRB recommendations

SAFETY

- Lithuania should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

LITHUANIA

Safety KPA

1.1 Summary of safety key data and assessment results

Lithuania

1.1.1 Target for EoSM for ANSPs

The EoSM targets have been defined for each year of RP3.
The EoSM targets levels are set in accordance with the RP3 Union-wide safety targets.

1.1.2 Measures planned to reach the target (if applicable)

Considering current ANSP' safety level, the measures described in the performance plan are considered relevant and sufficient.

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

Oro Navigacija has established detailed change management procedure that is approved and registered by the NSA as required in Commission Implementing Regulation (EU) 2017/373. Considering the level of details provided in the performance plan, these practices are considered sufficient to control impacts on safety.

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.
- The measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Lithuania should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		<i>Actual</i>	Target	Target	Target	Target	Target		
Oro Navigacija	Safety policy and objectives	D	C	C	C	C	C	✓	
	Safety risk management	D	C	D	D	D	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	D	C	C	C	C	C	✓	
	Safety culture	C	B	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3. The EoSM targets levels are set in accordance with the RP3 Union-wide safety targets. Oro Navigacija attained or exceeded the RP3 target levels in 2020. Oro Navigacija should not decrease the safety level for safety culture over RP3.

The performance plan describes high level measures taken for a holistic upgrade of the safety management system. The measures are deployed in the area of safety policy, training, promotion. Considering current safety level, the measures are considered relevant and sufficient. Moreover, the NSA derived measures should be provided.

1.3 Interdependencies and Change management practices

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 Commission Implementing Regulation (EU) 2017/373 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

Oro Navigacija has established detailed change management procedure that is approved and registered by NSA-Transport Competence agency (TCA) as required per Commission Implementing Regulation (EU) 2017/373. In 2021 the change notification for aeronautical data management system – digitalization was received by TCA for the review and formally approved.

Considering the level of details provided in the performance plan, these practices are considered sufficient to control impacts on safety.

LITHUANIA

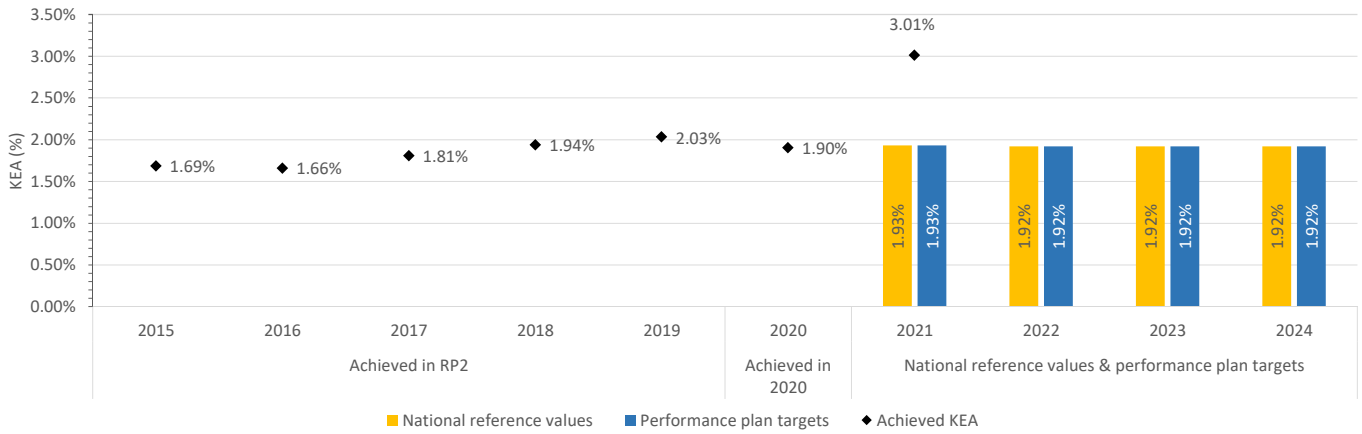
Environment KPA

2.1 Summary of 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
National reference values	1.90%	1.93%	1.92%	1.92%	1.92%
Performance plan targets	1.90%	1.93%	1.92%	1.92%	1.92%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Lithuania's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Lithuania did not achieve the 2021 target of 1.93% in its performance plan. For this reason, Lithuania has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Lithuania's performance may be effected by the geo-political situation in Eastern Europe.

2.2 Measures of Achievement

Lithuania

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
Lithuania implemented free route airspace (FRA) in 2015 and it currently operates between FL095 and FL660. Further cross-border extension of the FRA on a Baltic FAB level is planned in February 2022.			3.2.1(c)	Page 49
Major ERNIP Recommended Measures:		5	Reference in PP	Reference in ERNIP
Measure included within performance plan?				
PBN transition plan		✓	3.2.1(c)	Page 70
Lithuania airspace reconfiguration project		✓	3.2.1(c)	Page 124
Baltic FAB cross-border FRA		✓	3.2.1(c)	Page 174
Lithuania airspace reconfiguration project 2		✓	3.2.1(c)	Page 190
FAB DK-SE – Baltic FAB cross-border FRA		✓	3.2.1(c)	Page 203
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Lithuania achieved a KEA of 1.90% in 2020. In 2021, Lithuania reached a KEA of 3.01% which means it did not achieve the 2021 target of 1.93% in its performance plan.

Lithuania is uniquely affected by external influences, which have reflected in its horizontal en route flight efficiency (KEA) performance. Lithuania's horizontal flight efficiency has significantly deteriorated since June 2021 as a result of aircraft rerouting (to avoid Belarus airspace). In addition, Lithuania's performance is affected by the neighbouring Kalingrad flight information region (FIR) where the number of flights from and to the rest of Russia continues to grow. Without the stabilisation of this situation, it is likely that Lithuania will not achieve the targets for the years to come.

Lithuania has committed to several major ERNIP projects in its performance plan. It was explained that the KEA improvement could only be expected when cross-border FRA is implemented and when the geopolitical situation improves.

Given the high number of military activities undertaken in the country, it is also important that flexible use of airspace (FUA) is applied to the greatest extent. It is positive that Lithuania started utilising the local and sub-regional airspace management support system (LARA) system in 2018 and is engaging with Lithuanian military and 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?	✗
--	---

The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

LITHUANIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

Lithuania

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to the national reference values and are above than the range of the delay forecast during 2022-2024.

Lithuania is expected to have sufficient capacity to meet traffic demand in RP3.

There might be a minor inconsistency between capacity enhancement measures and planned capacity profiles, but the effect of capacity measures is expected to further increase capacity, thus this is not a capacity critical issue.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

n/a

3.1.3 Incentives

En route:

Latvia has chosen not to modulate pivot values, which are set equal to national reference values.

The dead band of 0.001 minutes may be too small to allow for minor variations in performance without triggering bonuses / penalties.

Maximum bonus is set at 1%, maximum penalty is 2%.

There is a minor lack of clarity as regards the maximum bonus applicable: based on the information provided in the performance plan, bonuses are capped at 0.6%, as negative delays are not possible.

Terminal: not applicable.

3.1.4 Investments

There is no capacity surplus/shortage in Lithuania during RP3.

There are no capacity enhancing investments planned for RP3, exposing Lithuania to capacity shortfall risk during RP4 and no investments are linked to PCP/CP1 ATM Functionalities.

Other investments contribute to resilience, scalability and flexibility.

3.1.5 PRB conclusions



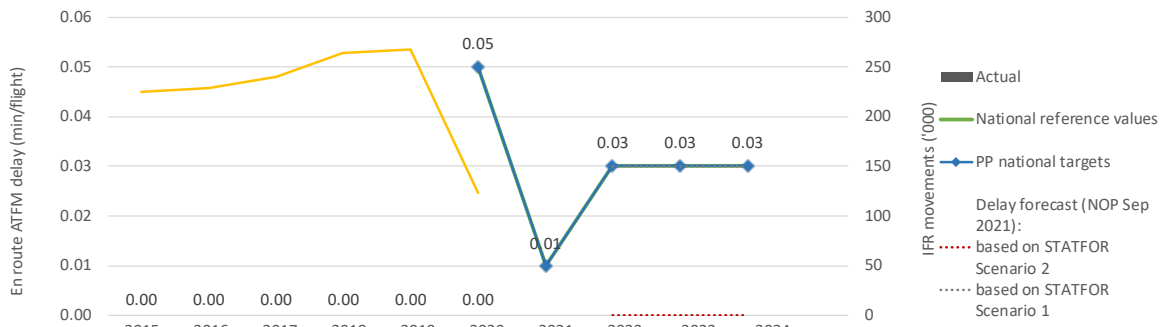
The PRB concludes that the capacity targets proposed by Lithuania should be approved.

- There is a discrepancy between capacity enhancement measures and planned capacity profiles, but the effect of capacity measures is expected to further increase capacity, thus this is not a capacity critical issue.

- There is a lack of clarity as regards the maximum bonus applicable: based on the information provided in the performance plan, bonuses are capped at 0.6%, as negative delays are not possible.

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
Traffic variation	+0%	+1.6%	+5.0%	+9.9%	+1.4%	-54.0%				
Actual delay/flight	0.00	0.00	0.00	0.00	0.00	0.00				
National reference values						0.05	0.01	0.03	0.03	0.03
PP national targets						0.05	0.01	0.03	0.03	0.03
Based on STATFOR Scenario 1							-	0.03	0.03	0.03
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures ⓘ

Assessment of capacity enhancement measures and review against NOP

During RP2, Lithuania experienced no capacity gaps, registering steadily zero ATFM en route delays.

Main measures put in place to achieve the target for en-route capacity are the following:

- Introduction of one additional sector in 2019,
- Re-evaluation of en route capacity, for each of sectors under Vilnius ACC control by using EUROCONTROL Airspace Model/CAPAN (2021) aiming at optimisation of the Vilnius ACC airspace,
- Deployment of new ATM system (iTEC version 2.1) in February 2021 including new OPS room,
- An improved cooperation between ATFM, ATM divisions and operational units (Vilnius ACC),
- Introduction of new ATCOs rostering system (2022).

None of the measures is listed in the current version of the NOP, which includes only gradual implementation of FRA within Baltic FAB and Slovakia (FAB CE) are included in the performance plan.

Planned number of ATCO FTEs show an increase of 20% compared to 2019 (7 FTEs). The gradual increase is planned between 2022-2023 to support anticipated traffic growth and operations of the new ATM system (iTEC) where two ATCOs are required at CWP during higher traffic levels compared to one with the current system. The measures are expected to support achievement of the performance targets.

ATCO Planning (FTEs)

	2018A	2019A	2020A	2021P	2022P	2023P	2024P
Vilnius ACC (EYVC)	Additional ATCOs in OPS to start working in the OPS room	0	1	1	2	3	5
	ATCOs in OPS to stop working in the OPS room	0	0	0	2	1	1
	ATCOs in OPS to be operational at year-end	34	35	36	36	38	42
Total - SE Oro Navigacija (en route)	Additional ATCOs in OPS to start working in the OPS room	0	1	1	2	3	5
	ATCOs in OPS to stop working in the OPS room	0	0	0	2	1	1
	ATCOs in OPS to be operational at year-end	34	35	36	36	38	42

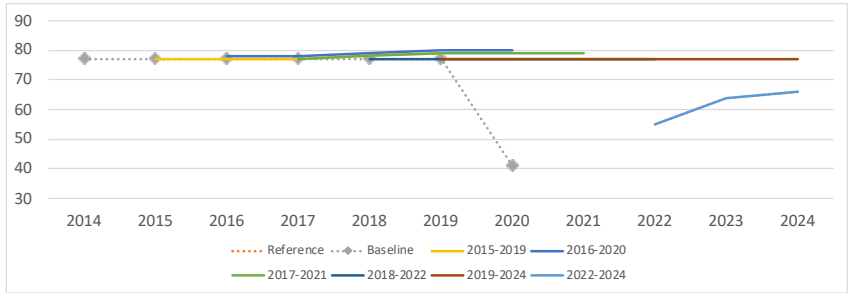
2024 (end) - 2020 (beg.)

+7

+7

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Vilnius ACC (EYVC)



- Historical data shows stable baseline values over RP2. Planned values were in line with the baseline values.
- Latest planned capacity profile shows an average annual growth of 9.5% and results in significantly lower values than in 2019. Planned values are following the reference profile: no capacity surplus or gap is foreseen in Vilnius ACC.
- There might be a minor inconsistency between the capacity enhancement measures and the capacity profiles, but since the effect of the measures is expected to further increase profiles and generate surplus capacity, this is not a capacity critical issue.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									55	64	66
Baseline	77	77	77	77	77	77	41				
2015-2019		77	77	77	78	79					
2016-2020			78	78	79	80					
2017-2021				77	78	79	79	79			
2018-2022					77	77	77	77	77		
2019-2024						77	77	77	77	77	77
2022-2024									55	64	66
Latest vs Reference									0%	0%	0%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events 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 national capacity targets are set equal to the national reference values, and are above than the range of the delay forecast during 2022-2024.
- Lithuania is expected to have sufficient capacity to meet traffic demand in RP3.
- There might be a minor inconsistency between capacity enhancement measures and planned capacity profiles, but the effect of capacity measures is expected to further increase capacity, thus this is not a capacity critical issue.

3.3. Arrival ATFM delay per flight - Not applicable

Lithuania

3.4 Capacity Incentive schemes

Lithuania

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.001 min	1.000%	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			0.03	0.03	0.03
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.03	0.03	0.03
Pivot values for RP3			0.03	0.03	0.03

Threshold and pivot value review

The pivot values are fixed at the national targets which are equal to the NOP reference values. A dead band of +/-0.001 minutes is applied, which is beyond the granularity of how delays are recorded on the performance scheme dashboard (+/- 0.01 minutes). This could result in penalties or bonuses being applied when the dashboard figure indicates that the performance targets were just achieved. Maximum penalty 2% of DC would be applicable at 0.08 minutes per flight, a maximum bonus of 1% DC is defined although this is theoretical since the graphical presentation shows that zero delay would only achieve approx. 0.6% bonus.

Modulation review

No modulation is applied

Review of financial advantages/disadvantages

The incentive scheme defines a maximum penalty of 2% DC and a maximum bonus of 1% DC although clarification is required on whether this is possible or not.

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:

- Latvia has chosen not to modulate pivot values, which are set equal to national reference values.
- The dead band of 0.001 minutes may be too small to allow for minor variations in performance without triggering bonuses / penalties.
- Maximum bonus is set at 1%, maximum penalty is 2%.
- There is a minor lack of clarity as regards the maximum bonus applicable: based on the information provided in the performance plan, bonuses are capped at 0.6%, as negative delays are not possible.

Terminal: not applicable.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	2.6	3.9	4.0	4.2	4.1	18.7
En route	M€ (nominal)	2.6	3.9	4.0	4.2	4.1	18.7
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 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	TRM
1	PSR-MSSR radar renewal in Vilnius	<i>PSR/MSSR radars replacement in all 3 aerodromes (Vilnius, Kaunas, Palanga) - due to ongoing sector crisis this initiative has been moved towards the end of RP3 period and will not impact costs before RP4. These radars are already old and will be serving more than 15 years, lately requiring more and more maintenance costs, some spare parts are not even available anymore. Also, there is an issue with national security as these were produced by Russian origin manufacturer and ON has a strict recommendation from local national security institutions to replace these radars as soon as possible. Project starts with Vilnius radar replacement, costs associated with other two will be felt fully in RP4. More details can be found in section 2.1 of the performance plan.</i>	3.5	No	No	0.0	0.0
2	WAM/ADS-B implementation	<i>Installation of this multisensory WAM system with ADS-B - adding additional layer of coverage at the frontier of European Single-Sky and enabling improved Network performance and interoperability increase employing space-based surveillance technologies.</i>	4.0	No	No	0.1	0.0
3	Aeronautical data management system - digitalization	<i>Aeronautical information and data digitalization initiative is aimed at complying with regulatory requirements for air navigation information data accessibility and sharing for all users, improving processes of information management and briefing services. Project involves investments into the creation of dynamic database for aeronautical data and briefing services digitalization.</i>	1.1	No	No	0.2	0.0
Total:						0.4	0.1

Airspace user feedback regarding major investments

Lithuania did not plan any new major investments above 5M€ for RP3, however they included three investments in the performance plan.

The airspace users expressed their concerns regarding the necessity of the new major investments and the lack of increase in efficiency, as the investments also result in an increase of the number of ATCOs.

Review of investments

New major investments represent 2% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 53% higher than the planned and the amount overspent was 12M€. Despite overspending in investments, in terms of depreciation and cost of capital, the actual costs related to investments were 1.7M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	PSR-MSSR radar renewal in Vilnius	Local	Safety, Cost-efficiency	Question on possible of life-time extension of current radars; as well question on necessity to implement investment No 2 (WAM/ADS-B implementation) if the radars are being replaced. Explanation was that necessity of replacement of radars directly impacts safety. Investment No2 (WAM/ADS-B implementation) would complement to new radars performance and ensure higher safety level. AUs stressed to an advanced cooperation with AUs on planned investments necessity.
2	WAM/ADS-B implementation	Network, Local	Safety, Cost-efficiency	Question on necessity of this investment if radars are going to be replaced; explanation was provided by ON to the quality of services and safety.
3	Aeronautical data management system - digitalization	Network, Local	Safety, Cost-efficiency	n/a

Additional information

PSR-MSSR radar renewal in Vilnius: Ensuring uninterrupted provision of services and safety standards. Radars have been demanding more and more spare parts replacements and repairs in recent years. The supplier is slow to react. New radars acquired through a transparent competitive and innovative procurement tender could potentially generate around -50% lower maintenance costs in upcoming years.

WAM/ADS-B implementation: Installation of multisensory WAM system will improve safety and quality of surveillance services (ensuring adequate coverage in controlled airspace) and ensure a reservation of existing equipment. Market consultations indicated that ADS-B functionality installation together with WAM multisensory system would result in cost-efficiency compared to implementing it in two different projects with a time-lag.

Aeronautical data management system – digitalization: It is not mandated by CP1, however it is an enabler for AF5 (SWIM), sub-family 5.3.1 – Aeronautical Information Exchange service.

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 RP3 (M€)
Other new investments	10.9	7.2	0.0	0.1	0.4	0.5	0.6	1.6
Existing investments			2.6	3.8	3.6	3.5	3.1	16.6

3.5.3 Review of investments contribution to capacity**a) Investments contribute to the rectification of identified capacity shortfalls?**

Vilnius ACC is expected to be able to deliver capacity in accordance with the reference values with 0% over/under capacity during RP3.

There are no major investments (< 5M€) reported as investments contributing to en route capacity. The investments related to surveillance capabilities (PSR/MSSR renewal and WAM/ADS-B implementation) mainly contribute to resilience and scalability. The Aeronautical data management digitalisation investment contributes to scalability and flexibility.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

There are no capacity enhancing investments during RP3. During RP2, an ATM-system upgrade was planned to be implemented in 2017 (Baltic FAB Performance Plan for RP2) and according to LSSIP Lithuania 2020 the system implementation was postponed to Q1 2020. According to the Baltic FAB website the commissioning took place after some delays in February 2021.

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

The reference capacity profile for Lithuania shows growth from 2022 to 2024, which can be delivered by the capacity enhancing measures taken during RP2 (the new iTEC ATM system deployed in 2021) but no surplus is achieved. As there are no capacity enhancing investments planned for RP3, a capacity shortage may be experienced during RP4.

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 53% higher than the planned and the amount overspent was 12M€. Despite overspending in investments, the actual costs related to investments were 1.7M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.
- There is no capacity surplus/shortage in Lithuania during RP3.
- There are no capacity enhancing investments planned for RP3, exposing Lithuania to capacity shortfall risk during RP4 and no investments are directly linked to PCP/CP1 ATM Functionalities.
- Other investments contribute to resilience, scalability and flexibility.

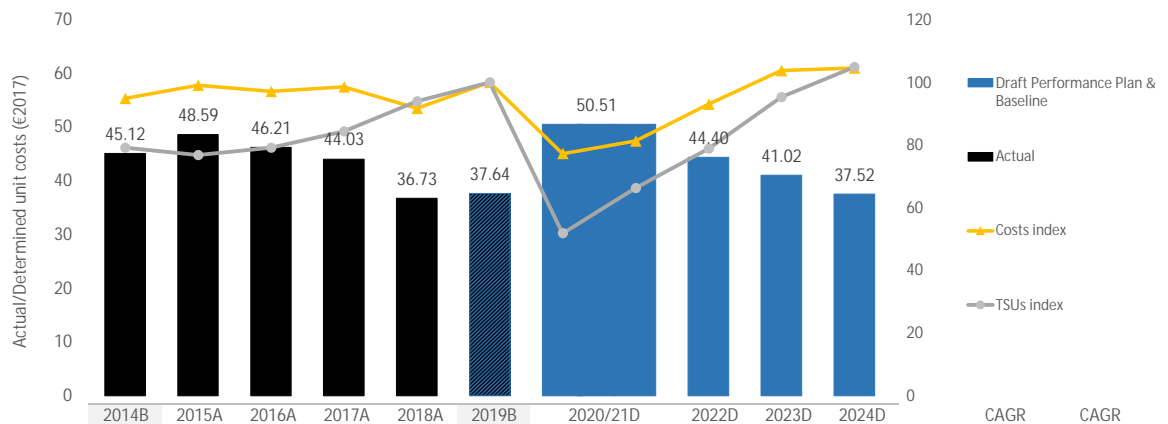
LITHUANIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Lithuania - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020/21D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	22	23	23	24	23	25	40	24	28	29	+3.5%	+1.5%
Total costs	M€ (2017)	23	24	23	24	22	24	38	22	25	25	+1.1%	+0.5%
TSU	'000	508	492	507	541	603	641	758	506	611	673	+1.2%	+0.5%
DUC	€ (2017)	45.12	48.59	46.21	44.03	36.73	37.64	50.51	44.40	41.02	37.52		
Exchange rate	€:€				1.000								
DUC	€ (2017)	45.12	48.59	46.21	44.03	36.73	37.64	50.51	44.40	41.02	37.52		
Annual change	%		+7.7%	-4.9%	-4.7%	-16.6%	+2.5%	+34%	-12.1%	-7.6%	-8.5%	-0.1%	-2.0%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 37.64 €2017 !

The adjustments to the 2019 traffic baseline (M2/M3 and delegation of segment NINTA-ADAXA from Latvia), as well as the adjustments to the 2019 cost baseline relating to the delegation of the segment NINTA-ADAXA seem well justified. However, the adjustments to the 2019 cost baseline relating to delayed investments are not deemed appropriate for the calculation of the 2019 baseline value. Excluding these adjustments would lower the baseline DUC to 36.62€2017.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? -0.1% ✓
 The DUC is planned to decrease on average by -0.1% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%). Excluding the adjustments to the 2019 cost baseline relating to delayed investments would result in a DUC increase on average by +0.6%, which is still consistent with the RP3 Union-wide trend.
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -2.0% ✓
 The DUC is planned to decrease by -2.0% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- c) DUC level (2019 baseline) lower than the average of comparator group (D) average (25.71 €2017)? +46.4% ✗
 The 2019 DUC level is +46.4% 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 ✓

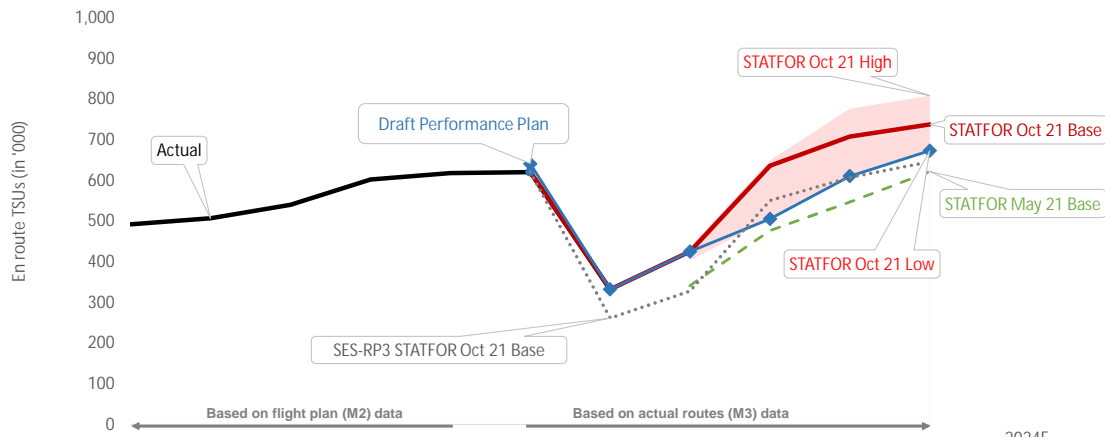
The PRB concludes that the cost-efficiency targets proposed by Lithuania should be approved.

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

4.2 Review traffic forecasts and baseline

Lithuania - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	492	507	541	603	619	621	333					
Annual change	%		+3.1%	+6.6%	+11.4%	+2.7%	+3.0%	-46.4%					
STATFOR Oct 21 Base	'000 TSUs								425	636	708	738	+18.9%
Annual change	%								+27.9%	+49.6%	+11.3%	+4.2%	
STATFOR May 21 Base	'000 TSUs								341	477	547	622	+0.2%
Annual change	%								+2.6%	+39.7%	+14.7%	+13.7%	
Performance Plan	'000 TSUs						641	333	425	506	611	673	+4.9%
Annual change	%						+6.4%	-48.1%	+27.9%	+19.0%	+20.8%	+10.1%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	641		2014B (PP baseline)	508	
2019A (as in the Reporting tables, M2)	619		2014A (as in the Reporting tables, M2)	487	
2019B/ 2019A	3.66%	+0.28%	2014B/ 2014A	4.17%	+0.28%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- Lithuania adjusted the 2014 and 2019 traffic baselines by the M2/M3 CRCO 12-month coefficient (+0.28%).
- Additionally, the 2014 and 2019 traffic baselines were adjusted by the number of service units performed on the route NINTA-ADAXA, previously (before 2020) presented under Latvia's charging zone.

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (+0.28%). The coefficient slightly increases the 2014 and 2019 traffic baselines while decreasing the DUC baselines. Additionally, the resulting traffic from Latvia's delegated services on part of the NINTA-ADAXA route (reported under Lithuania's Annex A of the performance plan from 2020) seems correct.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

Lithuania used STATFOR October 2021 base forecast for 2021, and STATFOR October 2021 low forecast for 2022-2024. Lithuania explained that the STATFOR October 2021 base forecast for the whole RP3 is too optimistic:

- The STATFOR October 2021 base forecast shows that already in 2022 the level of 2019 service units will be reached. The same trend is not visible for IFR movements. For Lithuania this trend is not fully explained by the historic values.
- For 2021, Lithuania applied STATFOR October 2021 base forecast, since the level of the traffic is still impacted by the diverted traffic from Belarussian airspace.

Review of the PP traffic forecast

Lithuania experienced a lower traffic decrease compared to other SES RP3 area States. The year to end of October traffic in 2021 was -33.4% lower than the traffic for the same period in 2019, while for the SES RP3 area States the number of service units was lower by -50.6%. The Lithuanian traffic in 2021 was affected by the "avoidance" of Belarussian airspace for European traffic, however it is difficult to predict to which extent this situation will be continued in the next years of RP3. Additionally the ratio of the SUs to IFR movements for RP3 is higher for the whole RP3 (2.35/2.71) than it was in RP2 (1.89/2.04).

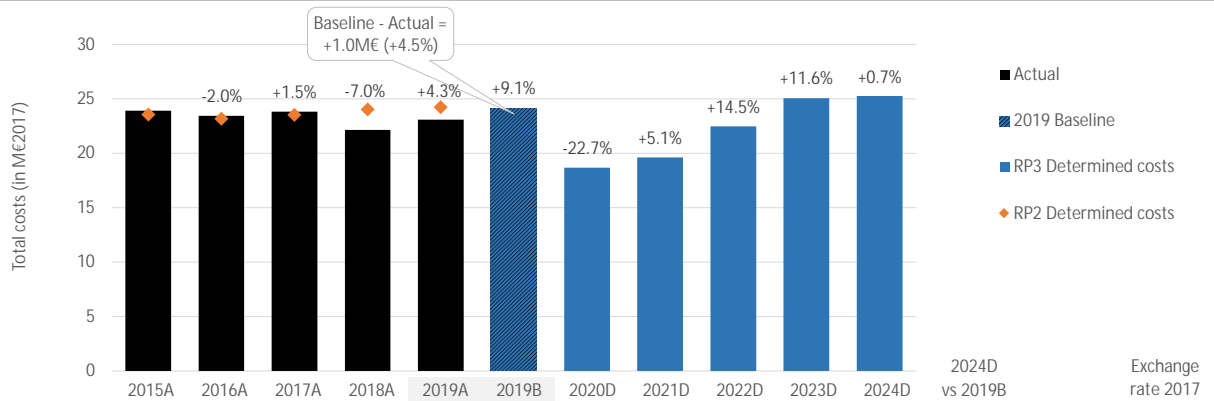
4.2.4 PRB Key Points

- Lithuania adjusted the 2014 and 2019 traffic baselines to take into account the NINTA-ADAXA service units.
- Lithuania's en route traffic is based on STATFOR October 2021 base scenario for 2021, and STATFOR October low scenario for the remaining years.

4.3 Review of determined costs and baseline

Lithuania - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	23	23	24	23	24	25	20	21	24	28	29	+14.6%
Annual change	%		-1.5%	+4.5%	-5.3%	+6.1%	+10.8%	-22.0%	+7.2%	+17.1%	+14.1%	+2.4%	+12.5%
Inflation index	2017 = 100	95.8	96.4	100.0	102.5	104.8	104.8	105.9	109.3	112.4	115.4	117.8	+4.6%
Total costs	M€ (2017)	24	23	24	22	23	24	19	20	22	25	25	+4.6%
Annual change	%		-2.0%	+1.5%	-7.0%	+4.3%	+9.1%	-22.7%	+5.1%	+14.5%	+11.6%	+0.7%	+4.6%
Total costs	M€ (2017)	24	23	24	22	23	24	19	20	22	25	25	+4.6%

Exchange rate 2017
€:€
1.00000

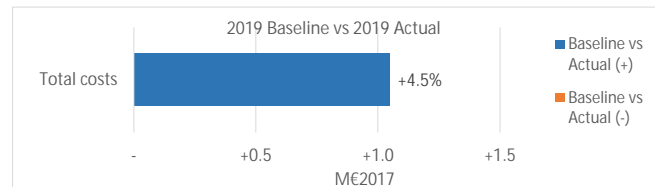
✘ Is inflation in PP in line with IMF (April 2021 forecast)?	No
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

- Lithuania applies the IMF inflation rates published by IMF June 2021 forecast.

- As explained in section 1.1.4 of the performance plan, Lithuania struggles with inflation pressure (salaries growth and strong inflation growth in commodities-markets). The forecast used is higher than IMF's May forecast and that would lead to an inflation index +3.74 p.p higher by the end of 2024.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0.0%
2019B vs 2019A	1.0	+4.5%



2014 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Latvia's delegated services on NINTA-ADAXA in Vilnius FIR costs	ANSP	n/a	+0.0
#2 - Latvia's delegated services on NINTA-ADAXA in Vilnius FIR costs	NSA/EUROCONTROL	n/a	+0.0

2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - New HQ and ATC building construction and commissioning delayed by 8 months	ANSP	Depreciation	+0.3
#2 - New ATM system (ITec) delivery, integration and commissioning	ANSP	Depreciation	+0.4
#3 - Service provision by LV entity on NINTA-ADAXA in Vilnius FIR in RP2	ANSP	n/a	+0.4
#4 - LV NSA activities costs re delegated services on NINTA-ADAXA	NSA/EUROCONTROL	n/a	+0.0

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- Both 2014 and 2019 traffic baselines were adjusted by the costs of delegated services of NINTA-ADAXA. As explained in the performance plan, from 2020 the costs of provision of services by LGS on the part of NINTA-ADAXA route (which is under the legal responsibility of Lithuania), are now included in Lithuania (more information in Annex A of the performance plan). To ensure the comparability of data, it was necessary to adjust the 2014 and 2019 baselines. The additional calculations are presented in Annex F of the performance plan.

- The 2019 cost baseline presents additional adjustments relating to the 2019 depreciation costs. The first relates to the commissioning of the new HQ and ATC building construction, which was delayed and realised in 2019 instead of at the end of 2018 (+0.3M€2017 to the 2019 baseline costs). The second relates to the new system (ITec) implemented in early 2021, instead of at the end of 2018 (+0.4M€2017 to 2019 baseline costs).

2014/2019 baseline analysis

- The NINTA-ADAXA adjustments increased the 2014 cost baseline by +400€2017, and 2019 cost baseline by +1.0M€2017. These adjustments seem justified.
- The actual depreciation costs in RP2 were -1.2M€ (-9.5%) lower than the determined depreciation costs in RP2. Moreover, the adjustments to the 2019 baseline do not seem justified, since they are not concerning a change of scope between reference periods. Excluding the depreciation adjustments from the 2019 baseline costs, the 2019 baseline costs would be lower by -0.7M€2017, and the baseline DUC would equal 36.6€2017.

4.3.3 Review of the RP3 determined costs and incentives

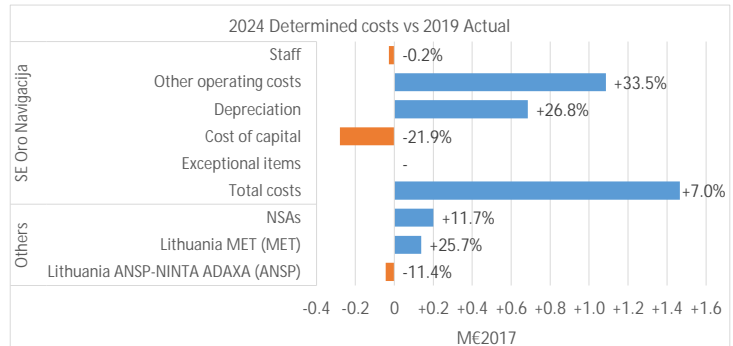
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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)	2.00%
Additional incentives?	No



The total costs of Lithuania are planned to increase by +9.3%, or 2.2M€2017, between 2019 actuals and planned 2024.

The total ANSP costs planned in 2024 are +7.0%, or 1.5M€2017, higher than the 2019 actuals, mainly due to higher other operating and depreciation costs.

- Staff costs remain stable during RP3. Based on the figures provided in the performance plan, Lithuania proposed to increase the level of ATCOs by seven FTEs comparing to 2019 level. SE Oro Navigacija postponed the increase of salaries to 2023 (+4%) and 2024 (+2%), the increase is very limited compared to the market conditions.

- The main explanation for the increase of the other operating costs (+33.5%) is a high inflation pressure, higher than any official inflation forecast, especially in the service segment. Lithuania also indicated that the post-warranty maintenance of ATM system is expected to be realised at the end of RP3 and other maintenance works that were postponed during first years of RP3. Additionally, intense pressure of the Lithuanian labour market is still visible, which results in rapid growth of salaries and in consequence also in the increase of costs of third parties' services. Lithuania also mentioned that the extension of the services provided (CPDLC/DLS) increase other operating costs (additional fees, licences, maintenance).

- The increase in depreciation costs by +26.8% as a result of the finalisation of delayed projects at the end of RP2/beginning of RP3 resulted in higher depreciation costs throughout RP3 compared to the actual depreciation costs in RP2.

MET costs increase by +25.7% and NSA costs increase by +11.7% mainly due to the labour market pressure and need for increase of the salaries level.

Total en route service units are forecasted to almost reach the 2019 level by 2023, while en route costs are planned to almost reach the 2019 level in 2022.

The cost of capital is calculated based on a RoE of 3%. After consultation with airspace users, Lithuania removed the cost of capital from SE Oro Navigacija for 2020 determined costs. Other cost cutting measures have been implemented in the cost base after the consultation meeting which, as explained in the performance plan, resulted in lower determined costs for RP3 (-2.5M€).

In its performance plan, Lithuania mentioned that from 2023, SE Oro Navigacija shall become a stock company. It may result in the reevaluation of the costs and equity during RP3 and a revision of the plan. No restructuring costs for this possible change were included in the performance plan.

4.3.4 PRB Key Points

- Lithuania includes corrections to the cost baselines due to the NINTA-ADAXA segment, and depreciation costs incurred in 2019. The latter do not seem justified.
- The costs of SE Oro Navigacija over the period increase, mostly due to an increase in other operating costs (+33.5%).
- Some cost cutting measures have been applied following the consultation meetings.

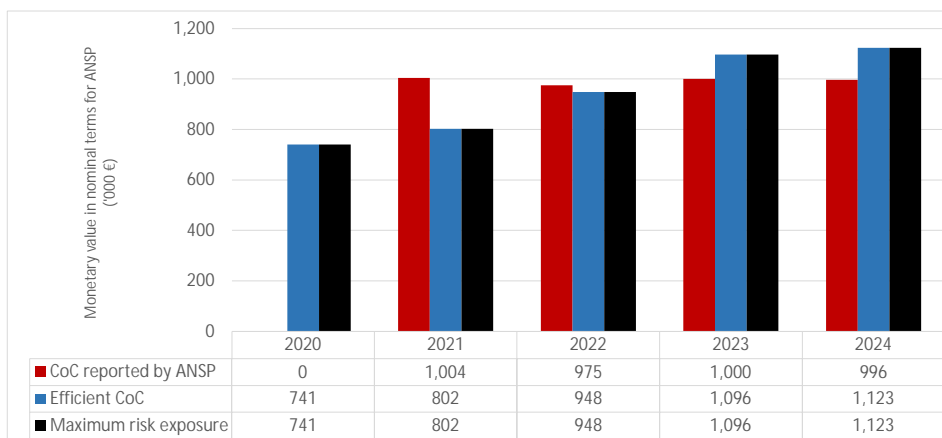
4.3.A Cost of capital

SE Oro Navigacija - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	16,832	18,238	21,543	24,914	25,532
Monetary value of Return on Equity	0	1,004	975	1,000	996
Ratio RoE/DC (%)	0.0%	5.5%	4.5%	4.0%	3.9%

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	3.0%	n/a	3.0%	n/a	3.0%	n/a	3.0%	n/a	3.0%	n/a
Interest on debts	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a
Capital structure (% debt)	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a	0.0%	n/a
WACC	0.0%	1.9%	3.0%	2.4%	3.0%	2.9%	3.0%	3.3%	3.0%	3.4%

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

- SE Oro Navigacija is fully financed through equity, thus no interest on debts is specified.
- SE Oro Navigacija decided to not include cost of capital in the cost base of 2020. Moreover, Lithuania will keep the pre-tax cost of capital rate at 3% although the Ministry of Transport requires a rate of 3.7%.
- The efficient cost of capital has been computed in line with the maximum risk exposure (based on option 4).
- The monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 0.0% and 5.5%).
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	34,867	30,297	29,073	29,374	29,125
Net current assets	4,318	3,177	3,443	3,970	4,085
Adjustments total assets	0	0	0	0	0
Total asset base	39,185	33,474	32,515	33,345	33,210

- The fixed asset base is planned to decrease over RP3. This is not in line with the investments described in section 3.5 of this document, which are planned to increase.
- The net current assets do not seem to present major issues.
- The regulated asset base does not include adjustments to the total asset base.
- The total asset base is planned to decrease over RP3, mainly driven by the decrease in the fixed asset base.

4.3.A.5 PRB Key Points

- The reported cost of capital does not present major issues.

4.3.B Pensions

SE Oro Navigacija - En route

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

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

SE Oro Navigacija has no pension costs for RP3. As explained in the performance plan, Lithuania has PAYG pension system scheme in which no contributions from the employer are required as all taxes for social insurance system are made from employees gross salary (this system has been reformed like that since 2019). Therefore all changes to the pension tax rates have no additional risk to costs associated with pensions. There are no information from the government on planned possible changes for the system in the foreseeable future.

4.3.B.4 PRB Key Points



- No major issues identified.

4.3.C Methodology for cost allocation between ER and TRM

Lithuania

4.3.C.1 Cost allocation overview

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

- Lithuania did not mention changing the cost allocation methodology with respect to RP2.
- Lithuania did not include a terminal charging zone in the performance plan.
- For each cost centre, the 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 fully to en route services, facilities and services that serve only terminal are allocated fully to terminal services, and for facilities that serve both en route and terminal, costs are allocated based on the proportion of number of flights.

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

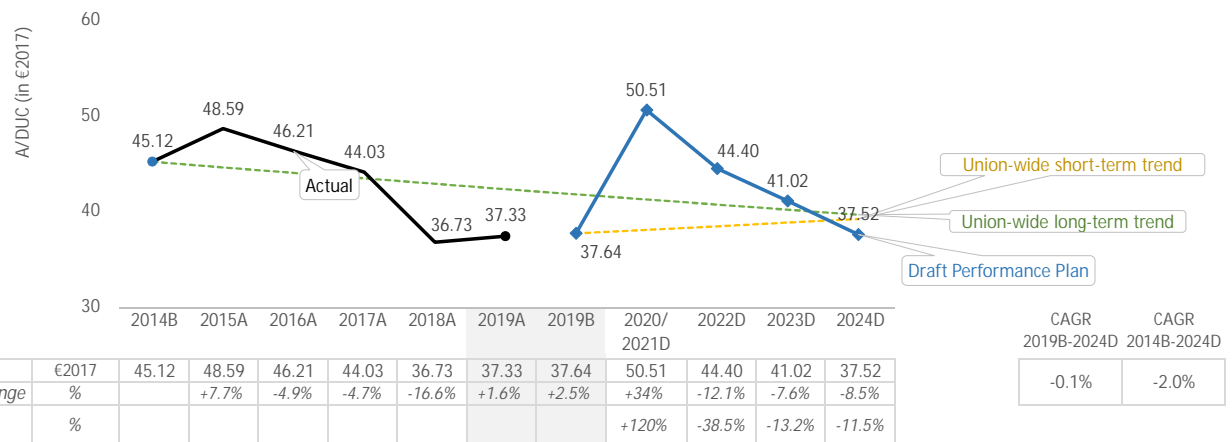


- Lithuania did not mention changing the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

Lithuania - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-0.1%	+1.0%	-1.1p.p.
Trend (CAGR 2014B-2024)	-2.0%	-1.3%	-0.7p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	37.64	25.71	+46.4%

- Lithuania adjusted the cost baselines, however some elements should not be included in the adjustments (4.3 of this document). Despite this, Lithuania would achieve the DUC trends also not including such adjustments.

- The DUC is planned to decrease on average by -0.1% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%). Excluding the adjustments on the 2019 cost baseline relating to delayed investments would result in a DUC increase on average by +0.6%, which is still consistent with the RP3 Union-wide trend.

- The DUC is planned to decrease by -2.0% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).

- The 2019 DUC level is +46.4% higher than the average of the comparator 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

✓

- Lithuania is consistent with the RP3 DUC trend in terms of average reduction.

- Lithuania is consistent with the DUC long-term Union-wide trend.

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

4.5 Terminal (not applicable)

Lithuania has not established any terminal charging zone for RP3.

PRB Assessment

MALTA

Draft Performance Plan

Context and scope

Malta

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021
 Updated: 01/02/2022
 Documents no: F5061, F4929, F4930, F4928

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 0.6%
 % Serv. Units vs SES 0.8%
 % Costs vs SES 0.4%

Scope

FAB: BLUE MED FAB

ANSPs: Malta Air Traffic Services Ltd.
 Malta International Airport Plc.

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

Air Navigation
 Malta Airport

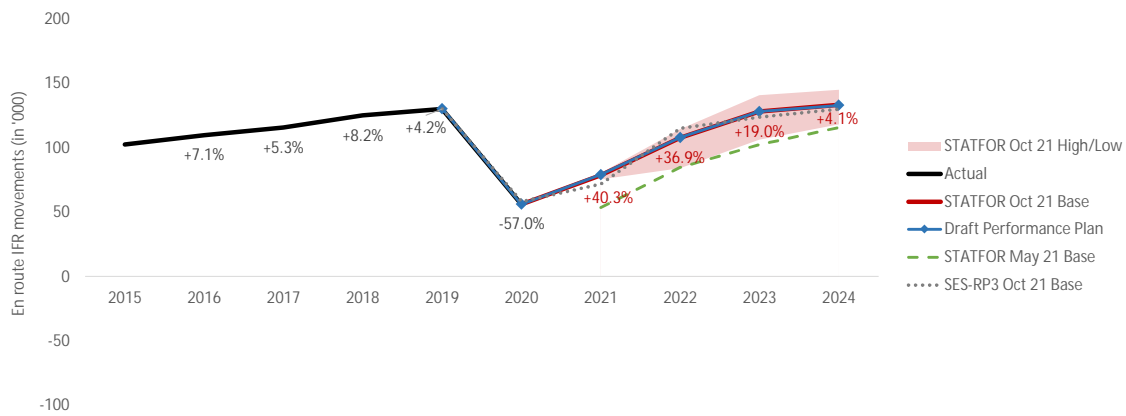
ANS

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Malta	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety ✓

Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
MATS	Safety policy and objectives	C	C	C	C	D
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	D
	Safety promotion	C	C	C	C	D
	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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment ✓

Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.46%	1.82%	1.80%	1.80%	1.80%

PRB assessment

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

- Malta's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Malta did not achieve the 2021 target of 1.82% in its performance plan. Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Malta has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity ✓

Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.02	0.01	0.01	0.01	0.01
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.00	0.01	0.01	0.01	0.01

PRB assessment

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

- 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 PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	44.08	31.85	24.83	24.85	+2.0%	+1.6%
Target for determined unit cost (DUC) (€2017) - Terminal	300.69	166.67	168.46	162.10	n/a	+4.3%

PRB assessment

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

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

5. PRB recommendations

ENVIRONMENT

- Malta should ensure it implements all relevant project outlined in the June 2021 ERNIP.

CAPACITY

- Malta should revise the incentive schemes so that they have a material impact on the revenues.
- Malta should ensure that the incentive scheme does not penalise the ANSP for a performance which is in line with the national targets.

COST-EFFICIENCY

- Malta should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
- Malta should consider in the RP3 cost base the 5M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- 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 Summary of safety key data and assessment results

Malta

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 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 performance plan lists measures in the context of "2020 Safety Performance Report". The measures are considered relevant and sufficient to maintain safety levels over RP3.

1.1.3 Interdependencies and Trade-offs

The 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

Malta applies specific change management, compliant with Commission Implementing Regulation (EU) 2017/373 for the major implementations.

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 are sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
MATS	Safety policy and objectives	C	C	C	C	C	D	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	D	✓	
	Safety promotion	C	C	C	C	C	D	✓	
	Safety culture	C	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. Malta needs to improve only safety risk management from level C to D. Malta could achieve the targets earlier than in 2024.

The performance plan lists various measures in the context of "2020 Safety Performance Report", the measures include:

- updates to improve the risk management derived from barrier model (Bow-Tie methodology);
- human resource support in the area of cyber security which has direct impact on the safety risk landscape
- training for the risk assessors in this area and enrolling them on NEASOG /SAFOPS.
- specific training on risk assessing in the context of change management according to Commission Implementing Regulation (EU) 2017/373.

The measures are considered relevant and sufficient to maintain safety levels over RP3.

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 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. The NSA reviews the levels of resources required for safety activities via the audit and inspections.

1.3.2 Change Management Practices

The major changes in Malta: Contingency Operational room, deployment of ADS-B coverage in the entire Malta FIR, and modernisation of ground-ground communication infrastructure are accompanied with specific change management procedures compliant with Commission Implementing Regulation (EU) 2017/373.

MALTA

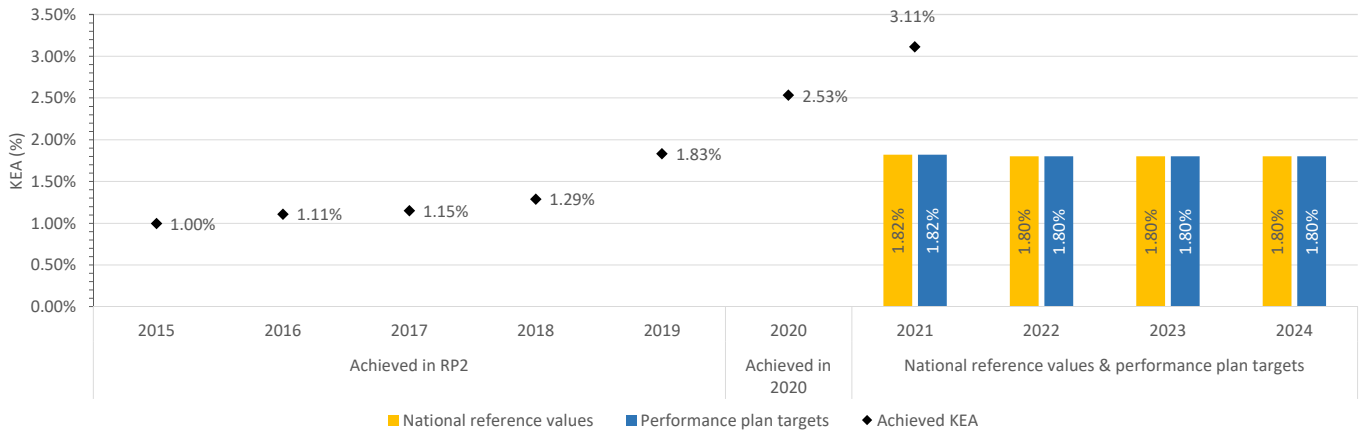
Environment KPA

2.1 Summary of 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
National reference values	1.46%	1.82%	1.80%	1.80%	1.80%
Performance plan targets	1.46%	1.82%	1.80%	1.80%	1.80%
Comparison of draft performance targets with reference values	n/a	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Malta's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Malta did not achieve the 2021 target of 1.82% in its performance plan. Due to insufficient environmental performance in past years and lack of measures introduced to achieve RP3 targets, Malta has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Malta should ensure it implements all relevant project outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
Free route airspace (FRA) from FL305 to FL660 was introduced in the Malta flight information region (FIR) in December 2016, however the ATS route network was retained. Full free route airspace (FRA) above FL195 is planned for 2022.			3.2.1(c)	Page 46
Major ERNIP Recommended Measures:		3	Reference in PP	Reference in ERNIP
Measure included within performance plan?			3.2.1(c)	Page 152
Free route airspace Malta – phase 3c		✓	3.2.1(c)	Page 200
INTRAC phase 2		✓	n/a	Page 220
CB FRA operations		✗		
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Malta achieved a KEA of 2.53% in 2020. In 2021, Malta reached a KEA of 3.11% which means it did not achieve the 2021 target of 1.82% in its performance plan.

Malta's horizontal en route flight efficiency (KEA) has been significantly deteriorating since 2015, which indicates that introduction of free route airspace (FRA) and significantly lower traffic due to the pandemic did not affect this trend. Considering the historical KEA data, it seems that Malta may not achieve the targets for the rest of RP3.

Malta committed to two main initiatives to improve KEA performance; lowering the FRA limits to FL195 and designing new terminal manoeuvring area (TMA), arrival and departure procedures. However, Malta did not commit to cross-border FRA (CB FRA) with Italy which has the potential to further improve the environmental performance. It is important that this project is implemented as recommended in the ERNIP.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Malta plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

MALTA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The capacity targets proposed by Malta are set equal to the national reference values and are marginally above the range of the delay forecast, which is zero minutes. Capacity plans indicate that Malta will have sufficient capacity to accommodate the forecasted traffic demand.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Malta airport is the only airport included in the performance plan. The national targets is set considerably lower than in RP2. Historical performance on average has been in line with RP3 targets.

The performance at Malta airport is expected to be in line with that of the group of similar airports.

3.1.3 Incentives

En route:

Malta has chosen to modulate the pivot values and set them at 0.00 minutes per flight for all years, lower than the national targets (0.01 minutes per flight).

No bonus is possible and maximum penalty is set at 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.

Terminal:

Malta has chosen to modulate the pivot values and set them at 0.00 minutes per flight for all years, lower than the national target (0.01 minutes per flight).

No bonus is possible and maximum penalty is set at 0.25%.

The ANSP would incur maximum penalty if the national performance targets would be met.

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

Malta did not plan any new major investments for RP3.

The actual CAPEX for RP2 was 40% of the planned values for the same period and the amount underspent was 16.7M€.

There is no capacity surplus/shortage in Malta during RP3.

There are no capacity enhancing investments planned for RP3.

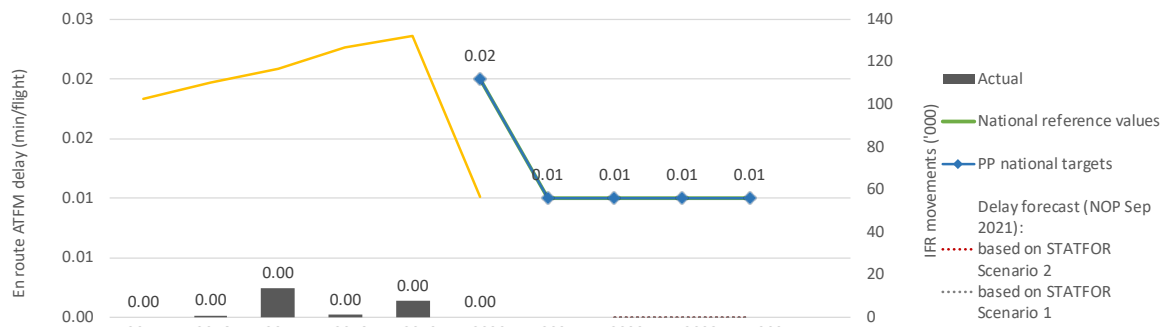
3.1.5 PRB conclusions

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

- The incentive schemes defined in the draft performance plan do not have a material impact on the revenue at risk.
- Malta should revise the incentive schemes so that they have a material impact on the revenues.
- Malta should ensure that the incentive scheme does not penalise the ANSP for a performance which is in line with the national targets.

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
Traffic variation	+1%	+7.4%	+5.8%	+8.4%	+4.5%	-57.2%				
Actual delay/flight	0.00	0.00	0.00	0.00	0.00	0.00				
National reference values						0.02	0.01	0.01	0.01	0.01
PP national targets						0.02	0.01	0.01	0.01	0.01
Based on STATFOR Scenario 1							-	0.00	0	0.00
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Malta experienced no capacity gap or constraints, registering zero or near-to-zero (2017 and 2019) minutes of average en route ATFM delays and meeting the capacity targets well below the planned values. The performance plan does not explicitly indicate the source of traffic forecast although the data, which has been filled in manually is equal to the STATFOR Base October 2021 forecast values.

The performance plan explicitly identifies the full FRA implementation project (above FL305) as the only capacity enhancement measure. The provided measure is line with current NOP. The plan includes CPDLC in other main investment section, which could be considered a capacity enabler as well.

The planned number of ATCOs in OPS FTEs shows an increase of 6 (16%) compared to 2019, which is planned to be realised in 2022. The performance plans refers to an additional 5-5 ATCO recruits in 2022 and 2024, who will be assigned to TWR positions.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Malta ACC (LMMM)	Additional ATCOs in OPS to start working in the OPS room	0	2	0	1	10	0	0
	ATCOs in OPS to stop working in the OPS room	2	1	2	1	1	1	0
	ATCOs in OPS to be operational at year-end	31	32	30	30	39	38	38
Total - Malta Air Traffic Services Ltd. (en route)	Additional ATCOs in OPS to start working in the OPS room	0	2	0	1	10	0	0
	ATCOs in OPS to stop working in the OPS room	2	1	2	1	1	1	0
	ATCOs in OPS to be operational at year-end	31	32	30	30	39	38	38

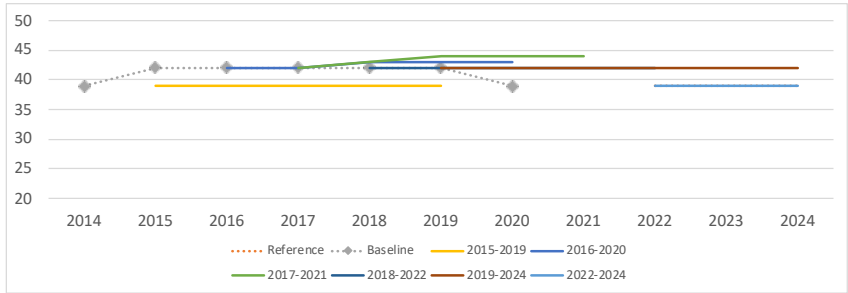
2024 (end) -
2020 (beg.)

+6

+6

3.2.3 Review of previous and existing capacity profile plans per ACC 4

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 profiles show no increase over the period, in line with the reference profile, and resulting in slightly lower values than those of 2019.
- 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									39	39	39
Baseline	39	42	42	42	42	42	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
2022-2024									39	39	39
Latest vs Reference									0%	0%	0%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

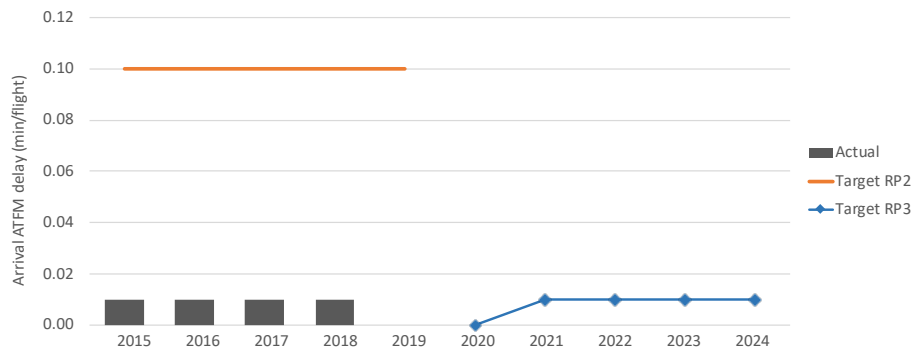
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- The capacity targets proposed by Malta are set equal to the national reference values and are marginally above the range of the delay forecast, which is zero minutes.
- Capacity plans indicate that Malta will have sufficient capacity to accommodate the forecasted traffic demand.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



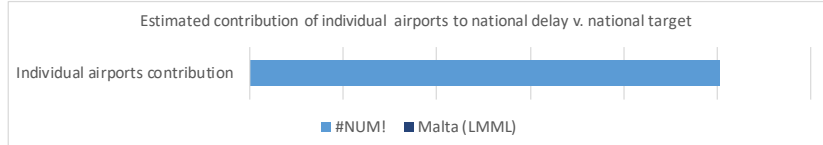
	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.01	0.01	0.01	0.01
	Actual	0.01	0.01	0.01	0.01	0.00	0.00	-	-	-	-
Malta (LMML)	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00

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

National airport arrival ATFM delay targets are set at zero for 2020 and a constant 0.01 minutes per flight for the remaining years, considerably lower than in RP2, and in line with the average past performance observed in RP2. Malta airport is the only airport included in the performance plan and the traffic forecast indicates a -0.1% CAGR over the 2019-2024 period. Malta is expected to achieve the national targets for average airport arrival ATFM delay.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Malta (LMML)	0.00
National Target	0.01



Malta airport is the only airport included in the performance plan and no delays are expected by the airport breakdown, which is considered to be consistent with the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Malta (LMML)	GROUP IV	0.00	0.01	+0.01	0.00	-0.01

* 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 performance observed in the past at Malta airport was in line with the median performance of the group of similar airports. The proposed targets for RP3 are in line with past performance, and are expected to be in line with the performance of similar airports.

3.3.5 PRB Key Points

- Malta airport is the only airport included in the performance plan. The national targets is set considerably lower than in RP2. Historical performance on average has been in line with RP3 targets.
- The performance at Malta airport is expected to be in line with that of the group of similar airports.

3.4 Capacity Incentive schemes

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?	Select

	2020	2021	2022	2023	2024
NOP reference values			0.01	0.01	0.01
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.01	0.01	0.01
Pivot values for RP3			0.00	0.00	0.00

Threshold and pivot value review

The pivot value is modulated and set at 0 minutes, with a dead band of +/- 0.05 minutes, effectively resulting in an asymmetric threshold.

Modulation review

The pivot value is modulated and set at 0.00 minutes per flight for all years.

Review of financial advantages/disadvantages

No bonuses are possible and the maximum penalty is set at 0.5% of determined costs. Maximum penalty is applied when delays reach 0.05 minutes per flight, five times the national performance targets, meaning that most likely no penalties will be incurred during RP3.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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?	Select

	2020	2021	2022	2023	2024
Bonus/penalty range Δ (in fraction of min)			±0.010	±0.010	±0.010
Performance Plan targets			0.01	0.01	0.01
Pivot values for RP3			0.00	0.00	0.00

Threshold and pivot value review

Pivot values are set at 0 minutes per flight for all years, with a dead band of +/- 0.01 minutes per flight, effectively resulting in an asymmetric dead band.

Modulation review

The pivot value is modulated and set at 0.00 minutes per flight for all years.

Review of financial advantages/disadvantages

No bonuses are possible and the maximum penalty is set at 0.25% of determined costs. Maximum penalty is incurred at 0.01 minutes per flight, which means that the ANSP would incur maximum penalties when achieving the national performance targets.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

En route:

- Malta has chosen to modulate the pivot values and set them at 0.00 minutes per flight for all years, lower than the national targets (0.01 minutes per flight).
- No bonus is possible and maximum penalty is set at 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.

Terminal:

- Malta has chosen to modulate the pivot values and set them at 0.00 minutes per flight for all years, lower than the national target (0.01 minutes per flight).
- No bonus is possible and maximum penalty is set at 0.25%.
- The ANSP would incur maximum penalty if the national performance targets would be met.
- 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 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	3.6	3.9	4.3	4.4	4.7	20.9
	En route	2.8	3.2	3.4	3.6	3.7	16.7
	Terminal	0.8	0.8	0.8	0.9	0.9	4.2

* 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 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	TRM
Total:						0.0	0.0

Airspace user feedback regarding major investments

MATS noted that planned capital projects were suspended due to the lack of revenue generated by the decrease in traffic due to the suspension of air travel (COVID-19). The airspace users commented on the suspension of the investments. Malta noted the comments of the airspace users and committed to trying to find a cheaper solution to expand the outdated infrastructure, extension of the technical, equipment rooms and of the VCR.

Review of investments

No new major investments were included in the performance plan. The actual CAPEX for RP2 was 40% of the planned values for the same period and the amount underspent was 16.7M€. In terms of depreciation and cost of capital, the airspace users have financed 5M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 RP3 (M€)
Other new investments	8.3	8.3	0.1	0.5	0.4	0.1	0.3	1.3
Existing investments			3.5	3.5	3.9	4.3	4.4	19.6

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	AGDL Datalink	1.9	1.9	0.0	0.2	0.1	0.0	0.0	0.3	Cost of Capital at 4.8% + depreciation at applicable rates.
2	Others (miscellaneous)	4.5	4.5	0.1	0.3	0.2	0.1	0.3	1.0	same as above

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? n/a
- Malta ACC is expected to be able to deliver capacity in accordance with the reference values with 0% over/under capacity during RP3.
- There are no new major investment defined for RP3 in Malta contributing to capacity. MATS notes that due to the COVID-19 pandemic, MATS has suspended all capital projects. LSSIP Malta 2016 notes that a system upgrade was performed in 2017 and LSSIP Malta 2020 does not identify any FDPS/SDPS related projects as being planned.
- The AGDL Datalink investment defined in the other (non-major) investments can be considered a capacity enabler in the longer term and also contributes to scalability and flexibility.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? n/a
- Not applicable.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? n/a
- As Malta ACC is able to deliver the required capacity during RP3 there is no urgent need for capacity enhancing investments. However, to ensure sufficient capacity is available beyond RP3 monitoring of the situation is required.

3.5.4 PRB Key Points

- Malta did not plan any new major investments for RP3.
- The actual CAPEX for RP2 was 40% of the planned values for the same period and the amount underspent was 16.7M€.
- There is no capacity surplus/shortage in Malta during RP3.
- There are no capacity enhancing investments planned for RP3.

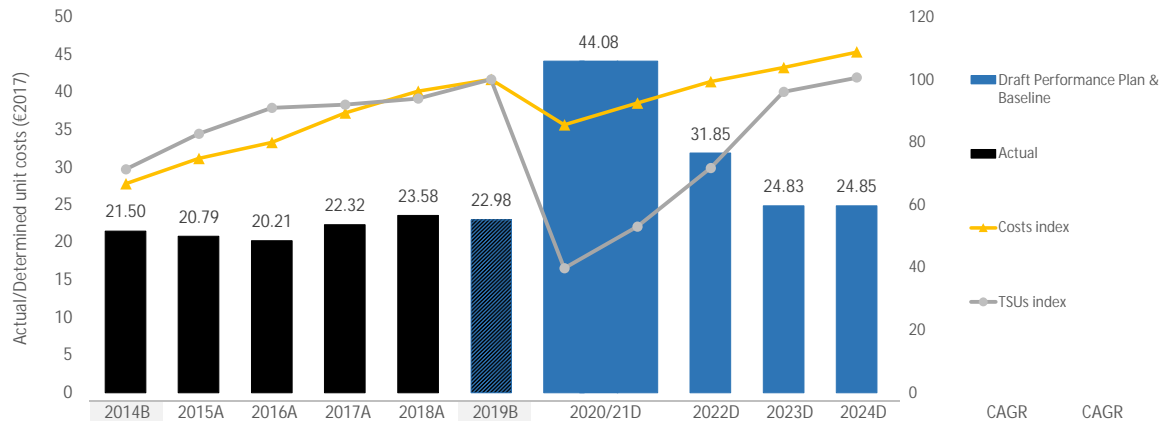
MALTA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Malta - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020/21D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	M€ (nom)	15	17	18	20	22	23	42	24	25	27	+3.4%	+1.5%
Total costs	M€ (2017)	15	17	18	20	22	23	41	23	24	25	+2.1%	+0.9%
TSU	'000	711	823	905	916	935	996	924	714	957	1,002	+0.1%	+0.1%
DUC	€ (2017)	21.50	20.79	20.21	22.32	23.58	22.98	44.08	31.85	24.83	24.85		
Exchange rate	€:€				1.000								
DUC	€ (2017)	21.50	20.79	20.21	22.32	23.58	22.98	44.08	31.85	24.83	24.85		
Annual change	%		-3.3%	-2.8%	+10.4%	+5.6%	-2.5%	+92%	-27.7%	-22.1%	+0.1%	+2.0%	+1.6%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 22.98 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? +2.0% ✗

The DUC is planned to increase on average by +2.0% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).

b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? +1.6% ✗

The DUC is planned to increase on average by +1.6% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).

c) DUC level (2019 baseline) lower than the average of comparator group (D) average (28.64 €2017)? -19.7% ✓

The 2019 DUC level is -19.7% lower 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 Malta should not be approved.

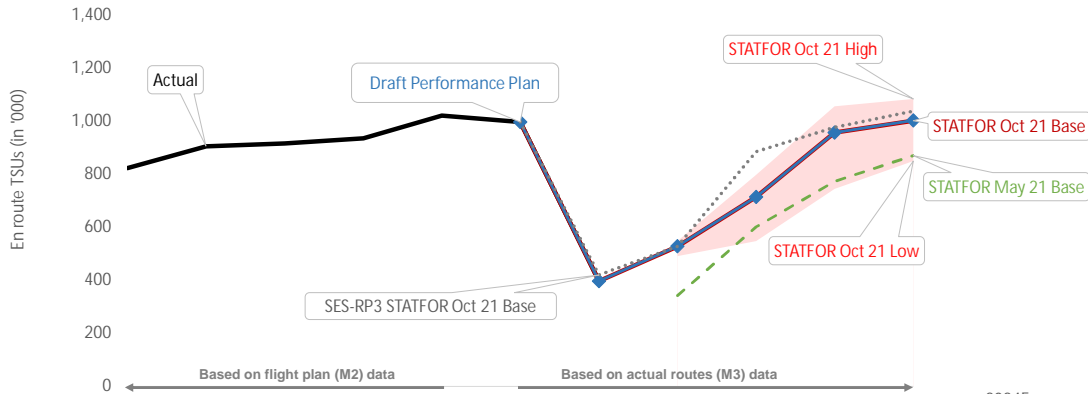
- Malta is not consistent with the RP3 DUC trend in terms of average reduction.
- Malta is not consistent with the long-term Union-wide DUC trend.
- Malta is consistent with the average DUC baseline of the comparator group.

- Malta should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
- Malta should consider in the RP3 cost base the 5M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- 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.

4.2 Review traffic forecasts and baseline

Malta - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	823	905	916	935	1,020	996	396					
Annual change	%		+10.0%	+1.2%	+2.0%	+9.1%	+6.6%	-60.3%					
STATFOR Oct 21 Base	'000 TSUs								528	714	957	1,002	+0.5%
Annual change	%								+33.3%	+35.2%	+34.1%	+4.7%	
STATFOR May 21 Base	'000 TSUs								342	601	773	870	-12.7%
Annual change	%								-13.7%	+75.9%	+28.6%	+12.5%	
Performance Plan	'000 TSUs						996	396	528	714	957	1,002	+0.6%
Annual change	%						+6.6%	-60.3%	+33.3%	+35.2%	+34.0%	+4.7%	

4.2.2 Traffic baseline review

Year	'000 TSUs	CRCO 12-month coefficient	Year	'000 TSUs	CRCO 12-month coefficient
2019	996		2014	711	
2019B (PP baseline, M3)	996		2014B (PP baseline)	711	
2019A (as in the Reporting tables, M2)	1,020		2014A (as in the Reporting tables, M2)	727	
2019B/ 2019A	-2.31%	-2.31%	2014B/ 2014A	-2.31%	-2.31%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-2.31%).

Review of 2014 and 2019 traffic baseline
 The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-2.31%). The coefficient decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
 n/a

Review of the PP traffic forecast
 The en route traffic forecast presented in the performance plan of Malta is in line with the STATFOR October 2021 base scenario. According to this scenario, traffic in Malta should return to its 2019 levels by the end of RP3.

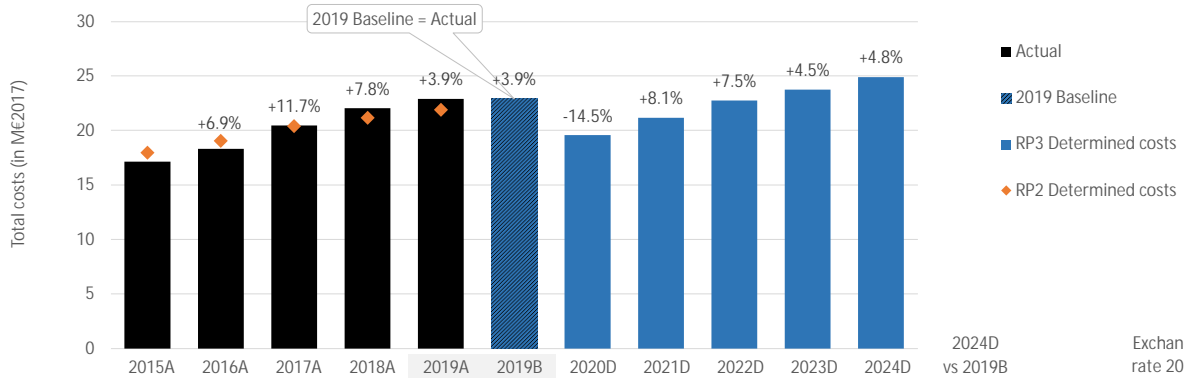
4.2.4 PRB Key Points

- En route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Malta - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D
Total costs	M€ (nom)	17	18	20	22	23	23	20	22	24	25	27
Annual change	%		+7.6%	+12.8%	+9.2%	+5.0%	+5.0%	-14.1%	+8.6%	+8.9%	+6.0%	+6.4%
Inflation index	2017 = 100	97.8	98.7	100.0	101.7	103.2	103.2	104.1	104.8	106.7	108.8	111.0
Total costs	M€ (2017)	17	18	20	22	23	23	20	21	23	24	25
Annual change	%		+6.9%	+11.7%	+7.8%	+3.9%	+3.9%	-14.5%	+8.1%	+7.5%	+4.5%	+4.8%
Total costs	M€ (2017)	17	18	20	22	23	23	20	21	23	24	25

2024D vs 2019B: +14.5%
 Exchange rate 2017: €:€ 1.00000

- Is inflation in PP in line with IMF (April 2021 forecast)? Deviation from index < 1p.p. in 2024
- Is inflation in PP in line with IMF (October 2021 forecast)? Deviation from index < 1p.p. in 2024

The inflation assumptions differ from the IMF inflation forecast published in October for the period 2021-2024. However, the impact of this discrepancy on the 2021-2024 DUC is marginal.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 No adjustments applied to the 2014 or 2019 cost baselines.

2014/2019 baseline analysis

The 2014 and 2019 cost baselines are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

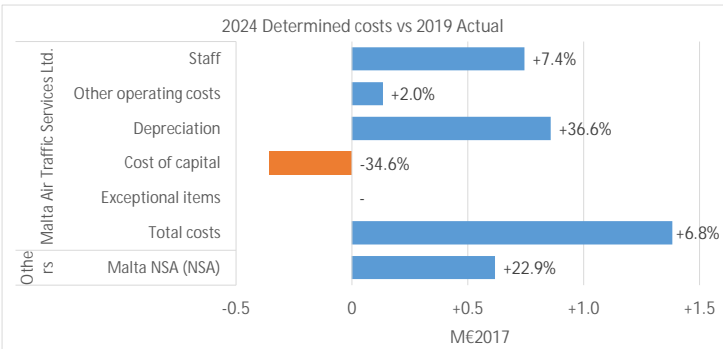
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



The total en route costs for Malta are expected to increase by +8.7%, or 2.0M€2017, between 2019 actuals and planned 2024.

The main contributor to this increase is MATS, for which total determined costs are expected to grow steadily over the RP3. After an initial reduction over the 2020-2021 period, MATS costs are expected to exceed the 2019 levels in 2023 and to end up at +6.8% (+1.4M€2017) in 2024.

- Staff costs are expected to increase over RP3 and to reach +7.4% (+0.7M€2017) in 2024 compared to 2019. According to the information provided in the additional information of the performance plan (Appendix 1) the expected increase is required to fulfil the recruitment plan (i.e. recruitment of ATCOs, technical specialists, managers and administrative staff). Furthermore, after two years without any salary increase, an increase in wages is expected as of 2023.
- Other operating costs are expected to increase towards the end of the reference period (+2.0% in 2024 vs 2019) as a result of “*various new regulatory and competency requirements*” (i.e. insurance premiums).
- Depreciation costs are expected to increase significantly over RP3 (+36.6% or +0.9M€2017 in 2024 compared to 2019). The re-starting of the CAPEX programme after the 2020-2021 suspension is expected to result in a significant increase in the NBV of fixed assets and higher depreciation costs.
- 2024 cost of capital is expected to be -34.6% lower than in 2019. This significant reduction results from the application of a substantially lower RoE (from about 8.0% in RP2 to 4.0% in RP3).

The NSA costs are also planned to increase between 2019 and 2024 (+22.9%).

En route service units are forecasted to reach 2019 levels by the end of RP3, while en route costs are planned to exceed the 2019 actual level in 2023.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for MATS are planned to increase by +6.8% (or +1.4M€2017).
- All cost categories of the ANSP are planned to increase, with the only exception of the cost of capital due to a reduction in the RoE.
- In RP2, in terms of depreciation and cost of capital, airspace users have financed 5M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

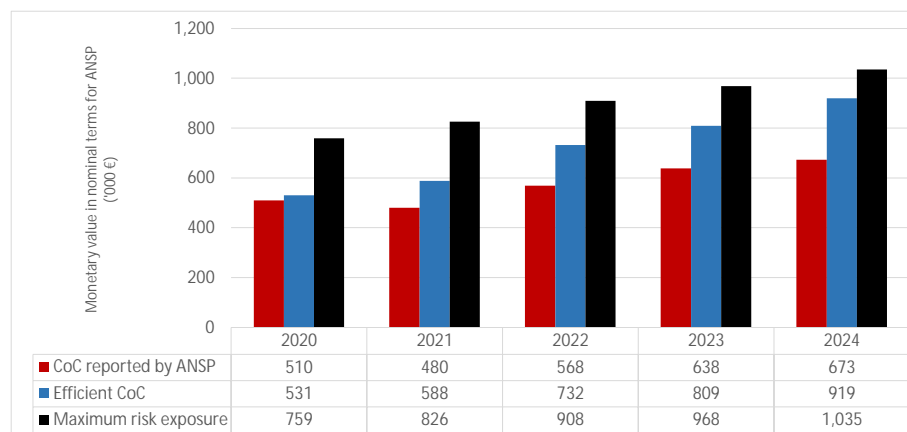
4.3.A Cost of capital

Malta Air Traffic Services Ltd. - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	17,253	18,775	20,647	22,001	23,533
Monetary value of Return on Equity	495	470	564	638	673
Ratio RoE/DC (%)	2.9%	2.5%	2.7%	2.9%	2.9%

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	5.0%	6.1%	4.0%	6.0%	4.0%	6.4%	4.0%	6.3%	4.0%	6.8%
Interest on debts	1.6%	1.2%	1.6%	1.5%	1.6%	1.9%	0.0%	2.0%	0.0%	2.1%
Capital structure (% debt)	8.8%	25.6%	5.0%	28.8%	2.0%	29.3%	0.0%	29.1%	0.0%	29.1%
WACC	4.7%	4.9%	3.9%	4.7%	3.9%	5.1%	4.0%	5.1%	4.0%	5.5%

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

- MATS received a loan from Eurocontrol, which will be reimbursed by 2023. MATS don't expect to have other loans during RP3 and will be 100% financed through equity from 2023 onwards. 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 are duly justified and in line with competitive market practices.
- The shareholders accepted the reduced return on equity reported in the performance plan to be fixed at 4.0% for all years in RP3, as requested by the government. The efficient WACC has been calculated based on option 1.
- The embedded return on equity over RP3 varies from a minimum of 2.5% to a maximum of 2.9%. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	8,657	10,466	12,288	12,894	13,433
Net current assets	2,260	1,971	2,195	3,058	3,400
Adjustments total assets	0	0	0	0	0
Total asset base	10,917	12,436	14,483	15,953	16,833

- The fixed asset base is planned to increase over RP3. This is partially in line with the more moderate increase in investments as detailed in section 3.5 of this document.
- The net current assets do not seem to 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 both the fixed asset base and the net current assets.

4.3.A.5 PRB Key Points



- The reported cost of capital does not present major issues.

4.3.B Pensions

Malta Air Traffic Services Ltd. - En route

4.3.B.1	Review of en route pension costs for the main ANSP (data from en route reporting tables)	n/a
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4.3.B.2	Reporting exceptions and planned changes in assumptions	n/a
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4.3.B.3	Actions taken by the ANSP to manage the cost-risk associated with pensions	
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According to the information provided in the performance plan, pensions are paid by the State and no provisions have been made in the performance plan.

4.3.B.4	PRB Key Points	
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- 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 Methodology for cost allocation between ER and TRM

Malta

4.3.C.1 Cost allocation overview

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

- Malta did not change the cost allocation methodology with respect to RP2.
- Costs are allocated between the en route and terminal charging zones based 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. Salaries are allocated according to the ratings of the ATCOs and according to the equipment maintained in the case of technical grades. When the split is not straight forward, the percentage of movements according to flight hours for overflights and terminal is used. Rent is allocated depending on the equipment used on site.

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

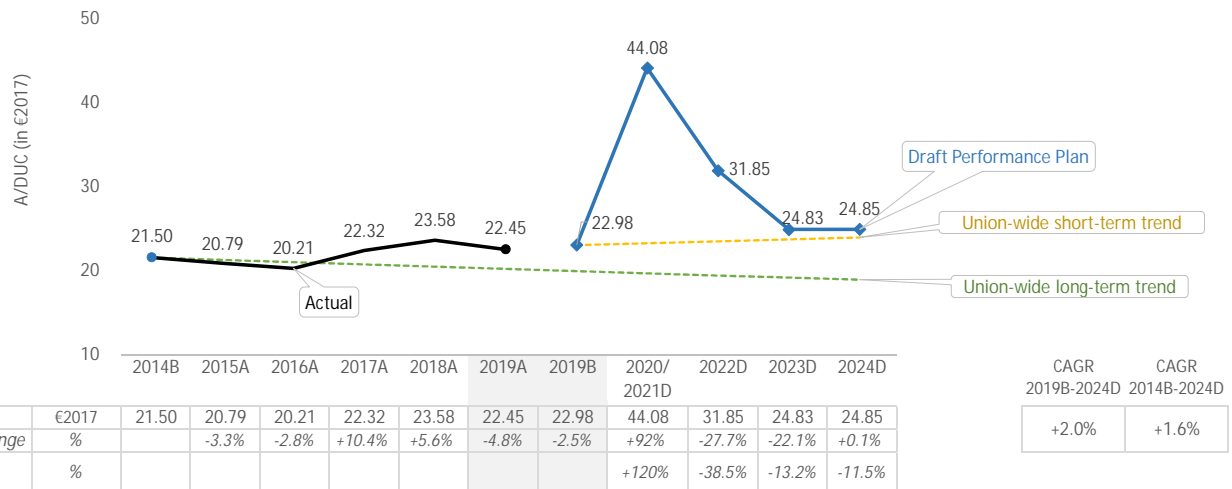


- Malta did not change the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

Malta - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

✗ DUC consistency with the Union-wide RP3 DUC trend

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+2.0%	+1.0%	+1.0p.p.

✗ DUC consistency with the Union-wide long-term DUC trend

	Performance Plan	Union-wide	Difference
Trend (CAGR 2014B-2024)	+1.6%	-1.3%	+2.9p.p.

✓ DUC level consistency

	Performance Plan	Average comparator group	Difference
2019 baseline	22.98	28.64	-19.7%

- The DUC is planned to increase on average by +2.0% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +1.6% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -19.7% lower than the average of the comparator 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

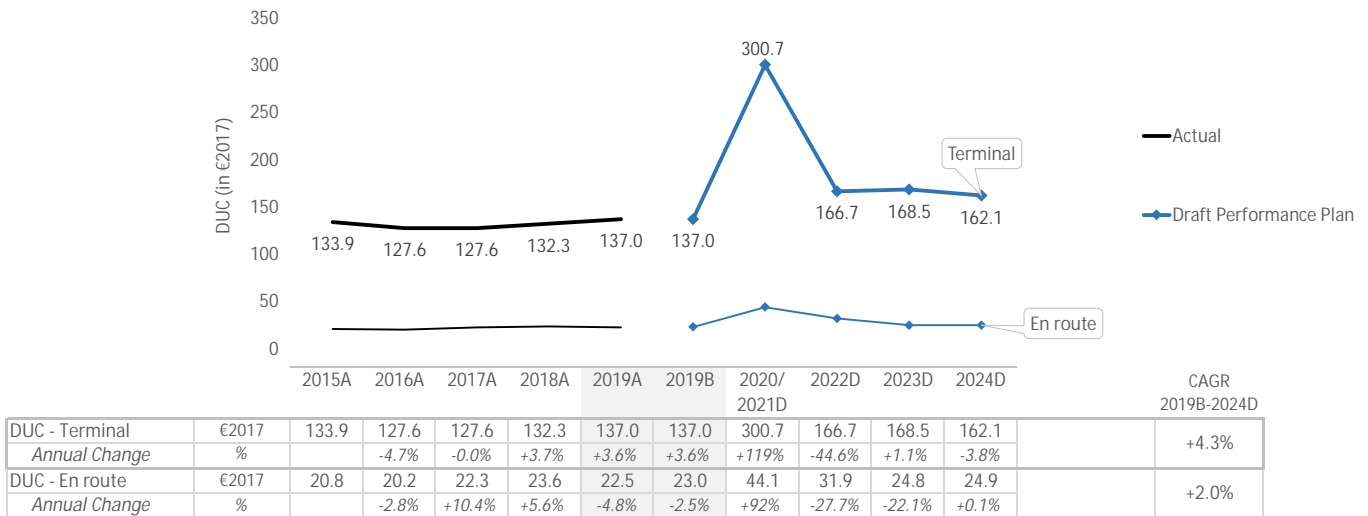
4.4.5 PRB Key Points

✗

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

4.5 Terminal

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Malta (LMML)	GROUP IV	669.6	131.7	-80.3%	970.5	191.3	-80.3%

* 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 $< 80,000$

Malta TCZ includes only Malta airport. The average DUC over RP3 for this airport is well below (-80.3%) the median DUC of the airports included in the same group (over both RP2 and RP3).

The DUC evolution for Malta TCZ follows a +4.3% increasing trend between 2019 and 2024, which is worse than the +2.0% CAGR trend shown at en route level.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

n/a

2019 baseline analysis

Both the 2019 traffic and cost baselines are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Malta is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

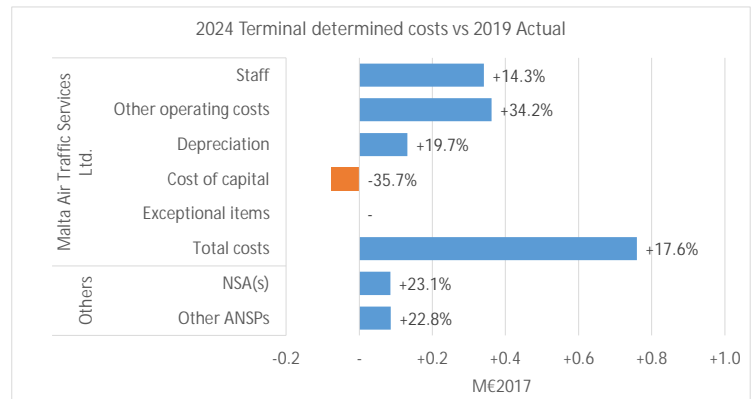
Is inflation in PP in line with IMF (April 2021 forecast)?	Deviation from index < 1p.p. in 2024
Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

Cost elements - Malta Air Traffic Services Ltd. (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)	0.25%
Additional incentives?	No



- The share of terminal investment costs (20%) is equal to the share of terminal total costs (20%).
- Terminal WACC and its parameters are equivalent to the ones for en route for the whole period.
- The terminal DUC trend over RP3 planned for Malta TCZ (+4.3% p.a.) is higher than the one planned for en route (+2.0% p.a.).
- The 2024 determined costs for Malta TCZ are expected to increase by +18.4% above the 2019 level. As far as MATS is concerned (+17.6% or +0.8M€2017 in 2024 vs 2019), the increase in costs over RP3 is explained by higher staff and non-staff operating costs (respectively +14.3% and +34.2% in 2024). As for en route, it is understood that these increases result from the implementation of the recruitment plan as well as higher costs for external services.
- Terminal service units are not expected to recover to 2019 levels before 2024 while terminal costs are planned to reach the 2019 actual level already in 2021.

4.5.4 PRB Key Points

- The terminal RP3 DUC trend is +4.3%, which is worse than the en route RP3 DUC trend of +2.0%.
- The terminal RP3 DUC trend is +4.3%, which is worse than the terminal RP2 DUC trend of +0.6%.
- Malta airport, the only airport included in the performance plan, had a DUC -80.3% lower than the average of its comparator group over RP2. The difference is expected to remain -80.3% over RP3.
- Malta applies the STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs for MATS are planned to increase by +17.6% over the period, +0.8M€2017.

PRB Assessment

NORWAY

Draft Performance Plan

Context and scope

Norway

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 23/02/2022
 Documents no: F4783, F5166, F5167, F4793, F4781, F4782, F4785, F4786, F4787, F4791, F4792, F4789, F4790, F5165

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 2.6%
 % Serv. Units vs SES 2.0%
 % Costs vs SES 2.3%

Scope

FAB: _____ NEFAB _____

ANSPs: _____ Avinor Flysikring AS (Avinor ANS)
 Avinor AS
 Saerco (Kjevik ANSP)
 The Norwegian Meteorological Institute (MET)

En-Route ATS
 Terminal ATS
 En-Route ATS
 En-Route ATS, Terminal ATS

Other entities (as per Article 1(2) last para. of Regulation 2019/317): _____ EUROCONTROL
 The Civil Aviation Authority of Norway (CAA-N)

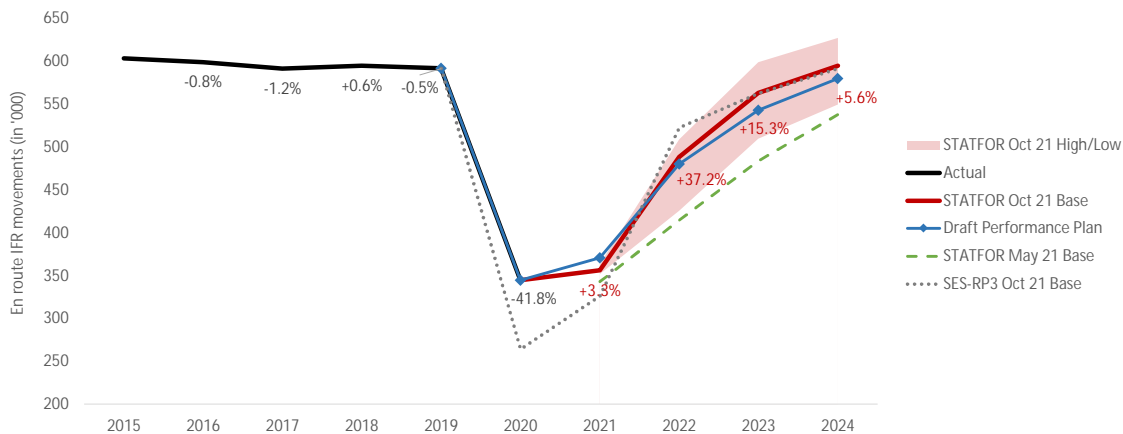
NM, CRCO
 National regulator

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Norway	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



PRB assessment

Norway - Draft Performance Plan

1. Safety 

Safety PP 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 consistent with the Union-wide performance targets.
- The PRB recognises that relevant ANSP measures are described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The PRB notes that a formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The PRB notes that the change management practices comply with current regulations. The practices ensure that any negative impact on network performance is reduced.

2. Environment 


Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.43%	1.55%	1.55%	1.55%	1.55%

PRB assessment

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

- Norway's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity 

Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.08	0.06	0.08	0.11	0.11
National target for <u>terminal</u> 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.

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

4. Cost-efficiency 

Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	84.59	58.67	52.10	49.29	-3.0%	-1.4%
Target for determined unit cost (DUC) (€2017) - Terminal	302.34	196.29	173.37	164.70	n/a	+0.3%

PRB assessment

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

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

5. PRB recommendations

SAFETY

- Norway should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Norway should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

COST-EFFICIENCY

- Norway should report the real WACC parameters instead of notional WACC parameters.
- Norway should clarify the inconsistency in the cost allocation methodology.

NORWAY

Safety KPA

1.1 Summary of safety key data and assessment results

Norway

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 RP3 Union-wide safety targets, were either met or exceeded already in 2020.

1.1.2 Measures planned to reach the target (if applicable)

Considering that ANSP is already at safety target levels, the measures put in place ensuring maintaining the safety levels to the end of RP3 are considered relevant and adequate. Specific NSA derived measures should be provided.

1.1.3 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

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 relevant ANSP measures are described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices comply with current regulations. The practices ensure that any negative impact on network performance is reduced.
- Norway should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Norway

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
Avinor	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	D	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	D	C	C	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, were either met or exceeded already in 2020.

The 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 management.

The measures are considered relevant for the ANSP. Some NSA derived measures should be provided.

1.3 Interdependencies and Change management practices

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 based on the iTEC alliance, will be coordinated with network manager in order to assure minimal negative impact on network performance

NORWAY

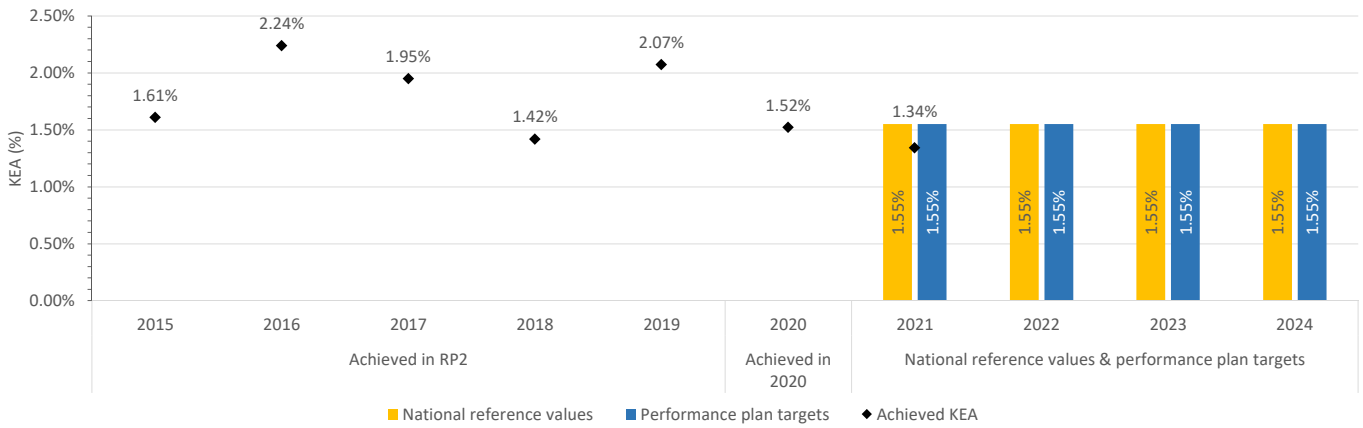
Environment KPA

2.1 Summary of 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
National reference values	1.43%	1.55%	1.55%	1.55%	1.55%
Performance plan targets	1.43%	1.55%	1.55%	1.55%	1.55%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Norway's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Norway should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Norway

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		Reference in PP	Reference in LSSIP
Free route airspace (FRA) has been implemented in cooperation with partners in SE/DK FAB, NEFAB and Borealis, including necessary system improvements. The vertical dimension of NEFRA (SE/DK FAB and NEFAB) FL285 FL660, with local FRA implementation extended to a lower limit FL135/FL195 in Norway, FL95 in Finland/Estonia/Latvia. Future FRA cooperation is expected in coming years (FAB DK-SE – Baltic FAB cross-border FRA).	✓	3.2.1(c)	Page 53
Major ERNIP Recommended Measures:	9	Reference in PP	Reference in ERNIP
Measure included within performance plan?			
PBN transition plan	✗	n/a	Page 165
Polaris FIR - ATS route removal	✓	Implemented	Page 125
Northern Norway TMA's airspace re-organisation	✓	Implemented	Page 125
ATS route network improvement within Polaris FIR	✓	Implemented	Page 134
AMC – areas Southern Norway	✗	n/a	Page 147
FIR border harmonisation Polaris FIR – Bodo Oceanic FIR	✗	n/a	Page 157
FIR border realignment Murmansk FIR / Bodo FIR / Polaris FIR	✗	n/a	Page 178
FAB DK-SE – Baltic FAB cross-border FRA	✗	n/a	Page 203
Norway FAS (future ATM system) – South	✗	n/a	Page 220
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Norway achieved a KEA of 1.52% in 2020. In 2021, Norway reached a KEA of 1.34% which means it achieved the 2021 target of 1.55% in its performance plan.

The North European Free Route Airspace (NEFRA) program is implemented in cooperation with partners in DK-SE FAB, NEFAB and Borealis, ensuring necessary system improvements and FRA operations are unrestricted across the borders of all states. In the vertical dimension, NEFRA (DK-SE FAB and NEFAB) operates from FL285 to FL660, with local FRA extended to a lower limit of FL135. Norway has significantly contributed towards Borealis FRA and will need to continue supporting its partners to offer efficient cross-border FRA as it currently does so within NEFAB.

Norway introduced several initiatives in 2021 such as the performance based navigation (PBN) transition plan or flight information region (FIR) border harmonisation that are likely to positively influence KEA performance in upcoming years. However, Norway did not commit to any major ERNIP projects foreseen by the Network Manager (NM) in its performance plan.

Norway is implementing the iTEC air traffic management (ATM) system (future ATM system - FAS) the end of RP3, which should enable trajectory based operations and provide further resilience and improvement to KEA performance.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Norway plan for an environmental incentive scheme?	✗
---	---

The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

NORWAY

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

Proposed national capacity targets are lower than the national reference value in 2022 and are equal to the national reference values in 2023 and 2024. Targets are above the range of the delay forecast in 2022 and 2023, and fall within the range of the delay forecast in 2024. Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	-27%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Norway included four airports in the performance plan. National target is set lower than in RP2, but still slightly higher than the average past performance. The national target is broken down equally to all four airports, however for Bergen, Trondheim and Stavanger, this breakdown foresees a significant deterioration in performance, and also a worse performance than that of the group of similar airports. For Oslo Gardemoen, the targets foresee an improvement in performance and a better performance than that of the group of similar airports.

3.1.3 Incentives

En route:

Norway has chosen not to modulate the pivot values, which are set equal to the reference values 2023 and 2024, and even below the reference values in 2022. There is no bonus possible and maximum penalty is set at 2%.

Terminal:

Norway has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values, however the CRSTMP share applied results in pivot values which are double the average CRSTMP performance observed in RP2.

There is no bonus possible, and maximum penalty is set at 2%. Due to the setting of the pivot value, it is highly unlikely that penalties will be incurred.

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

Significant capacity surplus does not warrant immediate capacity related investments.

No major investments are planned related to enroute capacity or PCP/CP1 ATM Functionalities.

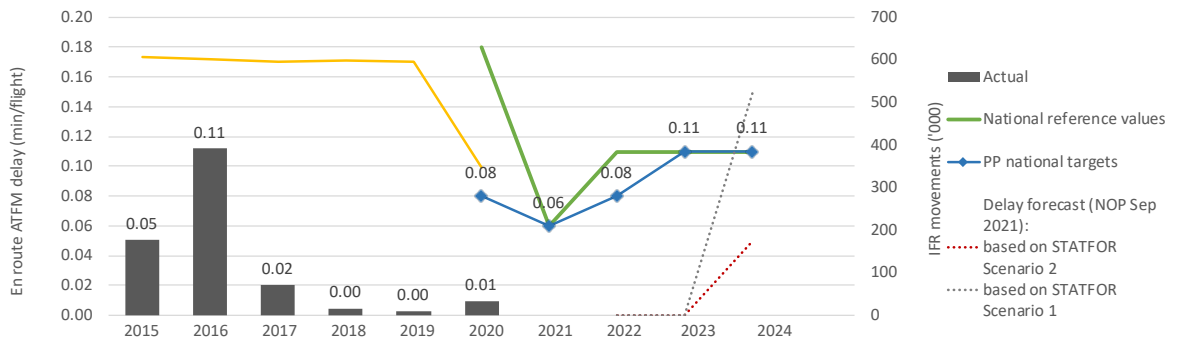
3.1.5 PRB conclusions

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

- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

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
Traffic variation	-3%	-0.7%	-0.9%	+0.5%	-0.7%	-41.7%				
Actual delay/flight	0.05	0.11	0.02	0.00	0.00	0.01				
National reference values						0.18	0.06	0.11	0.11	0.11
PP national targets						0.08	0.06	0.08	0.11	0.11
Based on STATFOR Scenario 1							-	0.00	0	0.15
Based on STATFOR Scenario 2							-	0.00	0	0.05

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	-27%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✔	✔	✔

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures 🔔

Assessment of capacity enhancement measures and review against NOP

During RP2, Norway experienced capacity constraints related mostly to ATM capacity. Issues with equipment, weather and staffing occurred only in 2017, 2018 and 2019. Norway managed to perform increasingly better achieving minor delays except for 2016.

The performance plan contains a very generic description of the capacity enhancement measures. While the performance plan explains that the ANSP already has sufficient capacity, the NOP makes a list of the following measures that have been considered during the definition of the reference values:

- Recruitment and training of air traffic controllers,
- Flexible rostering of ATC staff,
- New VCS.

The planned number of ATCO FTEs shows an increase of 6% compared to 2019, most of which is targeted at Bodo ACC.

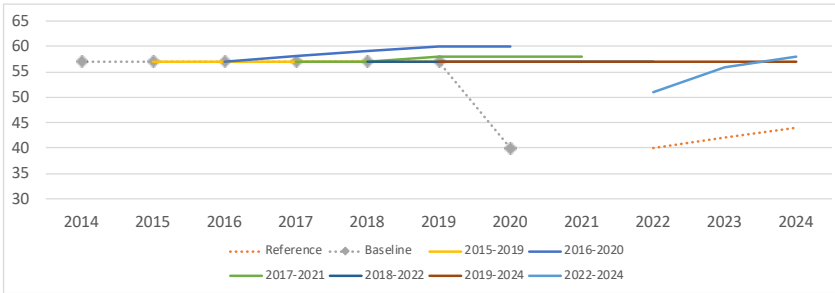
ATCO Planning (FTEs)

	2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Bodo ACC (ENBD)	Additional ATCOs in OPS to start working in the OPS room	2	2.7	1	6	4	1	+9
	ATCOs in OPS to stop working in the OPS room	2	12	3	0	0	0	
	ATCOs in OPS to be operational at year-end	42	32.7	30.7	36.7	40.7	41.7	
Oslo ACC (ENOS)	Additional ATCOs in OPS to start working in the OPS room	8	1	6.6	19	25.7	6	+1
	ATCOs in OPS to stop working in the OPS room	6	1	49	7	2	2	
	ATCOs in OPS to be operational at year-end	133	133	90.6	102.6	126.3	130.3	
Stavanger ACC (ENOSW)	Additional ATCOs in OPS to start working in the OPS room	0	0	1.6	4	9.2	2	+1
	ATCOs in OPS to stop working in the OPS room	1	0	12.2	3	1	0	
	ATCOs in OPS to be operational at year-end	30	30	19.4	20.4	28.6	30.6	
Total - Avinor Flysikring AS (Avinor ANS) (en route)	Additional ATCOs in OPS to start working in the OPS room	10	3.7	7.6	25	29.7	7	+10
	ATCOs in OPS to stop working in the OPS room	8	13	52	7	2	2	
	ATCOs in OPS to be operational at year-end	175	165.7	121.3	139.3	167	172	

3.2.3 Review of previous and existing capacity profile plans per ACC



Bodo ACC (ENBD)



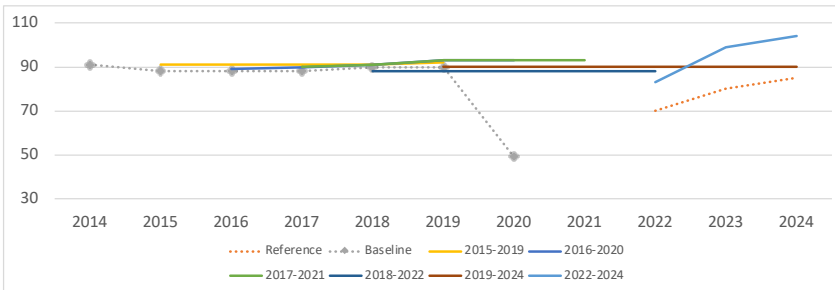
- Historical data shows that capacity profiles in Bodo ACC were stable over the years of RP2. Planned values corresponded with the baseline in most years.

- Latest planned capacity profile shows an average annual growth of 6.6% resulting in slightly higher values than in 2019. Planned values are well above reference profile values: a major capacity surplus of 28%, 33% and 32% in 2022, 2023 and 2024 respectively, is expected at Bodo ACC.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									40	42	44
Baseline	57	57	57	57	57	57	40				
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
2022-2024									51	56	58
Latest vs Reference									28%	33%	32%

Oslo ACC (ENOS)



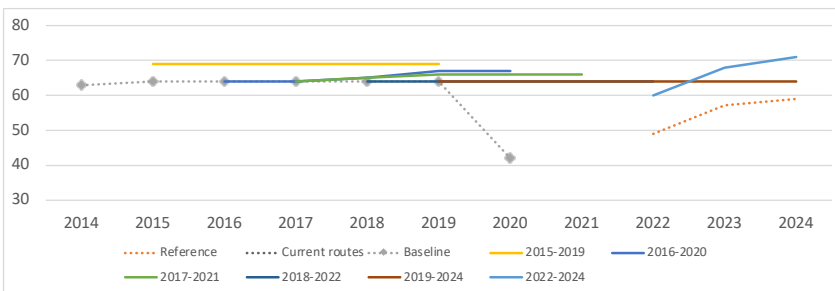
- Historical data shows relatively stable baseline values over RP2 apart from a minor decrease during 2015-2017. Planned values were above the baseline values for all years, except in 2018.

- Latest planned capacity profile shows an average annual growth of 11.9% and results in significantly higher values than in 2019. The planned profile is well above the reference profile: Oslo ACC is expected to have a major capacity surplus of 19%, 24% and 22% in 2022, 2023, and 2024 respectively.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									70	80	85
Baseline	91	88	88	88	90	90	49				
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
2022-2024									83	99	104
Latest vs Reference									19%	24%	22%

Stavanger ACC (ENOSW)



- Historical data shows that capacity profiles in Stavanger ACC were stable over the years of RP2. Planned values were mostly consistent with the baseline.

- Latest planned capacity profile shows an average annual growth of 8.8% resulting in values which are significantly higher than in 2019. Planned values are well above the reference profile: Stavanger ACC is expected to have a major capacity surplus of 22%, 19% and 20% in 2022, 2023, and 2024 respectively.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

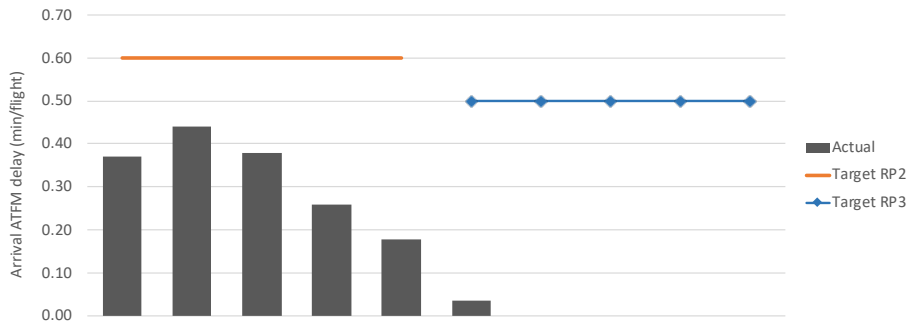
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									49	57	59
Baseline	63	64	64	64	64	64	42				
2015-2019		69	69	69	69	69					
2016-2020			64	64	65	67	67				
2017-2021				64	65	66	66	66			
2018-2022					64	64	64	64	64		
2019-2024						64	64	64	64	64	64
2022-2024									60	68	71
Latest vs Reference									22%	19%	20%

3.2.4	Review of capacity enhancement measures related to mitigating higher delays due to significant / special events	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 national capacity targets are lower than the national reference value in 2022 and are equal to the national reference values in 2023 and 2024. Targets are above the range of the delay forecast in 2022 and 2023, and fall within the range of the delay forecast in 2024.
- Capacity profiles indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



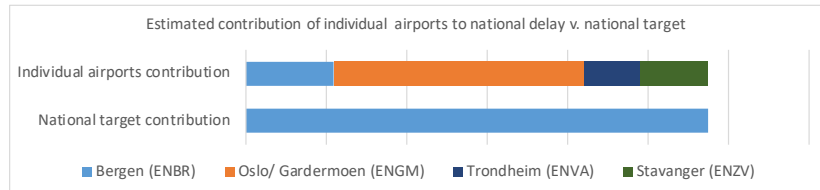
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level										
Target (RP2/RP3)	0.60	0.60	0.60	0.60	0.60	0.50	0.50	0.50	0.50	0.50
Actual	0.37	0.44	0.38	0.26	0.18	0.03	-	-	-	-
Bergen (ENBR)	0.11	0.09	0.02	0.03	0.02	0.01	0.50	0.50	0.50	0.50
Oslo/ Gardermoen (ENGM)	0.67	0.79	0.69	0.45	0.31	0.05	0.50	0.50	0.50	0.50
Trondheim (ENVA)	0.00	0.00	0.00	0.00	0.00	0.03	0.50	0.50	0.50	0.50
Stavanger (ENZV)	0.02	0.00	0.00	0.02	0.02	0.03	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 in the constant target for RP3 (0.50 minutes per arrival) with respect to the target for RP2 (0.60 minutes per arrival). This new target of 0.50 minutes per arrival for the entire RP3 is more in line with observed past performance, although still slightly higher. The breakdown per airport shows the same target for all four airports. This target for Oslo represents a slight improvement with respect to past observed performance (average RP2: 0.58 minutes per arrival), while for the smaller airports is a significant deterioration as these showed nearly zero delays in RP2.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) 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 per arrival), so the estimated contribution to the total delays is only depending on the traffic share. Oslo is the biggest contributor, followed by Bergen.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Bergen (ENBR)	GROUP III	0.12	0.05	-0.06	0.50	+0.45
Oslo/ Gardermoen (ENGM)	GROUP I	0.65	0.58	-0.07	0.50	-0.15
Trondheim (ENVA)	GROUP IV	0.00	0.00	-0.00	0.50	+0.50
Stavanger (ENZV)	GROUP IV	0.00	0.01	+0.01	0.50	+0.49

* 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 observed at the two main airports Oslo and Bergen was, during RP2, better 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 per arrival). This implies a further improvement for Oslo, but a significant deterioration in the other three airports.

3.3.5 PRB Key Points

- Norway included four airports in the performance plan. National target is set lower than in RP2, but still slightly higher than the average past performance.
- The national target is broken down equally to all four airports, however for Bergen, Trondheim and Stavanger this breakdown foresees a significant deterioration in performance and also a worse performance than that of the group of similar airports. For Oslo Gardemoen, the targets foresee an improvement in performance and a better performance than that of the group of similar airports.

3.4 Capacity Incentive schemes

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			0.11	0.11	0.11
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.08	0.11	0.11
Pivot values for RP3			0.08	0.11	0.11

Threshold and pivot value review

Pivot value is fixed at NOP reference value for 2023 and 2024 and more ambitious level for 2022 (allowing for build up of traffic), there is a dead band of 0.03 above the pivot value before penalties are applicable. Full penalties apply at 0.05 above pivot value. No bonuses apply.

Modulation review

No modulation applied.

Review of financial advantages/disadvantages

Norway has established a maximum penalty fixed at 2% of determined costs.

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
Performance Plan targets			0.50	0.50	0.50
Pivot values for RP3			0.08	0.08	0.08

Threshold and pivot value review

The terminal incentive scheme includes a deadband of ±0.03 minutes per arrival that allows for small variations in the arrival ATFM delay with no resulting bonuses or penalties.

The CRSTMP modulated pivot value is more than double of the reported CRSTMP delays in the past, so while the national target all causes represents an improvement with respect to RP2, these pivot values allow for a deterioration in performance.

Modulation review

Norway has chosen to modulate the pivot values according to CRSTMP causes. The proposed pivot (0.08 minutes 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 2015-2019 (0.03 minutes per arrival). In that same period the share of CRSTMP delays versus all causes was 9.9%. If the same share would be applied to the national target all causes, the pivot values would result in 0.0495 minutes per arrival. According to the performance plan, the rationale behind the pivot value is to limit the CRSTMP delay to the range between 0.01 minutes per arrival and 0.11 minutes per arrival (as of 0.11 minutes per arrival penalties apply).

Review of financial advantages/disadvantages

The scheme includes no possible bonus and a maximum penalty of 2% as of 0.12 minutes per arrival of CRSTMP delay. Given the pivot values, the past CRSTMP reported delays and the dead band, it is unlikely this incentive scheme will result in any financial impact.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

✓

En route:

- Norway has chosen not to modulate the pivot values, which are set equal to the reference values 2023 and 2024, and even below the reference values in 2022.
- There is no bonus possible and maximum penalty is set at 2%.

Terminal:

- Norway has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values, however the CRSTMP share applied results in pivot values which are double the average CRSTMP performance observed in RP2.
- There is no bonus possible, and maximum penalty is set at 2%. Due to the setting of the pivot value, it is highly unlikely that penalties will be incurred.
- 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.

3.5 Investments

Norway - Avinor Flysikring AS (Avinor ANS)

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	19.0	20.3	21.4	22.6	23.1	106.3
En route	M€ (nominal)	19.0	20.3	21.4	22.6	23.1	106.3
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 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	TRM
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	1.4	No	No	2.9	0.0
2	Future TWR system	System client positions to support Towers and Approaches with ATM-functionality, integrated with the new iTEC ATM system. The client working positions will be connected to a shared data centre, supporting both ACC, APP and (limited) TWR functions.	2.3	No	Yes	0.1	0.0
Total:						3.0	0.0

Airspace user feedback regarding major investments

The airspace users requested a separate meeting to discuss the investments. It is uncertain if such meeting took place.

The airspace users also commented on the impact of investments on environment. Norway clarified that Ireland and Iceland have been included in the Free Route Airspace and further expansions include the UK.

The airspace users inquired about the changes of investments and the investments made in 2019. Norway noted that investments may span over a long period of time and due to the change of scale or scope, actual investments may differ to the planned ones.

Review of investments

The investments included in the performance plan lack significant details and descriptions.

For Avinor ANS, new major investments represent 3% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 92% of the planned values and the amount underspent was 3M€. In terms of depreciation and cost of capital, the airspace users financed 25.6M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

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 (Avinor ANS in en route and Avinor AS in terminal).

The determined costs for the new major investments in terminal amount to a total of 3.2M€. The new major investments in terminal are focusing on a new ATM system for the Oslo tower and a new terminal area radar for Oslo.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	None detailed	n/a
2	Future TWR system	Network, Local	None detailed	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 RP3 (M€)
Other new investments	6.2	4.2	0.0	0.0	0.7	1.4	2.3	4.4
Existing investments			19.0	20.2	20.3	20.4	19.0	98.9

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	ATM-Systems General	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS
2	Buildings General	8.5	8.5	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS
3	Communication General	17.1	17.1	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS
4	Other tech-investments	11.3	11.3	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS
5	MET General	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS
6	Mobility General	1.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS
7	Other type of Project	6.8	6.8	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS
8	Surveillance General	9.5	9.5	0.0	0.0	0.0	0.0	0.0	0.0	Ref. ANNEX E. INVESTMENTS

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? 
- All Norwegian ACCS are expected to have a significant capacity surplus during RP3, ranging from 19% to 33%.
- There are no major new investments related to capacity enhancements and no investments are linked to PCP/CP1 ATM Functionalities. Future TWR system investment may yield capacity benefits on the airport/TMA level for the affected airports.
- The second major investment related to voice communication systems and the other investments relating to improvements in communication, navigation and surveillance infrastructure which contribute to resilience, scalability and flexibility.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 
- Future TWR system investment will be integrated with the iTEC ATM-system, and this integration may result in airport/TMA level capacity benefits through improved interoperability.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? 
- Due to the significant capacity surplus, there are no critical timing issues related to capacity profile development and associated investments. No major capacity related investments carry over from RP2 performance planning.

3.5.4 PRB Key Points 

- The investments included in the performance plan lack significant details and descriptions.
- The actual CAPEX for RP2 was 92% of the planned values and the amount underspent was 3M€. The airspace users financed 25.6M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- Significant capacity surplus does not warrant immediate capacity related investments.
- No major investments are planned related to enroute capacity or PCP/CP1 ATM Functionalities.

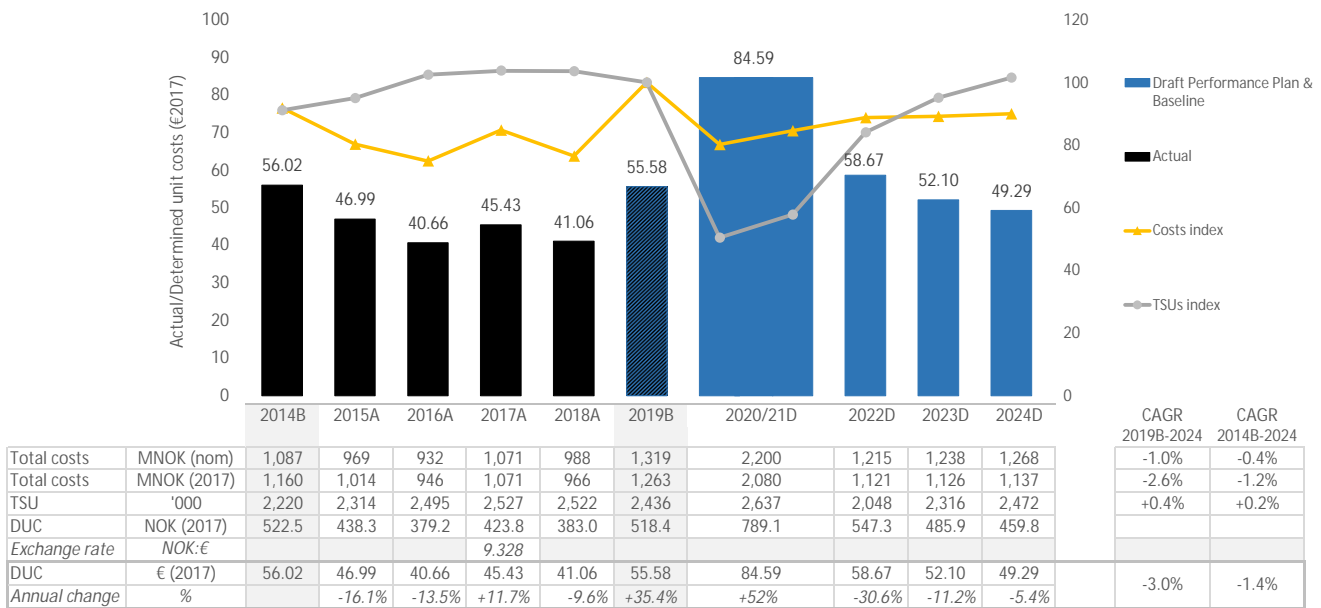
NORWAY

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Norway - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 55.58 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? -3.0% ✓

The DUC is planned to decrease on average by -3.0% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).

b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -1.4% ✓

The DUC is planned to decrease on average by -1.4% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).

c) DUC level (2019 baseline) lower than the average of comparator group (B) average (45.56 €2017)? +22.0% ✗

The 2019 DUC level is +22.0% 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 ✓

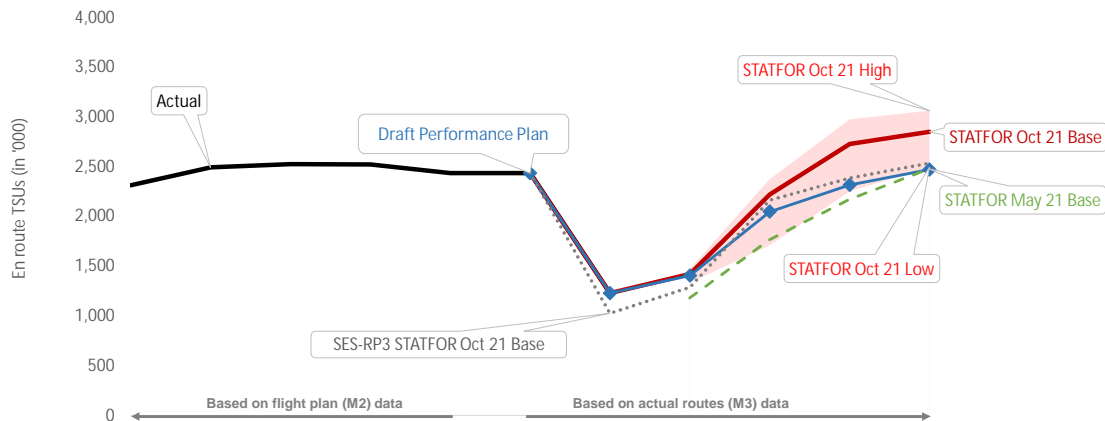
The PRB concludes that the cost-efficiency targets proposed by Norway should be approved.

- Norway is consistent with the RP3 DUC trend in terms of average reduction.
- Norway is consistent with the long-term Union-wide DUC trend.
- Norway is not consistent with the average DUC baseline of the comparator group.
- Norway should report the real WACC parameters instead of notional WACC parameters.
- Norway should clarify the inconsistency in the cost allocation methodology.

4.2 Review traffic forecasts and baseline

Norway - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	2,314	2,495	2,527	2,522	2,437	2,436	1,230					
Annual change	%		+7.8%	+1.3%	-0.2%	-3.4%	-3.4%	-49.5%					
STATFOR Oct 21 Base	'000 TSUs								1,423	2,221	2,730	2,851	+17.0%
Annual change	%								+15.7%	+56.1%	+23.0%	+4.4%	
STATFOR May 21 Base	'000 TSUs								1,182	1,767	2,174	2,479	+1.8%
Annual change	%								-3.9%	+49.6%	+23.0%	+14.0%	
Performance Plan	'000 TSUs						2,436	1,230	1,407	2,048	2,316	2,472	+1.5%
Annual change	%						-3.4%	-49.5%	+14.4%	+45.6%	+13.1%	+6.7%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	2,436		2014B (PP baseline)	2,220	
2019A (as in the Reporting tables, M2)	2,437		2014A (as in the Reporting tables, M2)	2,221	
2019B/ 2019A	-0.05%	-0.05%	2014B/ 2014A	-0.05%	-0.05%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.05%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.05%). The coefficient slightly decreases the 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- Norway considers that the STATFOR October 2021 base forecast is unrealistic considering the current traffic situation in Norway.
- According to Norway, the latest October 2021 base forecast differs severely from the one prepared for the rest of Europe without any specific local data justifying the difference.
- The STATFOR October 2021 base forecast does not take into account local factors such as the market situation, political and social climate, level of regulated and unregulated air traffic charges, and other local national elements that may influence the future traffic levels.
- Therefore, Norway decided to use the traffic figures which are based on analysis from ANSPs experts.

Review of the PP traffic forecast

The selected forecast is close to the STATFOR October 2021 forecast in the short-term and diverge from it towards the end of the reference period. It corresponds to an increase of +1.5% p.a. over RP3 which is significantly less than the +17.0% p.a. from the STATFOR October 2021 forecast.

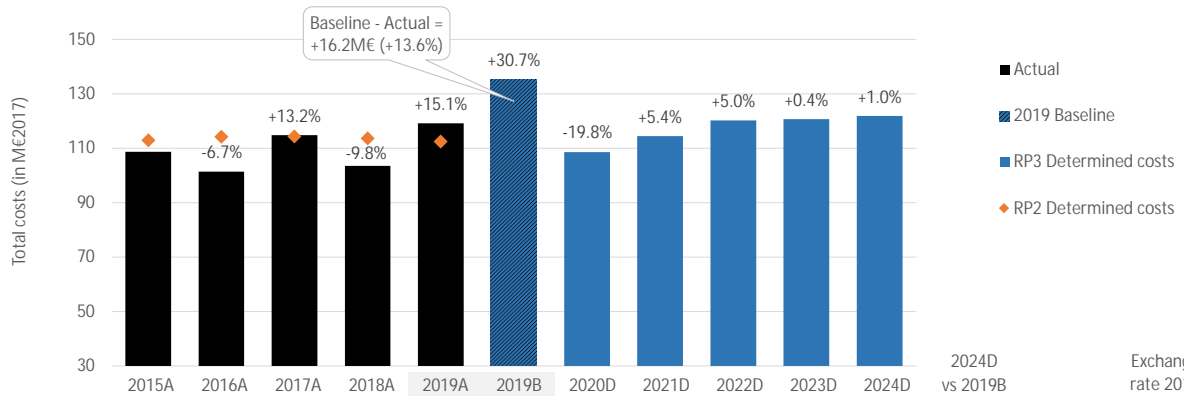
4.2.4 PRB Key Points

- Norway applied a forecast that is similar to STATFOR October 2021 for 2021, while diverging in the remaining years of the reference period.

4.3 Review of determined costs and baseline

Norway - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	MNOK (nom)	969	932	1,071	988	1,159	1,319	1,063	1,137	1,215	1,238	1,268	-3.8%
Annual change	%		-3.7%	+14.8%	-7.7%	+17.3%	+33.5%	-19.4%	+7.0%	+6.8%	+1.9%	+2.5%	+9.8%
Inflation index	2017 = 100	94.5	98.1	100.0	103.0	105.4	105.4	106.6	109.0	111.2	113.4	115.6	-10.0%
Total costs	MNOK (2017)	1,014	946	1,071	966	1,111	1,263	1,013	1,068	1,121	1,126	1,137	-10.0%
Annual change	%		-6.7%	+13.2%	-9.8%	+15.1%	+30.7%	-19.8%	+5.4%	+5.0%	+0.4%	+1.0%	-10.0%
Total costs	M€ (2017)	109	101	115	104	119	135	109	114	120	121	122	-10.0%

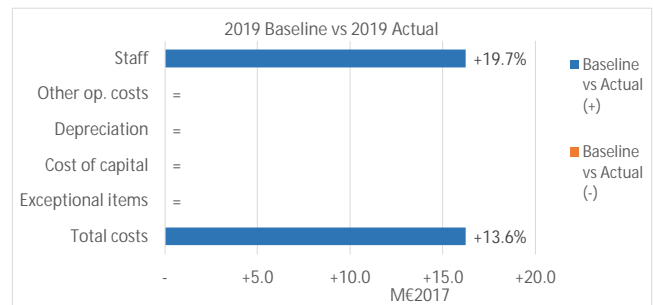
Exchange rate 2017
NOK:€
9.32776

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ⚠ Is inflation in PP in line with IMF (October 2021 forecast)? **Deviation from index < 1p.p. in 2024**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	16.2	+15.0%
2019B vs 2019A	16.2	+13.6%



2014 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Cost allocation key changes approach costs en route vs. tnc (50/50 to 80/20)	ANSP	Staff	+11.5
#2 - Cost allocation key changes combined towers (TWR/APP) from 60/40 to 50/50	ANSP	Staff	+1.4
#3 - Military activities (FUA)	ANSP	Staff	+3.3

2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Cost allocation key changes approach costs en route vs. tnc (50/50 to 80/20)	ANSP	Staff	+11.5
#2 - Cost allocation key changes combined towers (TWR/APP) from 60/40 to 50/50	ANSP	Staff	+1.4
#3 - Military activities (FUA)	ANSP	Staff	+3.3

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

Both the 2014 and 2019 cost baselines have been adjusted in relation to changes in cost allocation keys and in relation to FUA military activities.

2014/2019 baseline analysis

The 2019 en route costs baseline amounts to 135.4M€2017, which is +16.2M€2017 (or +13.6%) higher than the 2019 actual costs. The main adjustments are:

- A change in the allocation keys of approach costs between en route and terminal charges (from 50/50 to 80/20) applicable at both regulated and non-regulated airports. The new APP allocation key increases the en route baseline costs by +11.5M€2017.
- A change in the internal allocation key for cost of combined towers (TWR/APP), which increases the en route baseline cost by +1.4M€2017.
- The inclusion in the en route cost base of the costs for en route generated from keeping civilian aircraft separated from military training areas. The amount of 32.5MNOK is derived from an estimation that 4% of en route costs for civilian flights are related to military activity. This increases the baseline costs by +3.3M€2017.

The same adjustments have been applied to the 2014 en route cost baseline, using the same amounts.

For purposes of consistency and trend analysis, these adjustments seem justified.

4.3.3 Review of the RP3 determined costs and incentives

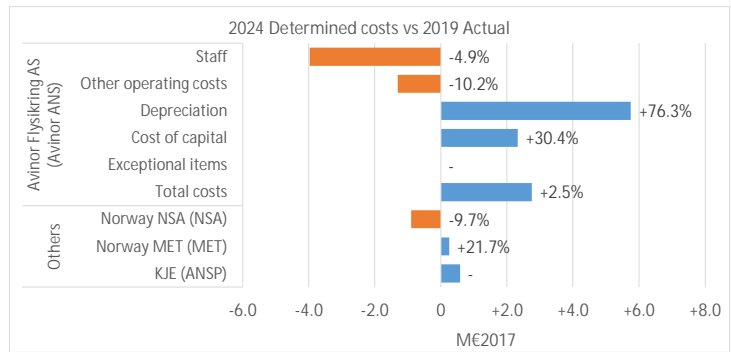
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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



Over RP3, the total costs are planned to increase by +2.3%, or 2.7M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is Avinor ANS (+2.5%, or +2.8M€2017 overall).

The 2024 determined costs for Avinor ANS are planned to be +2.5% (or +2.8M€2017) higher than the 2019 actual costs.

- The increase is mainly due to significantly higher depreciation costs (+76.3%, or +5.7M€2017) and cost of capital (+30.4%, or +2.3M€2017).
- According to the information provided in Annex A to the performance plan, the planned increase in capital related costs is mainly due to the completion of NORWAM phase 2 (foreseen in 2022) and Future ATM System (foreseen in 2024).

The NSA costs are planned to decrease between 2019 and 2024 reflecting lower Eurocontrol costs. MET costs are planned to increase over RP3 (+21.7, or +0.3M€2017).

KJE (ANSP) is one of the Norwegian airports (Kristiansand airport, Kjevik) that through a tender process awarded the Spanish company Saerco the right to provide ATC services for tower and approach. Saerco started its operation on 28/04/2020 and, as a consequence, the en route share of the approach cost at Kjevik is reported separately in the reporting tables as "ANSP Kje".

En route service units are forecasted to reach 2019 levels in 2024, while en route costs are planned to reach the 2019 actual level already in 2022 (but only after RP3 when considering the 2019 baseline value).

According to the information provided in Annex A to performance plan, the revenue losses from temporary application of 2020 and 2021 unit rates (some 885MNOK) will not be carried-over by Norway to future unit rates (2023-2029). In addition, Norway has reduced the 2022 unit rate as per Art. 29(6) resulting in further revenue losses of 125MNOK. The combined effect of these two "Covid 19 measures" (1,010MNOK), which will not be recovered from airspace users, is almost equivalent to the annual en route cost base of Norway.

4.3.4 PRB Key Points

- Norway presents adjustments to both the 2014 and 2019 en route cost baselines. For purposes of consistency and trend analysis, these adjustments seem justified.
- Between 2019 and 2024, the total costs for Avinor ANS are planned to increase by +2.5% (or +2.8M€2017).
- The increase in costs are mainly due to the completion of the future ATM system.
- Norway will not carry-over to future unit rates the revenue gap from 2020 and 2021.

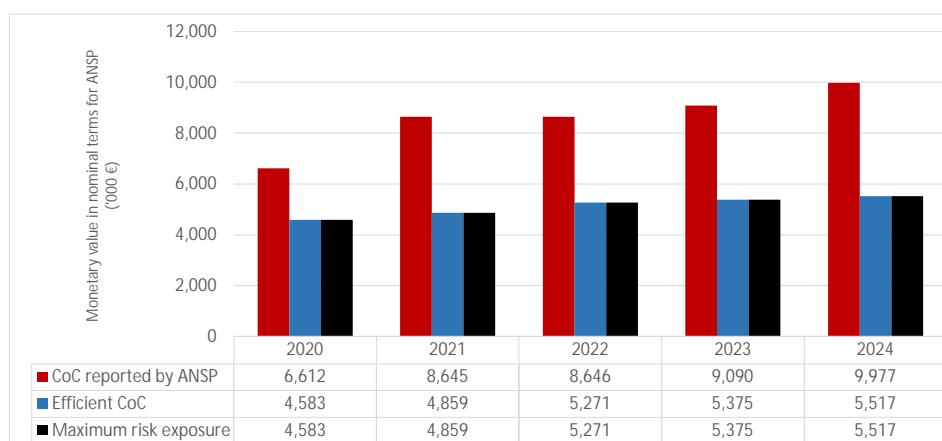
4.3.A Cost of capital

Avinor Fysikring AS (Avinor ANS) - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	104,156	110,427	119,788	122,150	125,389
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 vs Efficient ('000 €)	2020	2021	2022	2023	2024
	2,029	3,786	3,375	3,715	4,460

Total 2020-2024	17,367
-----------------	--------

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	10.2%	n/a	10.2%	n/a	10.2%	n/a	10.2%	n/a	10.2%	n/a
Interest on debts	3.0%	n/a	3.0%	n/a	3.0%	n/a	3.0%	n/a	3.0%	n/a
Capital structure (% debt)	60.0%	n/a	60.0%	n/a	60.0%	n/a	60.0%	n/a	60.0%	n/a
WACC	5.9%	4.1%	5.9%	3.3%	5.9%	3.6%	5.9%	3.5%	5.9%	3.2%

Is the interest on debts in line with the market? **No**

- Avinor ANS does not currently have any loans, but it is estimated that the company will have loans in 2023. The parameters of the reported cost of capital have been estimated by an external consultant in 2019. The weighted average interest on debts used to calculate the cost of capital pre-tax rate is not in line with competitive market practices.

- Notional WACC parameters have been reported in the performance plan instead of the real WACC parameters.

- The efficient cost of capital has been computed in line with the maximum risk exposure (based on option 4).

- Over RP3, the reported cost of capital is 17.4M€ above the efficient cost of capital. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provided notional parameters for the WACC.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	101,727	119,554	135,709	152,716	167,179
Net current assets	11,298	28,228	12,086	2,668	3,375
Adjustments total assets	0	0	0	0	0
Total asset base	113,025	147,782	147,795	155,383	170,554

- The fixed asset base is planned to increase over RP3. This is in line with the increase in investments as detailed in section 3.5 of this document.

- The net current assets will significantly increase in 2021. No justifications have been provided. However, the net current assets do not present major issues accumulated over RP3.

- The RAB does not include adjustments to the total asset base.

- The total asset base is planned to increase over RP3, mainly driven by the increase in fixed assets.

4.3.A.5 PRB Key Points

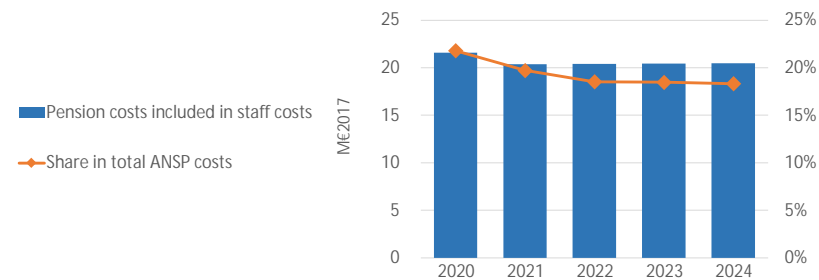
- Notional WACC parameters have been reported instead of the real WACC parameters.

- Over RP3, the reported cost of capital is 17.4M€ above the efficient cost of capital. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provided notional parameters for the WACC.

4.3.B Pensions

Avinor Fysikring AS (Avinor ANS) - En route

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

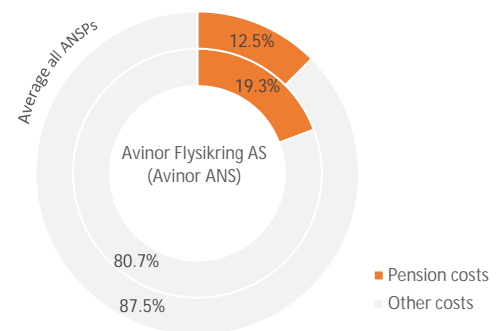


Pension costs included in staff costs	M€2017	21.6	20.4	20.4	20.4	20.5
Year on year variation	% change		-5.6%	+0.1%	+0.2%	+0.2%
Share in total ANSP costs	%	21.8%	19.7%	18.5%	18.5%	18.3%
Year on year variation	p.p.		-2.1p.p.	-1.2p.p.	0.0p.p.	-0.2p.p.

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

Decrease

Share of pension costs in total ANSP costs (RP3 average)



Is the ANSP RP3 average share of pension costs higher or lower than the Union-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?	No
For occupational defined benefit schemes, are there planned changes in the main actuarial assumptions between 2020 and 2024?	Yes

- The discount rate and the expected return on planned assets are foreseen to decrease (from 1.7% in 2020 to 1.5% in 2021) and to remain stable until 2024.
- The projected increase in benefits is expected to increase (from 1.25% in 2020 to 1.50% in 2021) and to remain stable until 2024.
- The annual increase in salaries is expected to increase (from 2.25% in 2020 to 2.50% in 2021) and then to remain stable.

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

In order to reduce the risk associated with pension costs, the defined pension plan was closed effectively for new members as of 01/01/2019. All employees that have not turned 53 years before that date have been transferred to the new defined contribution plan.

4.3.B.4 PRB Key Points

- The average share of pension costs over RP3 for Avinor ANS is higher than the Union-wide average.
- No major issues identified.

4.3.C Methodology for cost allocation between ER and TRM

Norway

4.3.C.1 Cost allocation overview

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

Norway changed the cost allocation methodology with respect to RP2:

- In relation to the approach services in RP3 provided by an aerodrome control unit or an ACC, 80% of the associated operating costs are allocated to en route and 20% to terminal. The 80/20 key is also used to allocate costs related to investments and support functions associated with approach services.
- In relation to the approach services in RP3 provided by combined towers (TWR/APP), 60% of the associated costs are allocated to en route and 40% to terminal.
- The costs of military activities (free use of airspace -FUA) are included in the en route cost base starting in RP3.

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

1) Norway proposes to change the allocation key for approach costs provided by an aerodrome control unit or an ACC from 50/50 in RP2 to 80% en route/20% terminal in RP3. This applies to airports inside and outside of the performance scheme. Norway justifies this change based on the technical basis for allocation. Norway proposes to change from an allocation key based on ATCO composite hours in RP2 (50/50) to a distance based key in RP3 (80/20). Specifically, Norway calculates that the approach segment is provided at 5km-80km from the airport, of which 60km is allocated to en route (80%) and 15km to terminal (20%).

2) Norway proposes to change the allocation key for approach costs provided by combined towers (TWR/APP) from 50/50 in RP2 to 60% en route/40% terminal in RP3. Norway also justifies this change based on the technical basis for allocation. Norway proposes to change from a key based on historical data on the time used in TWR and APP in RP2, to a key based on the opening time of sectors in the combined towers in RP3.

3) Norway proposes that the costs of military activities ("including separation of military and civil flights, planning and service provision during military exercises, advisory services i.e. airspace design, and air traffic services at military airports") should be included in the RP3 en route cost base. In RP2 these costs were excluded from the en route cost base and allocated to a separate cost base. The justification provided by Norway for the third change is that the costs of military activities had previously been covered by the commercial revenues of the ANSP, whereas now the Ministry of Transport proposes to include them in the en route cost base.

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 changes in the cost allocation keys result in an increase of 12.9M€2017 in the 2019 en route cost baseline. However, data provided in the performance plan indicates that the decrease in the 2019 terminal cost baseline is only 6.3M€2017.

4.3.C.3 PRB Key Points

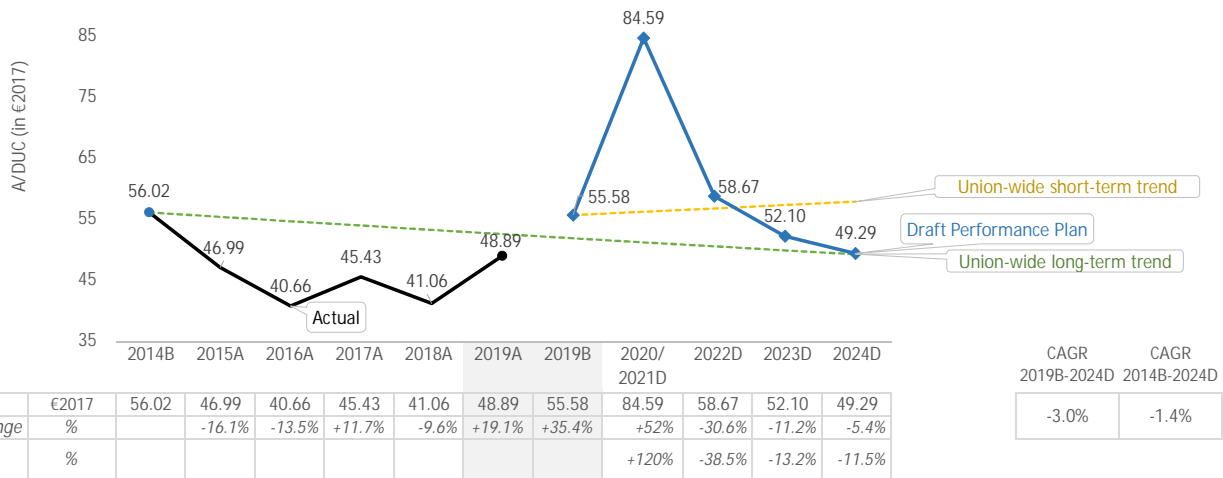
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- Norway changed the cost allocation with respect to RP2, increasing considerably the allocation keys of approach services to the en route cost base in RP3.
- Norway justifies the change in the cost allocation keys on the basis of operational requirements as permitted by art. 22 (5)(b) of IR 2019/317. The allocation keys are based on objective local parameters such as the distance of the terminal manoeuvre area (TMA) and the opening time of sectors. There is no record of stakeholders opposing the proposed change in cost allocation or the inclusion of the costs of military activities in the en route cost base. However, allocating a higher percentage of approach services to en route implies that overflights are paying a higher share for approach services which they do not use (see PRB en route and terminal cost allocation methodology review).
- The changes in cost allocation have a significant impact on the 2019 en route cost baseline, which increase by 12.9M€2017. However there is an inconsistency with the 2019 terminal cost baseline, which decrease by 6.3M€2017. The difference between the adjustments due to cost allocation should be further explained.

4.4 Determined unit costs (DUC)

Norway - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-3.0%	+1.0%	-4.0p.p.
Trend (CAGR 2014B-2024)	-1.4%	-1.3%	-0.1p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	55.58	45.56	+22.0%

- The DUC is planned to decrease on average by -3.0% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -1.4% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +22.0% higher than the average of the comparator 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

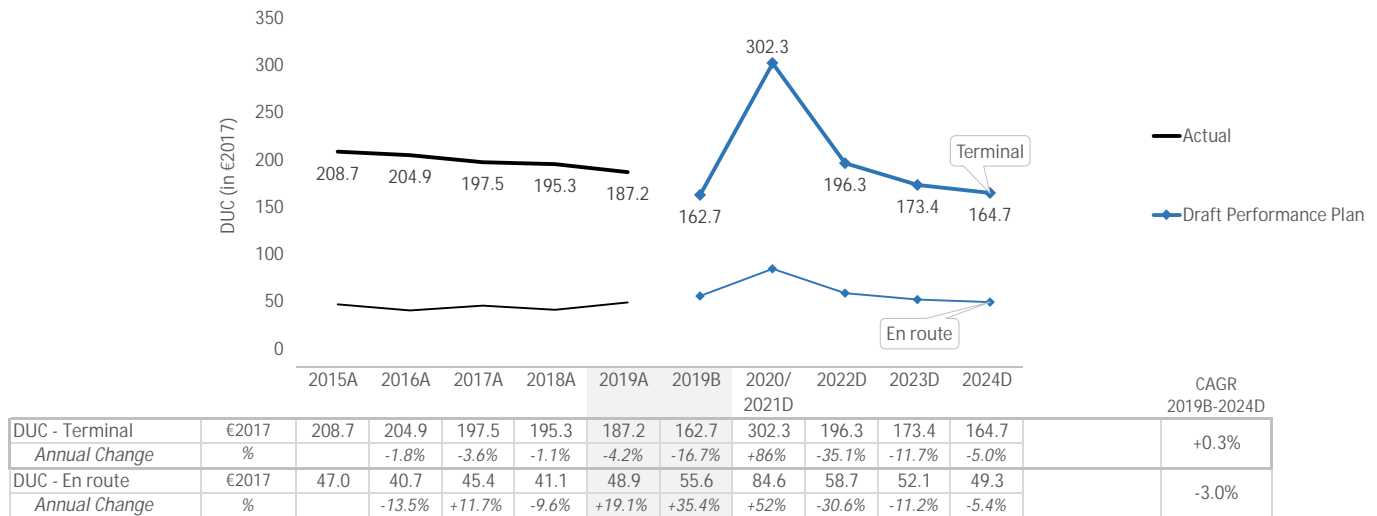
4.4.5 PRB Key Points

✓

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

4.5 Terminal

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Bergen (ENBR)	GROUP III	169.1	270.1	+59.8%	229.8	224.4	-2.4%
Oslo/ Gardermoen (ENGM)	GROUP I	138.9	148.8	+7.1%	179.8	172.2	-4.2%
Trondheim (ENVA)	GROUP IV	669.6	275.9	-58.8%	970.5	259.3	-73.3%
Stavanger (ENZV)	GROUP IV	669.6	340.6	-49.1%	970.5	341.6	-64.8%

* 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

For Oslo/Gardemoen (ENGM) (Group I), the main airport, the average DUC was +7.1% higher over RP2 and lower -4.2% lower over RP3 respectively than the median airport in its comparator group.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%

2019 Traffic Baseline Adjustments	TCZ1	No
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Costs

Cost Baseline analysis		Δ ME2017	%
2019B vs 2019A	TCZ1	-6.3	-13.1%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	ME2017
#1 - Cost allocation key changes approach costs en route vs. tnc (50/50 to 80/20)	TCZ1	ANSP	Staff	-6.3

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

The 2019 cost baseline has been adjusted with respect to changes in the cost allocation keys for approach costs.

2019 baseline analysis

The 2019 traffic baseline is in line with 2019 actual traffic.

The 2019 cost baseline is -6.3ME2017 (or -13.1%) lower than the 2019 actual terminal costs reflecting the changes in cost allocation between en route and terminal (see also section 4.3.2 of this document).

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	No
---	----

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

Offshore movements at Bergen and Stavanger airports have been included in the local forecast.

Review of the PP traffic forecast

Norway uses a local traffic forecast, which includes offshore movements at Bergen and Stavanger airports. Therefore, the forecast selected for the terminal charging zone of Norway is somewhat higher than the STATFOR October 2021 forecast.

Determined costs (terminal)

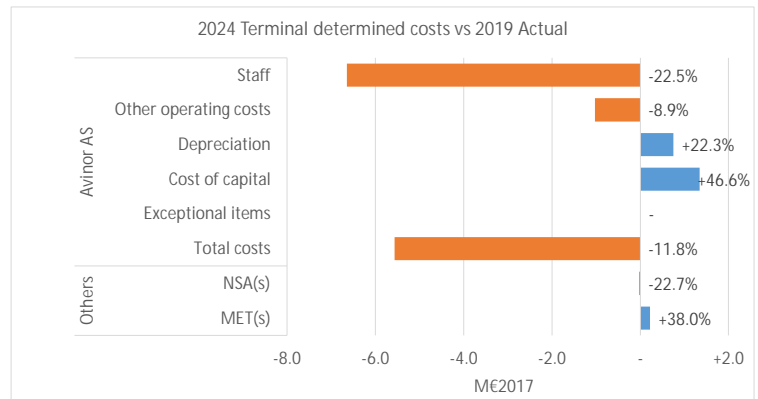
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

Cost elements - Avinor Flysikring AS (Avinor ANS) (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)	2.00%
Additional incentives?	No



- Terminal WACC and its parameters are equal to the ones for en route.
- The terminal RP3 DUC trend is +0.3% p.a. on average, which is worse than the en route DUC trend (-3.0%) over the period.
- For Avinor AS, the terminal 2024 costs are -11.8% (or -5.6M€2017) lower than the 2019 actual costs mainly due to a significant decrease in the staff costs (-22.5%, or -6.6M€2017), which is partially offset by higher depreciation (+22.3%, or +0.7M€2017) and also cost of capital (+46.6%, or +1.3M€2017).
- The share of terminal pension costs in total pension costs (25%) is slightly lower than the share of terminal in total costs (27%).
- Terminal service units are forecast to reach 2019 level in 2024, while terminal costs are forecast to reach the 2019 actual level only after RP3, which is also due to the fact that the terminal cost baseline has been adjusted.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is +0.3%, which is worse than the en route RP3 DUC trend of -3.0%.
- The terminal RP3 DUC trend is +0.3%, which is worse than the terminal RP2 DUC trend of -2.7%.
- Oslo, the main airport, had a DUC +7.1% higher than the average of its comparator group over RP2. The difference is expected to be -4.2% over RP3. The other airports included in the performance plan range from a DUC -58.8% lower to +59.8% higher over RP2. The differences are expected to range from -73.3% lower to -2.4% lower over RP3.
- Norway used a local forecast based on STATFOR October 2021 base forecast for terminal traffic. The baseline for this forecast is slightly higher than STAFOR October 2021.
- 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 (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 04/02/2022
 Documents no: F5094, F5095, F5096, F5097, F5098, F5099, F5100, F5101, F4557, F4558, F4559, F4565, F5102, F4561, F4562, F4563, F5105, F4564, F5104

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 3.6%
 % Serv. Units vs SES 3.9%
 % Costs vs SES 3.1%

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

ANSP (ATS,CNS, AIS, SAR coordination)

 METEO

 METEO
 ATS (AFIS), CNS (COM), METEO
 ATS (AFIS), METEO

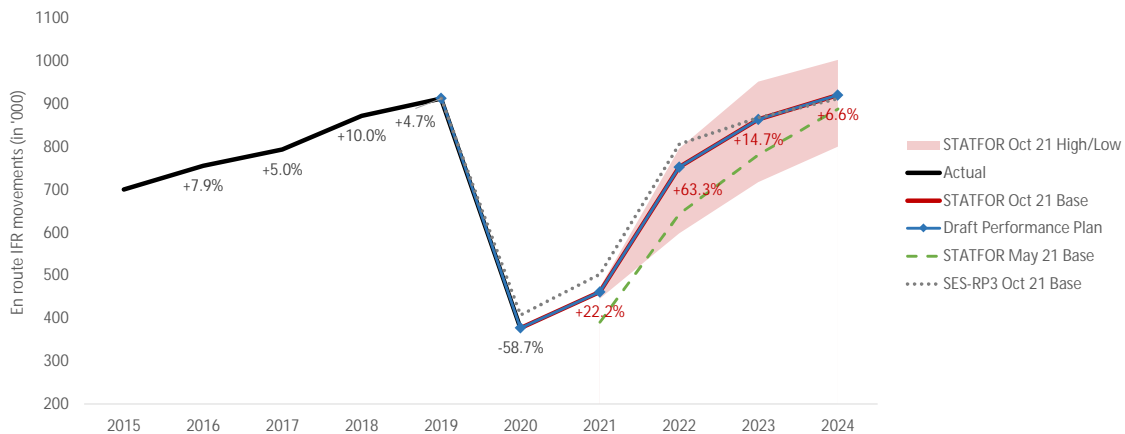
 NM, CRCO

 Supervision

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Poland	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP 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 targets proposed by Poland should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- Some measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- PANSAs change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.85%	1.65%	1.65%	1.65%	1.65%

PRB assessment

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

- Poland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Poland did not achieve the 2021 target of 1.65% in its performance plan. For this reason, Poland has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Poland's performance may be affected by the geo-political situation in Eastern Europe.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.30	0.07	0.12	0.12	0.12
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.45	0.02	0.21	0.24	0.23

PRB assessment

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

- Poland included an investment related to a UAVs, called "U-space program".

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024	
Target for determined unit cost (DUC) (€2017) - En route	75.24	47.05	40.42	38.35	-1.7%	-0.4%	
Target for determined unit cost (DUC) (€2017) - Terminal	TCZ1	181.05	118.48	107.80	104.10	n/a	+2.2%
	TCZ2	410.47	255.46	238.06	216.11	n/a	+1.9%

PRB assessment

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

- Poland is consistent with the RP3 DUC trend in terms of average reduction.
- Poland is not consistent with the long-term Union-wide DUC trend. However, the deviation (15.0M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Poland is not consistent with the average DUC baseline of the comparator group.

5. PRB recommendations**SAFETY**

- Poland should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.
- Poland should include change management practices for Warmia i Mazury Sp. z o.o. and Port Lotniczy Bydgoszcz S.A.

ENVIRONMENT

- Poland should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

POLAND

Safety KPA

1.1 Summary of safety key data and assessment results

Poland

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 of RP3. 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, relevant and sufficient measures are proposed. Relevant measures are provided for Warmia i Mazury Sp. z o.o. and Port Lotniczy Bydgoszcz S.A. that require to improve in the area of safety risk management from C to level D, however more details should be provided. Moreover, the NSA derived measures should be provided.

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 performance plan stipulates that safety has a priority above others KPAs.

1.1.4 Change Management

The performance plan describes how major airspace changes or improvements to the ATM functional systems will be implemented to minimise the impact on network performance in PANSA but not two other ANSPs.

1.1.5 PRB conclusions

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

- The EoSM safety targets are consistent with the Union-wide performance targets.
- Some measures are sufficiently described to demonstrate how the ANSP will improve maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- PANSA's change management practices ensure that any negative impact on network performance is reduced.
- Poland should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.
- Poland should include change management practices for Warmia i Mazury Sp. z o.o. and Port Lotniczy Bydgoszcz S.A.

1.2 Targets for EoSM for ANSPs and Measures

Poland

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
PANSA	Safety policy and objectives	D	C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	D	C	C	C	C	C	✓	
	Safety culture	D	C	C	C	C	C	✓	

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 planned to be attained at the end of RP3. PANSA already met or exceeded the targets in 2020.

Some specific measures are proposed such as:

- safety culture review (results of which were implemented in the above mentioned SMS development roadmap);
- update of safety training modules for managerial level and continuation of safety trainings for PANSA employees;
- safety promotion (including quarterly publication of Safe Sky bulletin, information campaign preceding implementation of eTOKAI reporting system, publication of safety reports for FIR Warszawa);
- update of safety recommendations register to include new functionalities, implementation of new system for monitoring execution of safety requirements following from implementation of changes in functional system, initiation of works aimed at implementation of new Safety Assessment Information Tool;
- continuation of best practices exchanges with national and international organisations and entities;
- measures derived from ensuring compliance with Commission Implementing Regulation (EU) 2017/373.

Described measures are considered relevant and sufficient to maintain the required safety level.

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
Warmia i Mazury Sp. z o.o.	Safety policy and objectives	C	C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

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 planned to be attained at the end of RP3. The ANSP has attained the safety targets levels on four out of five safety management objectives. However, the plan explains that levels for 2020 have not yet been verified by EASA. Therefore, they are set based on Polish CAA assessment.

The performance plan describes the measures in various areas (ensuring SMS training for all staff and contractors, appointment of Safety Manager, Safety Committee and Safety Review Board, regular organisation of Local Safety Meetings development of safety management indicators, promotion of proactive attitude of the employees regarding safety in the organisation, conducting internal audit of the SMS and regular safety surveys, development of annual business plan containing information on safety related investments, sharing best practices, e.g. via SMS Data Exchange Forum etc.).

More specific measures in the safety risk management area, ensuring compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
Port Lotniczy Bydgoszcz S.A	Safety policy and objectives	C	C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3. 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 attained the safety targets levels on four out of five safety management objectives. However, the plan explains that levels for 2020 have not yet been verified by EASA. Therefore, they are set based on Polish CAA assessment.

The performance plan describes the measures in various areas (such as ensuring SMS training for all staff and contractors, appointment of Safety Manager, Safety Committee and Safety Review Board, regular organisation of Local Safety Meetings development of safety management indicators, promotion of proactive attitude of the employees regarding safety in the organisation, conducting internal audit of the SMS and regular safety surveys, development of annual business plan containing information on safety related investments, sharing best practices, e.g. via SMS Data Exchange Forum etc.).

More specific measures in the safety risk management area, ensuring compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

1.3 Interdependencies and Change management practices

Poland

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 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 such as low season.

1.3.2 Change Management Practices

The performance plan describes PANSAs change management procedure in accordance with the regulations and under the supervision of Polish CAA. The procedure ensures that negative impact is minimised by close cooperation with specialists/practitioners and stakeholders during the change implementation. The transition plans are based on implementation in a limited environment that permits close monitoring the of the operations during the implementation phase. Furthermore, the implementation is introduced progressively during the lower traffic demands or higher workforce available. No information for two other ANSPs were provided.

POLAND

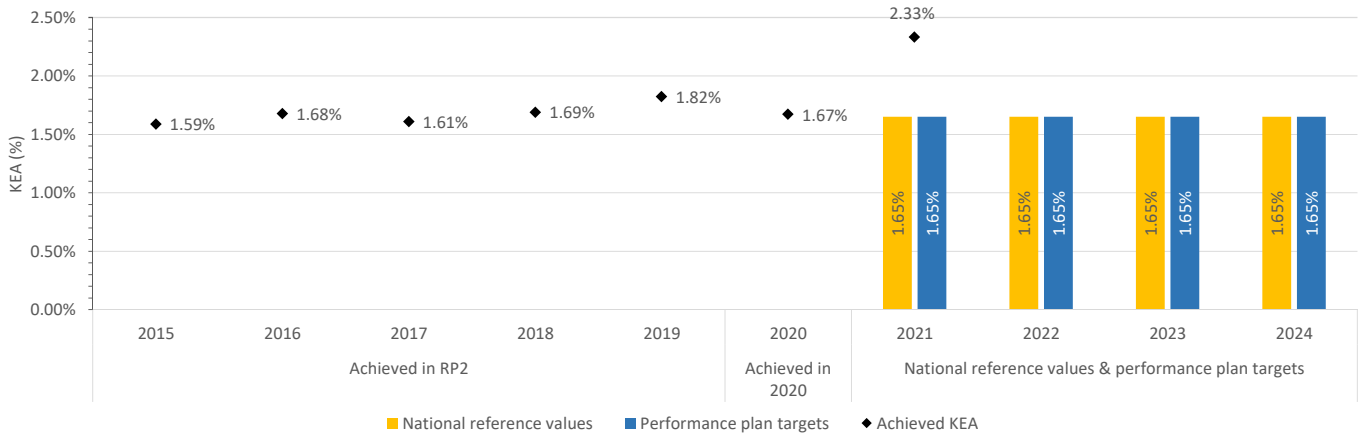
Environment KPA

2.1 Summary of Key Data and Assessment Results

Poland

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

	2020	2021	2022	2023	2024
National reference values	1.67%	1.65%	1.65%	1.65%	1.65%
Performance plan targets	1.85%	1.65%	1.65%	1.65%	1.65%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Poland's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Poland did not achieve the 2021 target of 1.65% in its performance plan. For this reason, Poland has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Poland's performance may be affected by the geo-political situation in Eastern Europe.
- Poland should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
Free route airspace (FRA) within Warszawa flight information region (FIR) was implemented in February 2019 from FL095 to FL660, although the presence of several TMAs means that true FRA is available above FL285.			3.2.1(c)	Page 53
Major ERNIP Recommended Measures:		12		
Measure included within performance plan?				
	Polaris FIR – ATS route removal	✗	n/a	Page 125
	Warszawa TMA improvements	✓	3.2.1(c)	Page 130
	TMA Krakow re-organisation	✗	n/a	Page 131
	Improve TMA Poznan	✗	n/a	Page 131
	Baltic FAB cross-border FRA	✓	3.2.1(c)	Page 174
	CB FRA operations	✓	3.2.1(c)	Page 174
	AMC Poland – FMP Warszawa coordination procedures	✓	3.2.1(c)	Page 178
	Reorganisation ACC Warszawa sector configuration – three layer division – step 1	✓	3.2.1(c)	Page 187
	FAB DK-SE – Baltic FAB cross-border FRA	✓	3.2.1(c)	Page 203
	Reorganisation ACC Warszawa sector configuration – three layer division – step 2	✓	3.2.1(c)	Page 208
	CB FRA operations	✓	3.2.1(c)	Page 218
	Reorganisation ACC Warszawa sector configuration – three layer division – step 3	✓	3.2.1(c)	Page 220
FUA Implementation according to latest LSSIP		Implementation		
	1	✓		
	2	✓		
	3	✓		

The chart in section 2.1.1 shows that Poland achieved a KEA of 1.67% in 2020. In 2021, Poland reached a KEA of 2.33% which means it did not achieve the 2021 target of 1.65% in its performance plan.

The main external factors negatively influencing the situation according to Poland are:

- Traffic from/to Russia bypassing Ukrainian airspace;
- Rerouting to avoid Crimean airspace;
- Rerouting to avoid Kaliningrad airspace;
- Rerouting to avoid Belarusian airspace;
- Increasing military activity, including large military exercises;
- Weather phenomena.

Without these external factors stabilising, it is unlikely that Poland will achieve the targets set for the years to come.

Free route airspace (FRA) implementation within Warszawa flight information region (FIR) is one of the enablers of KEA improvement. Poland plans to further expand the FRA and create cross-border FRA with Lithuania (Baltic FRA), Slovakia and Ukraine in 2024. This will allow for seamless cross-border operations between Baltic FRA and South-East Europe FRA (SEE FRA). In addition, Poland committed to improved environmental performance thanks to the reconfiguration of ACC Warszawa sector.

In 2020, Poland implemented an advanced flexible use of airspace (A-FUA) concept in Warszawa FIR, introduced a reduction of flight buffer zones from 5 nautical miles to 2.5 nautical miles and a reduction of tactical distance between segregated areas and general air traffic (GAT) in en route controlled airspace from 3.5 nautical miles to 2.5 nautical miles.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

POLAND

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to national reference values and fall above the range of the delay forecast during 2022-2024. Poland is expected to have sufficient capacity to meet traffic demand.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Poland included 15 airports in the performance plan. National targets are set higher than in RP2 (except for 2021), and are generally in line with average past performance.

Warszawa Chopina is the main driver of delays, followed by Krakow and Warszawa Modlin. There are 10 airports which are not expected to generate any delays in RP3. The performance of Warszawa Chopina, Warszawa Modlin, Krakow, Katowice Pyrzowice and Pznan Lawica is expected to be worse than that of the group of similar airports.

3.1.3 Incentives

En route:

- Poland has chosen to modulate the pivot values according to the updates of the NOP.
- Maximum bonus and penalty is set at 2%.

Terminal:

- Poland has chosen to modulate the pivot values for CRSTMP-only delays. The indicated pivot values are in line with RP3 targets and the past share of CRSTMP delays.
- Maximum bonus and penalty is set at 2%.
- The performance plan does not provide adequate information on how financial incentives are apportioned between terminal charging zones.
- 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

The investment "U-Space program" is related to UAV environment functionalities related to ensuring efficient procedural and cooperative interface with ATC/ATM. Poland expects a capacity surplus for RP3 and one major project contributing to en route capacity linked to PCP/CP1 ATM functionality AF3 is planned for RP3 deployment. Several other investments are planned to contribute to resilience, scalability and flexibility. However many of these will enter operations after RP3. Other smaller investments related to infrastructure are in place contributing to the virtualisation and digitalisation of services.

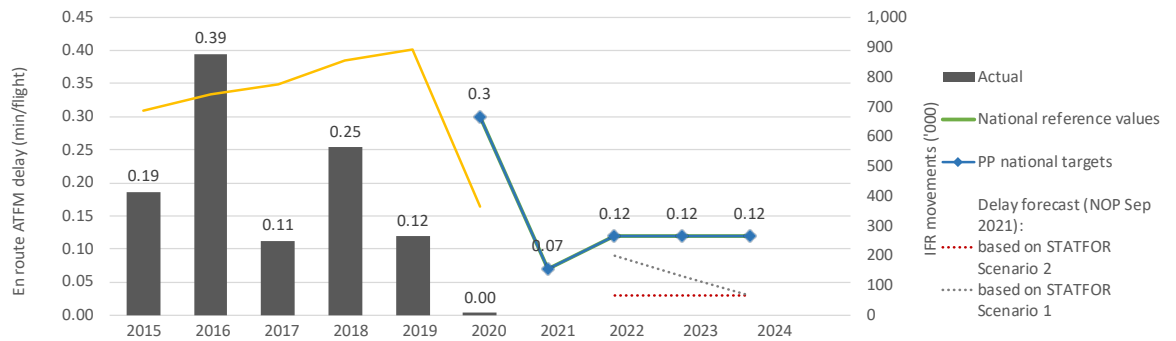
3.1.5 PRB conclusions

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

- Poland included an investment related to a UAVs, called "U-space program".

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✔



Traffic variation	-0%	+7.5%	+4.8%	+10.1%	+4.5%	-59.1%				
Actual delay/flight	0.19	0.39	0.11	0.25	0.12	0.00				
National reference values						0.30	0.07	0.12	0.12	0.12
PP national targets						0.30	0.07	0.12	0.12	0.12
Based on STATFOR Scenario 1							-	0.09	0.06	0.03
Based on STATFOR Scenario 2							-	0.03	0.03	0.03

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures ✔

Assessment of capacity enhancement measures and review against NOP

During RP2, Poland experienced some capacity constraints related mostly to ATM capacity (about 50%) and staffing (30%). Except for 2016 and 2018, Poland maintained the capacity along constantly increasing levels, achieving values below the capacity targets. During 2016 and 2018, the delays caused by lack of capacity and staffing issues caused missing the targets significantly (in 2016) and marginally (in 2018).

The performance plan contains the following capacity enhancement measures clustered into staffing, airspace and operations areas. All measures are in line with the NOP and are well described in Annex Q:

- continuation of ATCO training,
- flexible staff planning and rostering according to the traffic complexity,
- increased number of sectors and improved sector opening times,
- sectorisation and evolving ACC sector configurations and management,
- FRA and cross-border FRA (Lithuania, Slovakia and Sweden),
- adaptation and modernisation of the ATM system (Pegasus in 2022 and iTEC through RP3 into RP4); this project is not included in the NOP,
- comprehensive ASM and FUA,
- enhanced flow management, ATFCM techniques including STAM and complexity tool, FMP dynamic management for tactical solutions,
- investments into CNS infrastructure in support of airspace optimisation,
- full A-CDM and improvement of AMAN.

The planned number of ATCO FTEs show an increase by 11% during RP3 starting from 2022 on. The levels are justified by the NEST simulation and airspace projects. The measures are estimated to support achievement of the capacity targets.

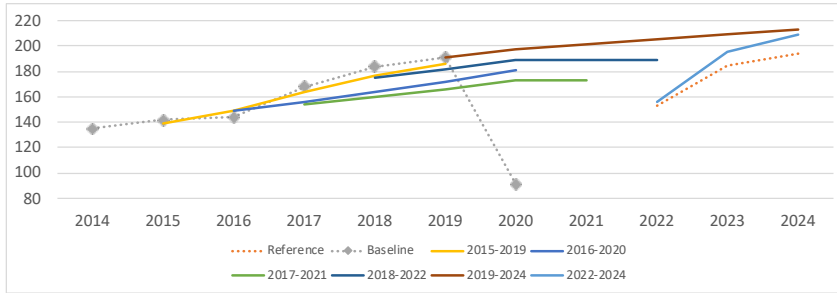
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Warsaw ACC (EPWW)	Additional ATCOs in OPS to start working in the OPS room	7	6	1.25	5.25	10	6	5
	ATCOs in OPS to stop working in the OPS room	5.5	2	4	4	0	0	0
	ATCOs in OPS to be operational at year-end	170.75	174.75	172	173.25	183.25	189.25	194.25
Total - Polish Air	Additional ATCOs in OPS to start working in the OPS room	7	6	1.25	5.25	10	6	5
Navigation Services Agency (PANSA) (en	ATCOs in OPS to stop working in the OPS room	5.5	2	4	4	0	0	0
	ATCOs in OPS to be operational at year-end	170.75	174.75	172	173.25	183.25	189.25	194.25

2024 (end) - 2020 (beg.)	
	+20
	+20

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Warsaw ACC (EPWW)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									153	185	194
Baseline	135	142	144	168	184	191	91				
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
2022-2024									156	195	209
Latest vs Reference									2%	5%	8%

- Historical data shows an average annual growth of 7.2% of baseline values in RP2. Planned profiles were below the baseline values except in 2016 and 2019.

- Latest planned capacity profile shows an average annual growth of 15.7%, resulting in values significantly higher than in 2019. Planned values are above the reference profile: Warsaw ACC is expected to have an increasing capacity surplus of 2%, 5%, and 8% in 2022, 2023, and 2024 respectively.

- Capacity profiles are in line with the capacity enhancement measures and the trend set by the national targets.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

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

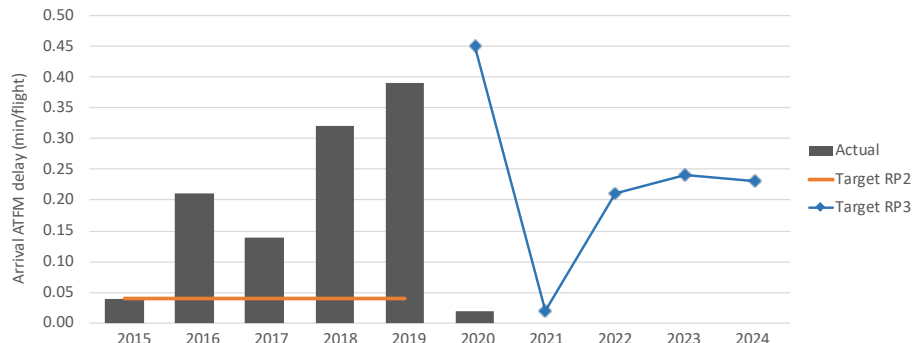
- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? ⓘ
No capacity gap has been identified, although the plan includes capacity enhancement measures not listed in the NOP.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? n/a
No measures have been proposed by the NM.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? n/a
n/a
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? n/a
No capacity gap has been identified.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)? ✔
The performance plan provides detailed information on the ATCO numbers and changes during the RP3. The plans are assessed to be in line with the planned capacity enhancement measures.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✔
The flexible use of operational staff via flexible rostering and flexible ATCO planning is one of the capacity enhancement measures in the staffing area. The reference is made in Annex Q and Capacity sections of the performance plan, although without details.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
The performance plan does not explicitly identifies the current ATM system limitations but it justifies its modernisation as a support to other capacity enhancement measures for local, cross-border and FAB levels.

3.2.6 PRB Key Points ✔

- The proposed national capacity targets are set equal to national reference values, and fall above the range of the delay forecast during 2022-2024.
- Poland is expected to have sufficient capacity to meet traffic demand.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



National level	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Actual	0.04	0.04	0.04	0.04	0.04	0.45	0.02	0.21	0.24	0.23
Warszawa/ Chopina (EPWA)	0.03	0.48	0.31	0.68	0.86	0.04	0.04	0.04	0.42	0.39	0.38
Bydgoszcz (EPBY)	0.00	0.00	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	0.00	0.00
Krakow - Balice (EPKK)	0.21	0.05	0.01	0.04	0.03	0.04	0.04	0.02	0.04	0.25	0.23
Katowice - Pyrzowice (EPKT)	0.01	0.00	0.01	0.01	0.03	0.00	0.00	0.00	0.02	0.16	0.11
Lublin (EPLB)	0.00	0.00	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	0.00	0.00
Warszawa/ Modlin (EPMO)	0.00	0.00	0.00	0.32	0.16	0.01	0.00	0.00	0.37	0.34	0.31
Poznan - Lawica (EPPO)	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.11	0.10	0.09
Radom (EPRA)	0.00	0.00	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	0.03	0.00	0.00
Szczecin - Goleniów (EPSC)	0.00	0.00	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	0.00	0.00
Wroclaw/ Strachowice (EPWR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	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	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 every year except in 2015.

For RP3, the performance plan uses the STATFOR October 2021 forecast that estimates a CAGR of 0.5% in 2019-2024. Nevertheless, the performance plan mentions that the forecast of terminal delays, prepared by PANSAs, was based on data analysis and assumptions valid at the time of preparing the forecast (including terminal delays generated in the period from January to June 2021) and the forecast of the delay rate has been prepared taking into account the baseline scenario 2 of the STATFOR May 2021 forecast.

This results in national targets, which are higher than the observed average delays in the period of 2015-2017, but lower than the delays observed in 2018 and 2019.

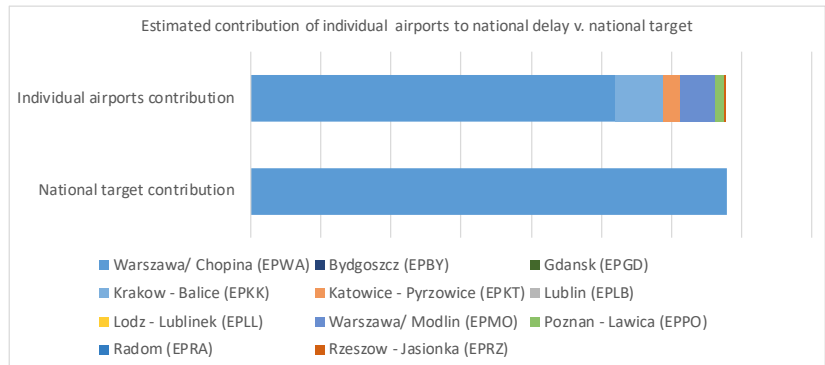
Some measures are expected to improve airport efficiency (implementation of A-CDM at Warsaw) and reduce the ATC related delays (restructurisation of the TMA and increase in staff at Warsaw, implementation of tools supporting ATCOs).

The targets for Warsaw Modlin are significantly higher than the past observed performance (this airport did not observe any delays until 2018), as well as for Krakow, Katowice and Poznan.

The performance plan argues that a potential increase of traffic complexity at Warsaw, military exercises in Poznan and airspace changes around Krakow are the main factors influencing these targets.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Warszawa/ Chopina (EPWA)	0.31
Bydgoszcz (EPBY)	0.00
Gdansk (EPGD)	0.00
Krakow - Balice (EPKK)	0.14
Katowice - Pyrzowice (EPKT)	0.07
Lublin (EPLB)	0.00
Lodz - Lublinek (EPLL)	0.00
Warszawa/ Modlin (EPMO)	0.26
Poznan - Lawica (EPPO)	0.08
Radom (EPRA)	0.00
Rzeszow - Jasionka (EPRZ)	0.01
Szczecin - Goleniów (EPSC)	0.00
Olsztyn-Mazury (EPSY)	0.00
Wroclaw/ Strachowice (EPWR)	0.01
Zielona Gora - Babimost (EPZG)	0.00
National Target	0.18



Ten of the fifteen Polish airports included in the performance plan are expected to produce zero or nearly zero delays. The biggest contribution is expected from Warsaw Chopina, followed by Krakow and Warsaw Modlin. According to the targets and past traffic share, the national target contribution coincides with the 15 airports' targets contribution.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Warszawa/ Chopina (EPWA)	GROUP III	0.12	0.50	+0.38%	0.31	+0.19%
Bydgoszcz (EPBY)	GROUP IV	0.00	0.00	-0.00%	0.00	-0.00%
Gdansk (EPGD)	GROUP IV	0.00	0.00	-0.00%	0.00	-0.00%
Krakow - Balice (EPKK)	GROUP IV	0.00	0.06	+0.06%	0.14	+0.14%
Katowice - Pyrzowice (EPKT)	GROUP IV	0.00	0.01	+0.01%	0.07	+0.07%
Lublin (EPLB)	GROUP IV	0.00	0.00	-0.00%	0.00	-0.00%
Lodz - Lublinek (EPLL)	GROUP IV	0.00	0.03	+0.03%	0.00	-0.00%
Warszawa/ Modlin (EPMO)	GROUP IV	0.00	0.10	+0.10%	0.26	+0.26%
Poznan - Lawica (EPPO)	GROUP IV	0.00	0.01	+0.01%	0.08	+0.08%
Radom (EPRA)	GROUP IV	0.00	0.00	-0.00%	0.00	-0.00%
Rzeszow - Jasionka (EPRZ)	GROUP IV	0.00	0.00	-0.00%	0.01	+0.01%
Szczecin - Goleniów (EPSC)	GROUP IV	0.00	0.00	-0.00%	0.00	-0.00%
Olsztyn-Mazury (EPSY)	GROUP IV	0.00	0.00	-0.00%	0.00	-0.00%
Wroclaw/ Strachowice (EPWR)	GROUP IV	0.00	0.00	-0.00%	0.01	+0.01%
Zielona Gora - Babimost (EPZG)	GROUP IV	0.00	0.00	-0.00%	0.00	-0.00%

* 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 past performance of Warsaw Chopina, Warsaw Modlin and Krakow was worse or slightly worse than the performance of similar airports. The proposed targets for RP3 represent a slight improvement for Warsaw, but still worse performance than similar airports and a further deviation for Warsaw Modlin, Krakow, Poznan and Katowice.

3.3.5 PRB Key Points

Poland included 15 airports in the performance plan. National targets are set higher than in RP2 (except for 2021), and are generally in line with average past performance.

- Warszawa Chopina is the main driver of delays, followed by Krakow and Warszawa Modlin. There are 10 airports, which are not expected to generate any delays in RP3.
- The performance of Warszawa Chopina, Warszawa Modlin, Krakow, Katowice - Pyrzowice and Pznan - Lawica is expected to be worse than that of the group of similar airports.

3.4 Capacity Incentive schemes

3.4.1 En route capacity incentive scheme

Parameters of the en route capacity incentive scheme

Dead band	Max bonus	Max penalty
±20.0%	2.00%	2.00%
	✓	✓

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			0.12	0.12	0.12
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.12	0.12	0.12
Pivot values for RP3			0.12	0.00	0.00

Threshold and pivot value review

The pivot value will be updated annually and is the reference value published in the NOP. A threshold of +/-20% is applicable around the pivot value before any penalty or bonus is due. The maximum penalty / bonus will be applied when the performance is more than 0.05 minutes from the reference value.

Modulation review

The pivot value is modulated annually and is the reference value published in the NOP.

Review of financial advantages/disadvantages

A maximum bonus / penalty of 2% DC is applicable.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±20.0%	2.00%	2.00%
	✓	✓

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)			±0.035	±0.025	±0.020
Performance Plan targets			0.21	0.24	0.23
Pivot values for RP3			0.07	0.05	0.04

* As presented in Annex I to the performance plan for Poland

Threshold and pivot value review

The terminal incentive scheme includes a dead band of +/-20% of the CRSTMP pivot value (dead band: 0.056 - 0.084 minutes per arrival). The 20% dead band should be enough to allow for small variations in performance with no associated bonuses / penalties. The pivot values, modulated according to CRSTMP causes, represents an improvement with respect to the 2018 and 2019 performance, although still higher delays than the first three years of RP2.

Note that the pivot values shown above for the years 2023 and 2024 are as presented in Annex I to the performance plan, as no values were submitted in section 5.2.2.1 of the performance plan.

Modulation review

Poland has chosen to modulate the pivot values according to CRSTMP causes.

According to the Polish performance plan, the modulated pivot value is calculated based on traffic and capacity simulation. Since the traffic level during the COVID-19 pandemic period (2020-2021) is not representative, the pivot value will be based on the forecast of terminal delays prepared by PANSAs and current data available.

The pivot values go 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 2%. The performance plan does not clarify how the incentives impact each TCZ.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

11

En route:

- Poland has chosen to modulate the pivot values according to the updates of the NOP.
- Maximum bonus and penalty is set at 2%.

Terminal:

- Poland has chosen to modulate the pivot values for CRSTMP-only delays. The indicated pivot values are in line with RP3 targets and the past share of CRSTMP delays.
- Maximum bonus and penalty is set at 2%.
- The performance plan does not provide adequate information on how financial incentives are apportioned between terminal charging zones.
- 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.

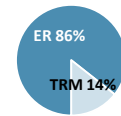
3.5 Investments

Poland - Polish Air Navigation Services Agency (PANSA)

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	35.3	36.8	44.2	46.8	49.3	212.4
En route	M€ (nominal)	30.5	31.2	37.7	40.1	42.5	181.9
Terminal	M€ (nominal)	4.8	5.6	6.5	6.7	6.9	30.5

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.

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	TRM
1	01440701_Campus	<i>The aim of the project is to build a new PANSA headquarters. The project includes construction of a new ACC and APP OPS room to take over all operational functions of the current facility in Warsaw (excluding EPWA TWR and Training Center). The new Campus will become the place from which the majority of air traffic (ACC, APP) and auxiliary services for Poland will be performed. The new Campus will replace the existing facilities of the PANSA used to that end. Current PANSA premises do not provide enough space and are functionally not sufficient and their technical limitations prevent further development.</i> <i>More details can be found in section 2.1 of the performance plan and Annex E.</i>	169.8	No	No	1.9	0.1
2	02440701_Communication_systems	<i>The project is directly related to new ATC centres: Campus and ATM OPS Centre Poznań aimed at providing ACC and APP services, and to the new ATM system. The project goal is to provide the newly-built air traffic control centres with the necessary communication infrastructure/systems (G-G, A-G) for both voice and data transmission.</i> <i>More details can be found in section 2.1 of the performance plan and Annex E.</i>	12.9	No	No	2.1	0.0
3	03440701_iTEC	<i>The project covers new iTEC core ATM system planned to be installed in the new ATM OPS Center in Poznan and new Campus in Reguly. iTEC system will be an evolution of the currently-used PEGASUS_21 combined with key components acquired as part of iTEC Collaboration, which are jointly developed and financed by a group of leading ANSPs in Europe.</i> <i>More details can be found in section 2.1 of the performance plan and Annex E.</i>	64.6	Yes	Yes	3.1	0.0
4	06440701_VCS_system	<i>The project covers VCS system (technical devices) for FIR Warszawa (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) system, integrating all available communication systems.</i> <i>More details can be found in section 2.1 of the performance plan and Annex E.</i>	8.1	Yes	No	0.2	0.0
5	21440701_ATM OPS_Centre_Poznan	<i>Construction of an ATC Centre Poznań with required operational and technical infrastructure. ATC Centre Poznań will be the contingency centre for FIR Warszawa (in the future for the Campus), including for EPWW ACC and other regional APP centres.</i> <i>More details can be found in section 2.1 of the performance plan and Annex E.</i>	21.7	No	No	4.7	0.0
6	IP470701_U-Space_Program	<i>The name of the investment refers to U-space/ UAV environment for ease of internal processes in PANSA – despite this name, the scope of the investment does not cover full set of functionalities related to U-space/ UAV environment, but especially those related to ensuring efficient procedural and cooperative interface with ATC/ATM, as covered by PANSA ANS/ATM certificate.</i> <i>More details can be found in section 2.1 of the performance plan and Annex E.</i>	6.8	No	No	0.0	0.6
7	IT170202_Tower_at_the_Central_Hub_Airport	<i>New Tower for Central Hub - construction of a new Tower building with supporting facilities and systems. The scope of the project includes design works, construction works, purchase of technical equipment and operational implementation. Related assets include TWR building, power supply systems, utilities infrastructure, furniture, equipment related to administrative and social functionalities as well as basic ATCO stations equipment (without ATC-related systems).</i> <i>The task schedule is closely correlated with the Solidarity CTH investments.</i>	14.5	No	No	0.0	0.0

8	IT430803_Radar_PSR/MSSR_Gdańsk	New radar PSR/MSSR (replacement of currently used radar PSR/MSSR) with associated infrastructure. The project covers design and installation of radar facility, including construction of necessary building elements as well as communication lines, construction of technical building with supporting power supply and telecommunication connections and road access and fence. 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). More details can be found in section 2.1 of the performance plan and Annex E.	5.9	Yes	No	0.7	0.0
9	IT430900_Modernization_of_the_ATM_system_2	Continuation of maintenance and development of Pegasus_21 ATM system installed in 2013 (the existing core ATM system in PANSa). 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). More details can be found in section 2.1 of the performance plan and Annex E.	23.7	Yes	Yes	2.2	0.3
10	IT440732_MLAT_system_for_FIR_Warsaw	Implementation of MLAT system for FIR Warszawa – investment is an element of SUR modernisation and development in PANSa to ensure continuity of ANS through multiple radiolocation coverage in FIR Warszawa (in particular SUR for APP and better coverage for ACC) and to implement Mode-S functionalities. More details can be found in section 2.1 of the performance plan and Annex E.	8.4	Yes	No	0.5	0.1
11	IR470209_CWP_TWR	The CWP TWR project consists in the modernisation of TWR in FIR Warszawa in the scope of unifying working positions through the use of technology that allows the necessary minimum technical equipment to be left at workstations. More details can be found in section 2.1 of the performance plan and Annex E.	7.6	No	No	0.2	0.0
12	IT430404_Server_Business_Infrastructure	The project includes server infrastructure that needs to be replaced or supplemented. Currently the project is directly related to the new ATM System in ATC centres and server business infrastructure (hard technical devices) for FIR Warszawa. The project covers purchase of the necessary server infrastructure for ATM system. In 2021 the new ATM system contractor in Platform Definition Document specified the hardware equipments necessary for its installation. As a result, there was a need to plan new specialized servers, matrices with software. More details can be found in section 2.1 of the performance plan and Annex E.	6.1	No	No	1.3	0.3
Total:						16.9	1.4

Airspace user feedback regarding major investments

The airspace users raised questions about several investments, including Campus, U-Space Program, CWP TWR, with regards to the changes with respect to the 2019 submission, the values of the projects and their schedules of execution.

These questions were also considered by the NSA during the assessment of revised CAPEX plan. Additional information on these changes was also provided in the Monitoring Report 2020 for Poland, which was also sent to airspace users' representatives on 9th of July 2021.

Review of investments

New major investments represent 9% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 87% and the amount underspent was 31.8M€. Despite underspending on investments, actual depreciation and cost of capital were 0.3M€ higher than planned for RP2.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Network, Local	Safety, Environment, Capacity, Cost-efficiency	Improving safety in FIR Warszawa through elimination of "single points of failure"; Possibility of opening additional sectors will have positive impact on flight trajectories (shorter routes and optimisation of flight profile); Improved ability to adapt to air traffic flows and increase of airspace capacity through additional workstations; Cost-effectiveness obtained from the implementation of solutions for new infrastructure.
2	02440701_Communication_systems	Network, Local	Safety, Capacity, Cost-efficiency	Securing continued access to services; Ensuring continuity of ANS in case of ATC centre in Warsaw failure; Benefits should be considered in conjunction with the Poznań ATC Centre and the ATC Centre in Reguły.
3	21440701_ATM_OPS_Centre_Poznan	Network, Local	Safety, Environment, Capacity, Cost-efficiency	Improving safety in FIR Warszawa through elimination of "single points of failure" and ensuring the continuity of ANS provision (contingency centre); Avoiding negative impact of possible Warsaw ACC center closure on flight trajectories; Ensuring continuity of ANS in FIR Warszawa, including preventing significant limitation of EPWW capacity in case of ACC OPS room failure; Lower future iTEC implementation costs as the main PANSa ATM system in the campus.

4	IP470701_U-Space_Program	Network, Local	Safety, Environment, Capacity, Cost-efficiency	Maintaining level of safety along the dynamic increase in UAV traffic through improved situational awareness of ATCOs; UAVs tracking would bring additional information on current position of the UAV; Digitisation of the UAV flight coordination process at Controlled Zones; Lower workload related to the flight coordination process – both for TWR ATCO and for PANSA staff issuing permissions for UAV operations in Controlled Zones.
5	IT170202_Tower_at_the_Central_Hub_Airport	Network, Local	Safety, Capacity, Cost-efficiency	The tower will contribute to the overall safety at the airport.; TWR is necessary to provide ATS Services at the airport.
6	IR470209_CWP_TWR	Local	Safety, Capacity, Cost-efficiency	Improvement of ATCO situational awareness due to simplification and unification of display systems; Facilitation of installation of ATC supporting systems and data exchange; Elimination of future need to install additional displays for the purpose of new ATC support systems at TWRs - enabler to flexible software evolution.
7	IT430404_Server_Business_Infrastructure	Local	Safety, Environment, Capacity, Cost-efficiency	Benefits to be considered are the ones listed for new ATM system and modernization of ATM system.

Additional information

Detailed information about investments can be found in section 2.1 of the performance plan and Annex E.

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 RP3 (M€)
Other new investments	193.2	95.6	0.5	1.2	4.4	7.9	10.2	24.0
Existing investments			34.1	34.5	36.7	33.7	31.0	170.0

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	IT430804_Radar_PSR/MSSR_Katowice	5.4	5.4	0.0	0.0	0.0	0.1	0.5	0.6	The project includes construction of radar facilities for the needs of approach control (with the possibility of using it also for area control) which should be implemented in 2024.
2	IP470810_Modernization_TWR_Wroclaw	4.4	4.3	0.0	0.0	0.2	0.3	0.3	0.8	The project concerns construction of additional two technical buildings beside the current TWR in Wroclaw. One of them would be a technical building for server room and workplace for technical personnel. The other one would serve as a guardhouse, power ge
3	IT480910_Radar_PSR/MSSR_Radom	4.2	4.2	0.0	0.0	0.1	0.4	0.5	0.9	The project includes construction of new radar facilities for the needs of approach control (with the possibility of using it also for area control) which should be implemented in 2023.
4	IA480139_A-SMGCS	5.3	5.3	0.0	0.0	0.0	0.1	0.3	0.4	The project includes new Radar SMR-2 at Warsaw Chopin Airport with supporting infrastructure, ASMGCS system (level 2+) with working positions for ATCOs in Warsaw Tower building, integration with other systems used by PANSA.
5	IR470208_Virtualization_of_ATS_airport_services	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	The investment aims at integration of the existing systems operating independently within a single system (integration, processing and display of data from various sources).
6	IT460721_Modernization_of_the_network_infrastructure	4.6	2.0	0.0	0.1	0.2	0.3	0.4	1.1	The project includes modernization of the WAN network for FIR Warszawa, a new firewall in Warsaw, continuous replacement of access network architecture to CNS facilities.

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?

Warsaw ACC is expected to have a 2% capacity surplus in 2022 and this is expected to increase to 8% in 2024.

Poland is planning several (12) major investments but most of these (8) are expected to enter operations after RP3. The main investment contributing to capacity during RP3 is the Modernisation of the ATM system 2 investment to be deployed operationally in 2022. This investment is linked to PCP/CP1 ATM Functionality AF3. The other major investment driving capacity enhancements is the iTEC investment contributing to PCP/CP1 ATM Functionalities AF3, AF5 and AF6 but this investment will not be deployed operationally during RP3.

Other major investment linked to PCP/CP1 ATM Functionalities is the VCS system investment linked to AF3.

Remaining other major investments concern back-up ATM system implementation, infrastructure investments, tower investments, U-Space program investment and surveillance infrastructure investments. These investments contribute to resilience, scalability and flexibility.

Other (non-major) investments concern mostly infrastructure, surveillance equipment, airport ATS and network related investments. The A-SMGCS Level 2+ investment for Warsaw Chopin airport may yield some airport/TMA level capacity benefits.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?

The Modernisation of the ATM system 2 investment will support increased number of sectors and better tactical routing options, improved conflict detection and resolution capabilities and increase the level of automation in controller-controller coordination. This will be supported by a new communication system. Interoperability with TWR units will also be improved. The iTEC investment – to be deployed operationally after RP3 – will introduce flight object and 4D trajectory capabilities, increased flexibility in airspace configurations management and will support virtualisation capabilities in line with the European ATM evolution.

The new contingency facilities will improve overall system resilience and service provision capabilities in case of a major outage of a unit. The U-Space investment will enable integration of UAV and manned aircraft information and UAV tracking allowing for ATM-UTM integration. Other major investments contribute to resilience, flexibility and scalability through the introduction of modernised infrastructure enabling digitalisation and virtualisation (Campus investment, Communication/VCS systems investment) and increase surveillance capabilities and resilience through the introduction of new surveillance sensor types (MLAT system for FIR Warsaw investment).

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

The capacity surplus in Poland is increasing during RP3 and e.g. the Modernisation of the ATM system 2 investment is contributing to this development.

The capacity outlook beyond RP3 appears similarly positive with e.g. the iTEC investment planned for operational deployment after RP4. However, the performance plan does not specify how far beyond RP3 the operational implementation of the investment will extend and this should be taken into consideration in RP4 planning to avoid capacity reductions.

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 87% and the amount underspent was 31.8M€. Despite underspending on investments, actual depreciation and cost of capital were 0.3M€ higher than planned for RP2.
- The investment "U-Space program" is related to UAV environment functionalities to ensure efficient procedural and cooperative interface with ATC/ATM.
- Poland expects a capacity surplus for RP3 and one major project contributing to en route capacity linked to PCP/CP1 ATM functionality AF3 is planned for RP3 deployment.
- Several other investments are planned to contribute to resilience, scalability and flexibility. However, many of these will enter operations after RP3.
- Other smaller investments related to infrastructure are in place contributing to the virtualisation and digitalisation of services.

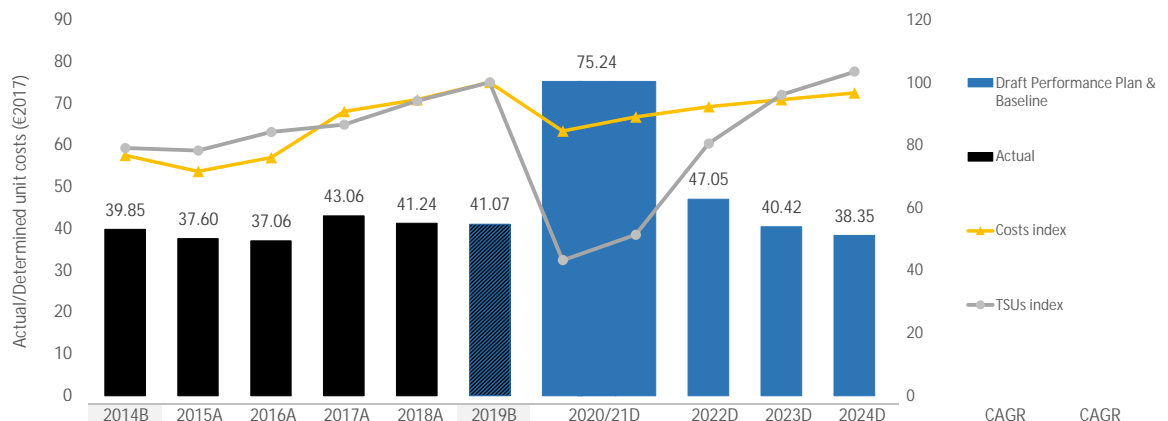
POLAND

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Poland - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



		2014B	2015A	2016A	2017A	2018A	2019B	2020/21D	2022D	2023D	2024D	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MPLN (nom)	661	614	650	786	826	888	1,603	876	914	950	+1.7%	+0.8%
Total costs	MPLN (2017)	665	621	658	786	819	867	1,503	799	819	837	-0.9%	-0.4%
TSU	'000	3,921	3,880	4,175	4,291	4,666	4,959	4,695	3,991	4,763	5,130	+0.8%	+0.4%
DUC	PLN (2017)	169.57	159.99	157.69	183.23	175.49	174.76	320.14	200.17	171.96	163.18		
Exchange rate	PLN:€				4.255								
DUC	€ (2017)	39.85	37.60	37.06	43.06	41.24	41.07	75.24	47.05	40.42	38.35		
Annual change	%		-5.6%	-1.4%	+16.2%	-4.2%	-0.4%	+83%	-37.5%	-14.1%	-5.1%	-1.7%	-0.4%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	41.07 €2017	✓
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No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	-1.7%	✓
The DUC is planned to decrease on average by -1.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-0.4%	✗
The DUC is planned to decrease on average by -0.4% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%). However, the deviation (15.0M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (38.96 €2017)?	+5.4%	✗
The 2019 DUC level is +5.4% higher than the average of the comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?	-	✓
The increase in the number of ATCOs in OPS, as well as the implementation of new investment (see section 3.5 of this document for details) are deemed necessary to achieve the capacity targets. The total determined costs over RP3 for these two items is estimated at 42.1M€2017, which spread as average for the period 2021-2024 equals to 14.0M€2017. As Poland deviates by 15.0M€2017 from the long-term trend, such deviation is considered justified for the achievement of capacity targets.		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?	-	n/a

4.1.4 PRB Conclusions

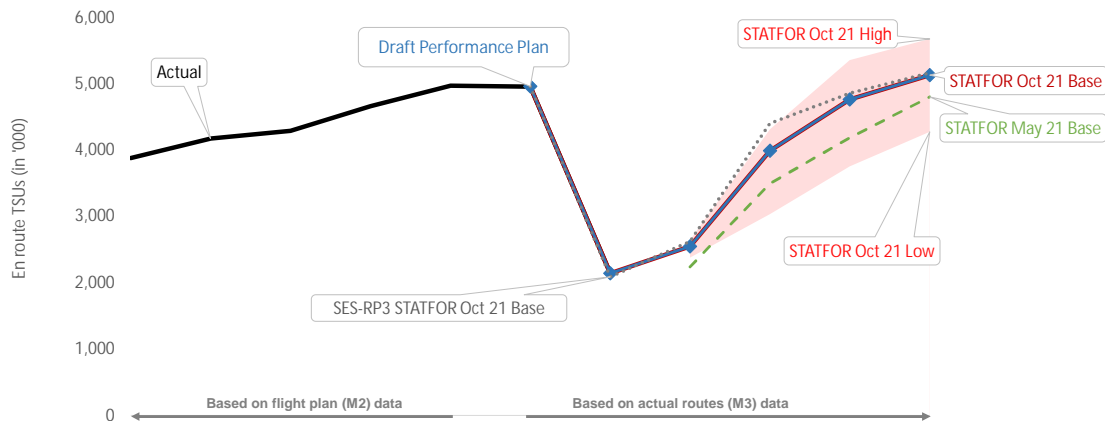
The PRB concludes that the cost-efficiency targets as proposed by Poland should be approved.

- Poland is consistent with the RP3 DUC trend in terms of average reduction.
- Poland is not consistent with the long-term Union-wide DUC trend. However, the deviation (15.0M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Poland is not consistent with the average DUC baseline of the comparator group.

4.2 Review traffic forecasts and baseline

Poland - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	3,880	4,175	4,291	4,666	4,972	4,959	2,146					
Annual change	%		+7.6%	+2.8%	+8.8%	+6.6%	+6.3%	-56.7%					
STATFOR Oct 21 Base	'000 TSUs								2,549	3,991	4,763	5,130	+3.4%
Annual change	%								+18.8%	+56.6%	+19.3%	+7.7%	
STATFOR May 21 Base	'000 TSUs								2,241	3,496	4,186	4,802	-3.2%
Annual change	%								+4.4%	+56.0%	+19.8%	+14.7%	
Performance Plan	'000 TSUs						4,959	2,146	2,549	3,991	4,763	5,130	+3.4%
Annual change	%						+6.3%	-56.7%	+18.8%	+56.6%	+19.3%	+7.7%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	4,959		2014B (PP baseline)	3,921	
2019A (as in the Reporting tables, M2)	4,972		2014A (as in the Reporting tables, M2)	3,931	
2019B/ 2019A	-0.25%	-0.25%	2014B/ 2014A	-0.25%	-0.25%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.25%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.25%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Poland is in line with the STATFOR October 2021 base scenario. According to this scenario, the traffic in Poland should return to its 2019 levels by the end of RP3.

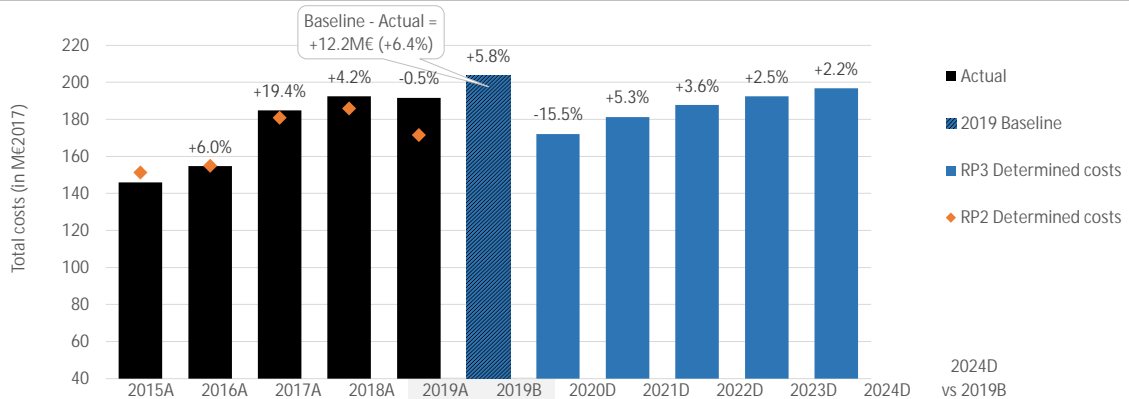
4.2.4 PRB Key Points

- Poland en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Poland - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



		2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	MPLN (nom)	614	650	786	826	836	888	771	832	876	914	950	+7.0%
Annual change	%		+5.9%	+20.9%	+5.1%	+1.3%	+7.5%	-13.2%	+7.9%	+5.3%	+4.4%	+4.0%	+15.3%
Inflation index	2017 = 100	98.6	98.4	100.0	101.2	103.3	103.3	107.1	110.6	113.4	116.2	119.1	
Total costs	MPLN (2017)	621	658	786	819	815	867	732	771	799	819	837	-3.4%
Annual change	%		+6.0%	+19.4%	+4.2%	-0.5%	+5.8%	-15.5%	+5.3%	+3.6%	+2.5%	+2.2%	
Total costs	M€ (2017)	146	155	185	192	192	204	172	181	188	192	197	-3.4%

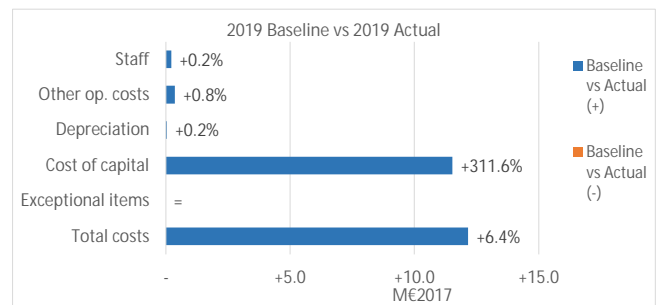
Exchange rate 2017
 PLN:€
 4.25483

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

The inflation index is in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	12.2	+6.4%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - 1	ANSP	Cost of cap.	+11.5
#2 - 2	MET	Staff	+0.2
#3 - 3	MET	Other ops.	+0.4
#4 - 4	MET	Depreciation	+0.0
#5 - 5	MET	Cost of cap.	+0.0

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments were implemented on the 2014 cost baseline.

The 2019 cost baseline included by Poland in its performance plan amounts to 204M€2017, i.e. +6.4% above the actual 2019 costs.

The additional +12.2M€2017 included in the 2019 baseline reflects the following adjustments: (i) +11.5M€2017 added by PANSAs to its cost of capital, and (ii) +0.6M€2017 allocated to the other so called "small ANSPs" (i.e. IMWM, Radom Meteo, Warmia i Mazury and PL Bydgoszcz) across all costs categories. According to the information provided in the performance plan, these adjustments were necessary to reflect the actual situation in RP3 and to ensure comparability between 2019 and RP3 figures.

2014/2019 baseline analysis

- The additional +11.5M€2017 of cost of capital included by PANSAs to the 2019 cost baseline results from the application, to the 2019 actual asset base, of a significantly higher WACC than the actual WACC applied in 2019. In fact, the WACC used to estimate the 2019 baseline value is set at 5.72%, reflecting the average WACC over the 2020-2024 period, while the one used to compute the actual 2019 cost of capital amounts to 1.38%, as it was artificially reduced in RP2 in order to reach the target and lower the user charges. These adjustments seem justified considering that the average RP3 WACC is similar to the average RP2 WACC.

- In addition to the adjustment mentioned above, Poland implemented a number of minor adjustments affecting the so called "small ANSPs". According to the performance plan, these adjustments were implemented to reflect changes in the scope of the services provided by these entities and to ensure comparability between the 2019 cost baseline and the RP3 figures. It is noted that these adjustments amount in total to +0.6M€2017 and have a marginal impact on the 2019 cost baseline. These adjustments seem justified.

4.3.3 Review of the RP3 determined costs and incentives



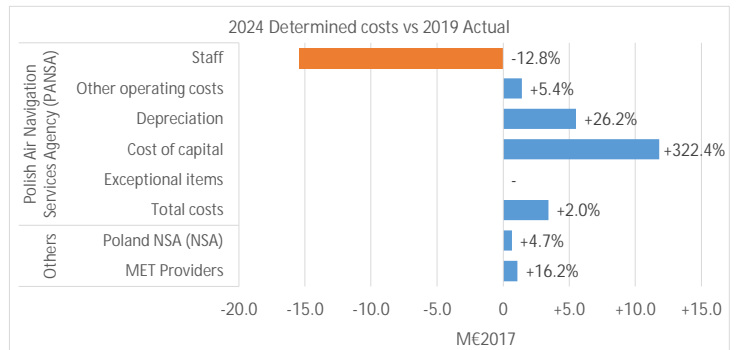
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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



The total costs of Poland are planned to increase by +2.7%, or +5.2M€2017, between 2019 actuals and planned 2024.

For PANSAs, the total determined costs are expected to remain below the 2019 level for the years 2020 to 2023 and to grow above 2019 actuals only in the last year of RP3, ending up at +2.0% (+3.4M€2017) above 2019 actual costs.

- PANSAs show a significant and constant reduction in staff costs (-12.8% in 2024 as compared to 2019). As provided in Annex R to the performance plan, the reduction in staff costs results from the implementation of a number of actions, including the revision of ATCOs' employment plan, reduction of base salary for all staff categories and other short-term measures implemented over the 2020-2021 period in response to the COVID-19 outbreak (e.g. furlough, limitation of bonuses and rewards, reduction in social contributions, and use of overtime).
- Other operating costs are expected to increase towards the end of the reference period. Specifically, the implementation of a number of optimisation and cost containment initiatives in response to the COVID-19 outbreak (see Annex R of the performance plan for more details) led to operative savings in 2020-2021. These savings were partially offset by a moderate increase in the last three years of the reference period (+5.4% in 2024 vs 2019).
- Higher depreciation costs, which are expected to increase steadily over RP3 and to end up at +26.2% in 2024 compared to 2019. Higher depreciation costs are the result of the significant investment plan put in place since the beginning of RP2 (confirmed by a steady increase in the net book value of fixed assets over this period), which is expected to continue also in RP3.
- A significantly higher cost of capital over the entire RP3 as compared to 2019. As noted in the analysis above concerning the 2019 baseline value, it is understood that the artificially low cost of capital applied in 2019 does not provide a relevant basis for comparison. Compared to 2018, the 2024 cost of capital is actually lower by -20.6%. Over RP3, the evolution of the cost of capital is related to increasing asset base resulting from the implementation of the investment plan, and gradual increases in both the rate of return on equity and the interest rate.

As for PANSAs, both the NSA and MET costs increase between 2019 and 2024 (+4.7% and +16.2% respectively).

En route service units are forecast to reach 2019 levels in 2024, while en route costs are planned to reach the 2019 actual level in 2023 (although 2024 costs are expected to remain still below the 2019 baseline value).

4.3.4 PRB Key Points



- Poland includes corrections to the 2019 cost baseline due to cost of capital adjustments and addition of entities. The adjustments seem justified.
- The costs increases during RP3 are mostly due to increases in other operating costs and depreciation.
- The cost of capital in RP3 is lower than in RP2, except if compared to 2019 due to the fact that the amount for 2019 was artificially lowered.
- Reductions in staff costs are planned during RP3.

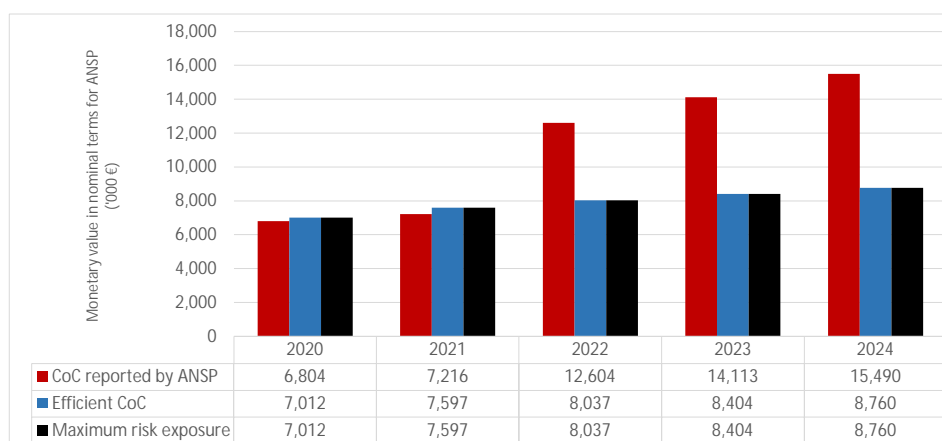
4.3.A Cost of capital

Polish Air Navigation Services Agency (PANSAs) - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	159,352	172,667	182,665	190,990	199,095
Monetary value of Return on Equity	6,510	5,622	10,050	11,015	12,337
Ratio RoE/DC (%)	4.1%	3.3%	5.5%	5.8%	6.2%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	-208	-381	4,567	5,710	6,729

Total 2020-2024
16,418

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	2.4%	n/a	2.4%	n/a	4.9%	n/a	5.1%	n/a	5.2%	n/a
Interest on debts	3.3%	n/a	3.4%	n/a	3.5%	n/a	3.5%	n/a	3.6%	n/a
Capital structure (% debt)	3.2%	n/a	16.4%	n/a	26.2%	n/a	28.8%	n/a	27.0%	n/a
WACC	2.4%	2.5%	2.5%	2.7%	4.5%	2.9%	4.6%	2.8%	4.7%	2.7%

Is the interest on debts in line with the market? **No**

- The weighted average interest on debt used to calculate the cost of capital pre-tax is not in line with competitive market practices for 2022-2024.
- The WACC is computed based on the CAPM. The efficient cost of capital has been computed in line with the maximum risk exposure (based on option 4).
- Over RP3, the reported cost of capital is 16.4M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the determined costs for 2022-2024 (ranging between 5.5% and 6.2% in those years).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	243,776	244,224	255,807	279,201	300,718
Net current assets	37,233	40,156	24,764	25,890	26,990
Adjustments total assets	0	0	0	0	0
Total asset base	281,009	284,380	280,571	305,091	327,708

- The fixed asset base is planned to increase over RP3. This is roughly in line with the investments described in section 3.5 of this document.
- The net current assets do not seem to present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to increase over RP3, due to the increase in the fixed asset base.

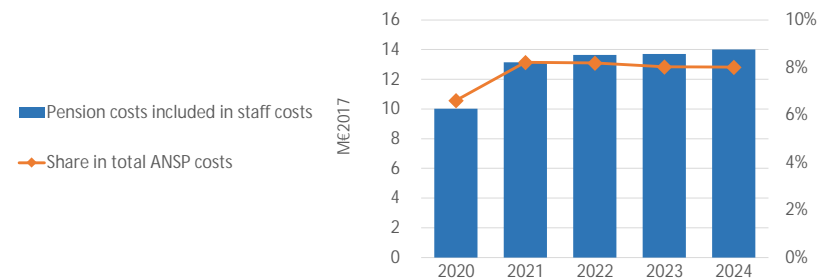
4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is 16.4M€ above the efficient cost of capital. Moreover, the monetary value of the return on equity is not commensurate to the determined costs for 2022-2024 (ranging between 5.5% and 6.2% in those years).

4.3.B Pensions

Polish Air Navigation Services Agency (PANSa) - En route

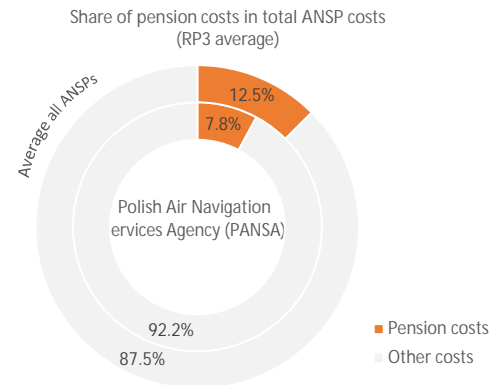
4.3.B.1 Review of en route pension costs for the main ANSP (data from en route reporting tables)



Pension costs included in staff costs	M€2017	10.0	13.1	13.6	13.7	14.0
Year on year variation	% change		+31.2%	+3.7%	+0.5%	+2.3%
Share in total ANSP costs	%	6.6%	8.2%	8.2%	8.0%	8.0%
Year on year variation	p.p.		1.6p.p.	0.0p.p.	-0.2p.p.	0.0p.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 Union-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
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?	n/a

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

As far as it concerns the State pension scheme, neither PANSa nor the NSA have direct control over the evolution of these costs over RP3, since these are established by national legislation. As provided in the performance plan, no changes to national legislation concerning pension is expected in the upcoming years. Nevertheless, PANSa commits to follow the assumption on the number of employees and the pensionable remuneration included in the performance plan, which are considered the only elements under its control.

Similarly, no changes are expected on the assumptions underlying the occupational defined contribution pension scheme and, as for the State scheme, PANSa is committed to follow the assumptions on staff numbers and remuneration level as foreseen in the performance plan.

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C Methodology for cost allocation between ER and TRM

Poland

4.3.C.1 Cost allocation overview

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

- Poland did not report a change in the cost allocation methodology of PANSAs with respect to RP2.
- PANSAs use the "Services Cost Calculation And Profitability Analysis System" built on the basis of the activity based costing (ABC) methodology.
- Some costs are allocated directly to en route or terminal services (e.g. ACC ATCOs).
- Indirect costs such as human resources or financial staff, are allocated using keys included in the model.
- Poland reports that keys were constructed in order to reflect as best as possible the distribution of costs borne in operational activities (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?

Yes

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

- Poland reports that PANSAs updated the allocation keys for two new major investments (Tower Warsaw and new Campus) in response to comments provided by airspace users. Poland also reported that, when it revised the RP3 performance plan, PANSAs updated the variable part of the allocation keys related to timesheets, cost centre structure, movements, service units, FTEs, etc.
- Poland reports that Warmia i Mazury is testing a new accounting policy since 1st of January 2021 in order to improve management accounting. The system will be fully implemented by first of January 2022. One of the aims of this change is to provide more accurate allocation of assets and identification of cost centres.
- Poland reports that Warmia i Mazury changed the en route/terminal cost allocation in respect of MET costs. In RP2 the MET costs of this ANSP were allocated exclusively to terminal, whereas in RP3 the "applicable" costs are added to en route. Poland does not define the "applicable" costs to en route.

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 changes in the allocation of MET services for Warmia i Mazury result in a 0.1M€2017 increase in the 2019 en route cost baseline. Poland highlighted that the mentioned increase represents only 0.2% of the baseline value for Poland. The NSA of Poland reports to have calculated the baseline considering these seemingly minor changes in order to be able to enforce appropriate cost-cutting measures across all ANSPs.

4.3.C.3 PRB Key Points

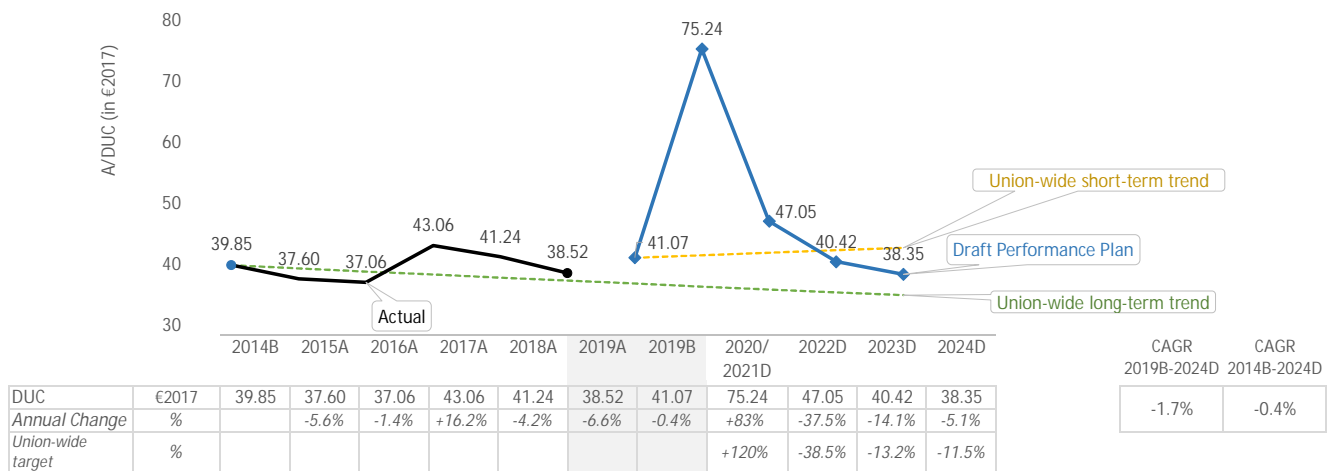


- Poland reports that PANSAs did not change the activity based cost allocation methodology with respect to RP2.
- Poland reports that PANSAs updated the cost allocation keys for two new major investments in response to comments provided by airspace users.
- Poland also reports that Warmia i Mazury changed the en route/terminal cost allocation in respect of MET costs.
- Poland explains the cost allocation changes at a high-level without providing details and their justification. However, there is no record of stakeholders opposing the proposed change in cost allocation.
- The changes in the allocation of MET services for Warmia i Mazury result in a 0.1M€2017 increase in the 2019 en route baseline costs.

4.4 Determined unit costs (DUC)

Poland - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-1.7%	+1.0%	-2.7p.p.
Trend (CAGR 2014B-2024)	-0.4%	-1.3%	+0.9p.p.
	Performance Plan	Average comparator group	Difference
2019 baseline	41.07	38.96	+5.4%

- The DUC is planned to decrease on average by -1.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -0.4% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +5.4% higher than the average of the comparator group.

- Poland presents justifications for a deviation to achieve capacity targets. The increase in the number of ATCOs in OPS, as well as the implementation of new investment (see section 3.5 of this document for details) are deemed necessary to achieve the capacity targets. The total determined costs over RP3 for these two items is estimated at 42.1M€2017, which spread as average for the period 2021-2024 equals to 14.0M€2017. As Poland deviates by 15.0M€2017 from the long-term trend, such deviation is considered justified for the achievement of capacity targets (the 1M€2017 difference is considered negligible).

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

Deviation (in M€2017): vs RP3 criteria -22.5 vs RP2+RP3 criteria +15.0

Additional determined costs related to measures necessary to achieve the en route capacity targets (in M€2017)

	2020D	2021D	2020/2021D	2022D	2023D	2024D	Σ 2020-2024	PP deviation
Staff	0.8	0.9	1.7	1.4	1.9	2.5	7.5	2.5
of which, pension costs	0.1	0.1	0.2	0.2	0.3	0.4	1.1	0.4
Other operating costs	-	-	-	-	-	-	-	-
Depreciation	0.0	2.5	2.5	4.1	5.7	7.2	19.5	6.5
Cost of capital	0.3	0.9	1.3	2.8	4.6	6.4	15.1	5.0
Exceptional items	-	-	-	-	-	-	-	-
Total additional costs of measures	1.1	4.3	5.4	8.3	12.2	16.2	42.1	14.0

Overall description of the measures necessary to achieve the en-route capacity targets for RP3, which induce additional costs

Poland has included 42.1M€2017 of additional costs related to the measures necessary to achieve the capacity targets for RP3. Specifically, these costs include:

- 7.5M€2017 (18.0% of the additional costs) of staff costs reflecting the planned ATCOs increase required to fulfil the planned airspace re-sectorisation. It is noted that the majority of these costs (5.9M€2017) will materialise towards the end of the reference period, while 1.7M€2017 are foreseen for the 2020-2021 period.
- 34.6M€2017 (82.0% of the total additional costs) of additional capital related costs necessary to deliver the investments (both replacement and development of new assets) required to maintain and further increase en route capacity in FIR Warszawa. According to the information provided in the performance plan, "ca. 84% of PANSAs RP3 CAPEX is related to capacity KPA".
- Over the 2020-2024 period, on average, about 14.0M€ will be spent by Poland to achieve the capacity target: 2.5M€ of additional staff costs and 11.5M€ of capital related costs.

Demonstration that the deviation is exclusively due to the additional costs related to measures necessary to achieve the capacity targets

The capacity-related measures to be implemented by Poland over RP3 include:

- reorganisation of ACC Warszawa sector configuration - three layer vertical division with improved resectorisation;
- reorganisation of TMAs for major Polish airports, including new sectors;
- continuation of training process for new ATCOs (required increase in ATCO numbers as a result of planned airspace changes);
- continued investments in infrastructure (CNS) and technology allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace as well as supporting resilience, scalability, and flexibility of service provision;
- evolving ACC sector configurations to cope with updated traffic forecasts.

The above mentioned measures will generate additional costs in the areas of staff (ATCOs and ATCO students) as well as investments costs (depreciation and cost of capital on new CAPEX dedicated to capacity KPA).

Analysis

- In its performance plan, Poland claims that 42.1M€2017 part of the 2020-2024 determined costs are related to the measures put in place to meet the capacity targets, i.e. recruitment of additional ATCOs and investments in infrastructure and system required for the provision of capacity.

- As far as it concerns the recruitment of additional ATCOs, based on the information provided in the performance plan, the number of ATCOs employed by PANSa is expected to increase by +20 FTEs by the end of the reference period. The cost of these additional ATCOs is estimated at +7.5M€2017 over the reference period. The ATCO recruitment is expected to start in 2022, when the number of ATCOs will increase by +10 FTEs compared to 2021 (additional 10 ATCOs will be recruited in the last two years of RP3). The 5.9M€ planned over 2022-2024 seems generally consistent with this recruitment plan.

- Additional 34.6M€2017 are related to additional investments in capacity. Specifically, according to the performance plan, these investments include: ATM system upgrades/changes (PEGASUS-21 and subsequently iTEC), infrastructure needed to accommodate the new ATM system (iTEC), construction of new OPS rooms, and development of radio communication stations required for implementation of three-layer vertical division of airspace or replacement/development of SUR infrastructure. Section 2.1 of the performance plan provides additional details on investment plan and its impact on the expected capacity. Also in this case, the greatest part of these additional costs is planned over the last three years of RP3 (30.9M€ in total).

- The increase in the number of ATCOs in OPS, as well as the implementation of new investment (see section 3.5 of this document for details) are deemed necessary to achieve the capacity targets.

The total determined costs over RP3 for these two items is estimated at 42.1M€2017, which spread as average for the period 2021-2024 equals to 14.0M€2017. As Poland deviates by 15.0M€2017 from the long-term trend, such deviation is considered justified for the achievement of 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

✓

- Poland is consistent with the RP3 DUC trend in terms of average reduction.

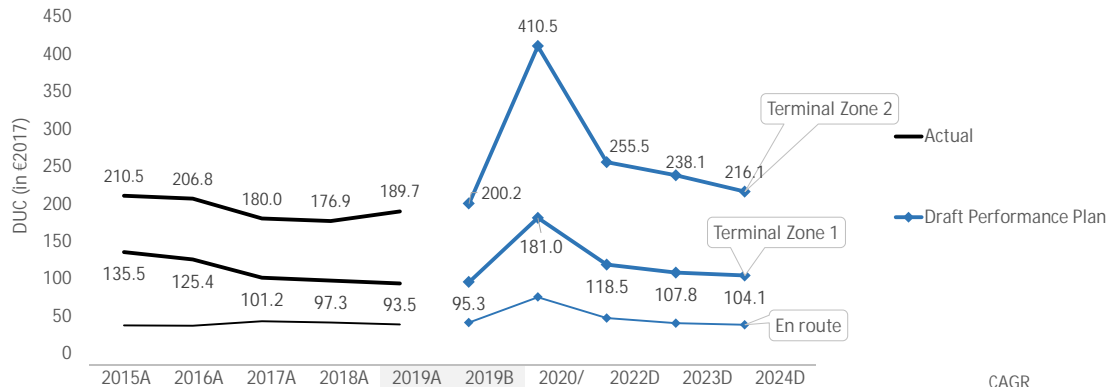
- Poland is not consistent with the DUC long-term Union-wide trend. However, the deviation (15.0M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.

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

4.5 Terminal

Poland

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal Zone 1	€2017	135.5	125.4	101.2	97.3	93.5	95.3	181.0	118.5	107.8	104.1	+2.2%
Annual Change	%		-7.4%	-19.3%	-3.8%	-3.9%	-2.0%	+90%	-34.6%	-9.0%	-3.4%	
DUC - Terminal Zone 2	€2017	210.5	206.8	180.0	176.9	189.7	200.2	410.5	255.5	238.1	216.1	+1.9%
Annual Change	%		-1.8%	-13.0%	-1.7%	+7.3%	+13%	+105%	-37.8%	-6.8%	-9.2%	
DUC - En route	€2017	37.6	37.1	43.1	41.2	38.5	41.1	75.2	47.0	40.4	38.4	-1.7%
Annual Change	%		-1.4%	+16.2%	-4.2%	-6.6%	-0.4%	+83%	-37.5%	-14.1%	-5.1%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Warszawa/ Chopina (EPWA)	GROUP III	169.1	110.6	-34.6%	229.8	130.3	-43.3%
Bydgoszcz (EPBY)	GROUP IV	669.6	401.2	-40.1%	970.5	1088.8	+12.2%
Gdansk (EPGD)	GROUP IV	669.6	156.4	-76.6%	970.5	206.7	-78.7%
Krakow - Balice (EPKK)	GROUP IV	669.6	156.4	-76.6%	970.5	176.2	-81.8%
Katowice - Pyrzowice (EPKT)	GROUP IV	669.6	172.5	-74.2%	970.5	211.0	-78.3%
Lublin (EPLB)	GROUP IV	669.6	309.5	53.8%	970.5	690.4	-28.9%
Lodz - Lublinek (EPLL)	GROUP IV	669.6	509.0	-24.0%	970.5	1688.5	+74.0%
Warszawa/ Modlin (EPMO)	GROUP IV	669.6	160.9	-76.0%	970.5	343.4	-64.6%
Poznan - Lawica (EPPO)	GROUP IV	669.6	297.8	55.5%	970.5	474.6	-51.1%
Radom (EPRA)	GROUP IV	669.6	963.8	+43.9%	970.5	51629.4	+5219.8%
Rzeszow - Jasionka (EPRZ)	GROUP IV	669.6	223.5	-66.6%	970.5	434.5	-55.2%
Szczecin - Goleniów (EPSC)	GROUP IV	669.6	240.7	-64.1%	970.5	387.4	-60.1%
Wroclaw/ Strachowice (EPWR)	GROUP IV	669.6	188.3	-71.9%	970.5	259.9	-73.2%
Zielona Gora - Babimost (EPZG)	GROUP IV	669.6	1791.1	+167.5%	970.5	1915.9	+97.4%
Olsztyn-Mazury (EPSY)	GROUP IV	669.6	488.2	-27.1%	970.5	1232.1	+27.0%

* 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

Two terminal charging zones are included by Poland in the RP3 performance plan: TCZ1 including only Warszawa/Chopina airport, and TCZ2 including 14 airports.

The average 2021-2024 DUC for Warszawa/Chopina airport in TCZ1 amount to 130.3€, which is -43.3% lower than the median DUC for airports in group III. Amongst the 14 airports included in TCZ2, nine display better DUC performance than similar airports included in group IV, while for five, the average 2021-2024 DUC is above the median of the comparator group.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%
	TCZ2	0.0	+0%

2019 Traffic Baseline Adjustments	TCZ1	No
-----------------------------------	------	----

Costs

Cost Baseline analysis		Δ ME2017	%
2019B vs 2019A	TCZ1	0.2	+2.0%
	TCZ2	1.5	+5.5%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	ME2017
#1 - 1	TCZ1	ANSP	Cost of cap.	+0.2
#1 - 1	TCZ2	ANSP	Staff	+0.3
#2 - 1	TCZ2	MET	Staff	+0.1
#3 - 3	TCZ2	ANSP	Other ops.	+0.2
#4 - 4	TCZ2	MET	Other ops.	-0.0
#5 - 5	TCZ2	ANSP	Depreciation	+0.0
#6 - 6	TCZ2	MET	Depreciation	+0.1
#7 - 7	TCZ2	ANSP	Cost of cap.	+0.0
#8 - 8	TCZ2	MET	Cost of cap.	+0.0
#9 - 9	TCZ2	ANSP	Cost of cap.	+0.7

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

In relation to the computation of the 2019 baseline value for traffic, actual 2019 TNSUs were used for both TCZ1 and TCZ2; no additional adjustments were implemented.

As far as it concerns the 2019 cost baselines, these are +2.0% and +5.5% higher than actual 2019 costs for TCZ1 and TCZ2, respectively.

2019 baseline analysis

For TCZ1, +0.2ME2017 of additional cost of capital were included in the 2019 cost baseline to reflect the application of a higher WACC for PANSAs, as compared to the actual 2019 WACC. According to PANSAs, this adjustment is required to ensure comparability between 2019 and RP3 figures, especially taking into consideration the increased level of risk stemming from the application at terminal level of the traffic risk sharing mechanism. Similarly, also for TCZ2 (nine adjustments implemented in the baseline for a total value of 1.5ME2017), the main adjustment is represented by the addition of +0.7ME2017 to PANSAs cost of capital resulting from the application of a higher WACC. As for en route, a number of minor adjustments affecting the cost base of the so called "small ANSPs" were implemented to ensure a consistent scope between 2019 and RP3.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?	I Z1	I Z2
	Yes	Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

No deviation from the STATFOR October 2021 base forecast for both TCZ1 and TCZ2.

Review of the PP traffic forecast

For both TCZ1 and TCZ2, the traffic forecast included in the performance plan is in line with the STATFOR October 2021 base forecast.

Determined costs (terminal)

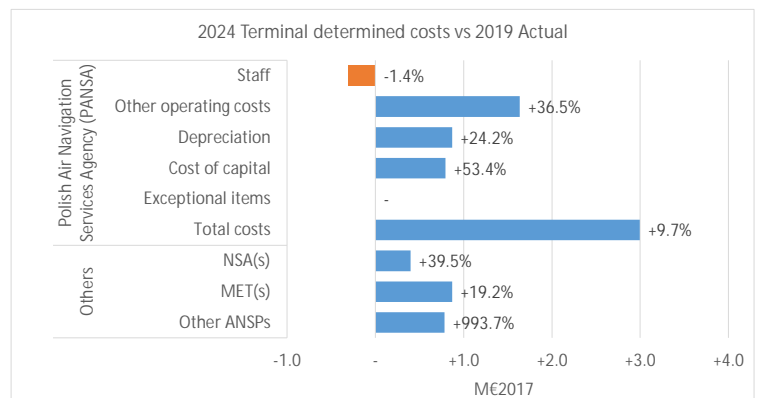
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
--	-----

Cost elements - Polish Air Navigation Services Agency (PANSAs) (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)	2.00%
Maximum penalty (% of determined costs)	2.00%
Additional incentives?	No



- The share of terminal investment costs (14%) is slightly lower than the share of terminal total costs (17%).
- Terminal WACC and its parameters are equal to the ones applied for en route.
- Both terminal charging zones present an increasing DUC trend over RP3 (i.e. +2.2% for TCZ1 and +1.9% for TCZ2), which is significantly higher than the en route trend (-1.7% CAGR). This trend is mostly explained by the costs presented in the two charging zones: for TCZ1, the 2024 determined costs included in the performance plan are expected to be +07M€2017 (+6.5%) higher than the actual 2019 costs, while for TCZ2 this difference increases to +4.4M€2017 (+16.7%). The main contributor to this increase is PANSA, for which the 2024 aggregate (TCZ1 and TCZ2) determined costs are expected to be +9.7% (+3.0M€2017) higher than in 2019. Specifically, a -1.4% reduction in staff costs is more than compensated by a significant increase in the other cost categories. The increase is particularly marked for the other non-staff operating costs which, after a moderate reduction in 2020-2021 as a result of the measures implemented to preserve liquidity, are expected to increase as of 2022 as a result of the restoration of normal operations and the execution of projects aimed at increasing efficiency of TWR ATCOs. As for en route, the increase in cost of capital is directly linked with the execution of the investment plan and the consequent increase in asset base.
- Terminal costs (both TCZ1 and TCZ2) reflect some 18% of the total gate-to-gate determined costs over RP3. The share of investments and pension costs is consistent with this allocation.
- Terminal service units are not expected to recover to 2019 levels before the end of RP3 for TCZ1 and only in 2024 for TCZ2. On the contrary, terminal costs for both TCZ1 and TCZ2 are planned to reach the 2019 actual level already in 2021 (also when considering the 2019 baseline value).

4.5.4 PRB Key Points



- The terminal RP3 DUC trend are +2.2% for TCZ1 and +1.9% for TCZ2, which are worse than the en route RP3 DUC trend of -1.7%.
- The terminal RP3 DUC trend is +2.2% for TCZ1, which is worse than the terminal RP2 DUC trend of -8.9%. The terminal RP3 DUC trend is +1.9% for TCZ2, which is worse than the terminal RP2 DUC trend of -2.6%.
- Warszawa/Chopin, the main airport (included in TCZ1), had a DUC -34.6% lower than the median of its comparator group over RP2. The difference is expected to be -43.3% over RP3. The DUC of the airports included in TCZ2 ranges from -77.0% lower to +163.4% higher over RP2. The differences are expected to range from -82.3% lower to +5,092.0% higher over RP3.
- Poland used the STATFOR October 2021 base forecast for terminal traffic, as for en route.
- The RP3 determined costs for Poland terminal charging zones are planned to be higher than the 2019 actual costs.

PRB Assessment

PORTUGAL

Draft Performance Plan

Context and scope

Portugal

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4702, F4703, F4704, F4705, F4706, F4707, F4708, F4709, F4710, F4711, F4712, F4713, F4714, F4715, F4716, F4717, F4718, F4719, F4720, F4721, F4722

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 2.9%
 % Serv. Units vs SES 3.3%
 % Costs vs SES 2.5%

Scope

FAB: SW FAB

ANSPs: NAV Portugal (Continental)
 Estado Maior da Força Aérea
 Estado Maior da Armada
 IPMA

Other entities (as per Article 1(2) last para. of Regulation 2019/317): ANAC - Autoridade Nacional da Aviação Civil
 GAMA

ATM/CNS
 Provision of SAR services
 Provision of SAR services
 Met ANSP

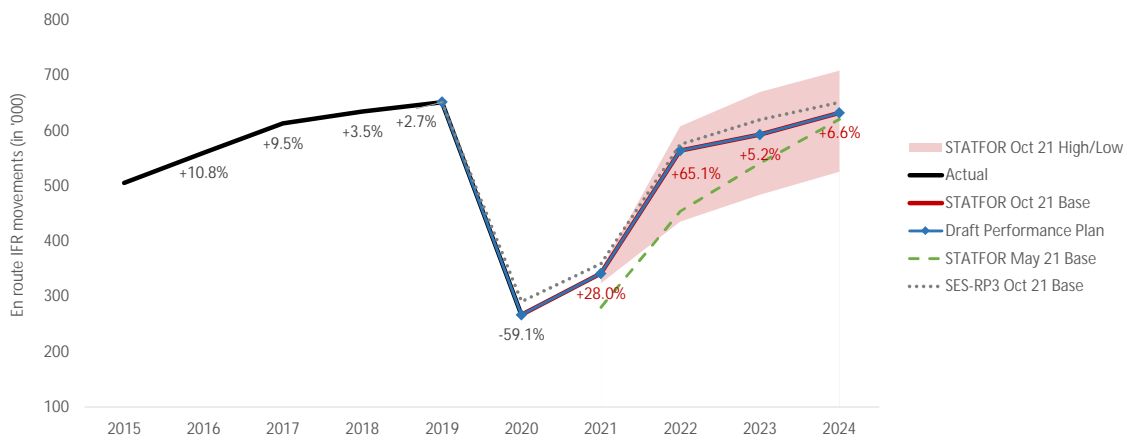
National Supervisory Authority
 Authority for Aeronautical Meteorology

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP	
En route (ER)	Portugal Continental	n/a	No	No	No		
Terminal (TRM)	Portugal - TCZ	10	No	No	No		
Changes in the CZs from RP2		Yes					
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.							

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

Currency: € Exchange rate: 1.00000

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP 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	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 Portugal should be approved.

- The EoS safety targets are consistent with the Union-wide performance targets.
- Relevant ANSP measures are described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.76%	1.80%	1.80%	1.80%	1.80%

PRB assessment

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

- Portugal's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.23	0.09	0.13	0.13	0.13
National target for terminal and airport ANS ATFM arrival delay per flight (min)	3.12	0.90	1.91	2.28	2.00

PRB assessment

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

- The PRB appreciates the commitment from Portugal to contribute positively to the resolution of the network impact generated by the transition projects in France during 2022-2023.
- There is a discrepancy in the performance plan between planned number ATCO FTEs, capacity enhancement measures, planned capacity profiles and national targets.
- The modulation of the terminal incentive scheme uses an Attributable Delay Factor which cannot be verified.
- The incentive schemes defined by the performance plan do not have a material impact on the revenue at risk.
- Capacity plans indicate that Portugal may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast, and the impact generated by the transition projects in France is higher than expected. For this reason, Portugal has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	65.82	40.78	40.37	37.87	+2.1%	+0.5%
Target for determined unit cost (DUC) (€2017) - Terminal	240.39	150.21	149.81	144.89	n/a	+1.3%

PRB assessment

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

- Portugal is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Portugal is not consistent with the long-term Union-wide DUC trend.
- Portugal is consistent with the average DUC baseline of the comparator group.

5. PRB recommendations**SAFETY**

- Portugal should maintain the level achieved in 2020 throughout RP3.
- Portugal should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Portugal should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Portugal should ensure that all capacity enhancement measures are properly implemented.

COST-EFFICIENCY

- Portugal should detail the difference in the adjustments due to the cost allocation changes.

PORTUGAL

Safety KPA

1.1 Summary of safety key data and assessment results

Portugal

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 RP3 Union-wide safety targets, were either met or exceeded already in 2020.

1.1.2 Measures planned to reach the target (if applicable)

Considering that ANSP is already at safety target levels, the measures put in place ensuring maintaining the safety levels to the end of RP3 are considered relevant and adequate.

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.
- Relevant ANSP measures are described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- In 2020 Portugal, attained the safety targets for RP3 and exceeded the targets planned for 2020. Portugal should maintain the level achieved in 2020 throughout RP3.
- Portugal should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Portugal

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
NAV Portugal	Safety policy and objectives	D	C	C	C	C	C	✓	
	Safety risk management	D	C	C	C	C	D	✓	
	Safety assurance	D	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	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, were either met or exceeded already in 2020.

The performance plan provides the description of the major measures that are derived with compliance with Commission Implementing Regulation (EU) 2017/373 (improvement of monitoring of safety performance, just culture, change monitoring and safety promotion).

Considering that the ANSP has attained already safety target levels, the measures put in place ensuring maintaining the safety levels to the end of RP3 are considered relevant and adequate. Specific NSA derived measures should be provided.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The major change that positively impacted safety is the implementation of TOPSKY system. This new system will contribute to the achievement of safety targets in the different KPAs, particularly in capacity and safety. The safety improvement is due to the additional safety nets allowing safer traffic provision. Implementation of the TOPSKY is associated with appropriate mitigations derived from the safety assessment (including 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 major carriers operating in Lisbon. The change management plan is in line with EU regulation and under the supervision of 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.

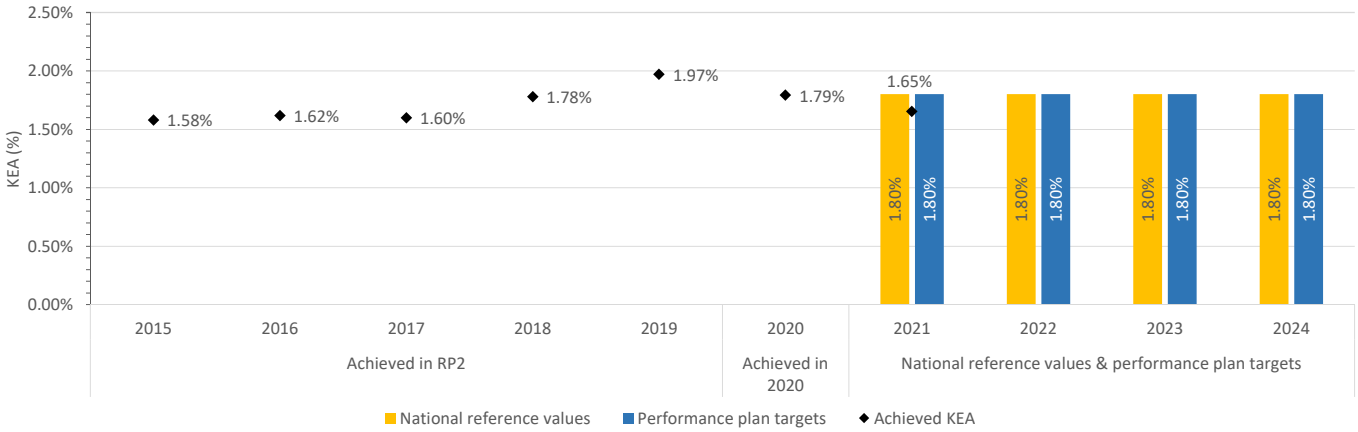
PORTUGAL

Environment KPA

2.1 Summary of Key Data and Assessment Results

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

	2020	2021	2022	2023	2024
National reference values	1.76%	1.80%	1.80%	1.80%	1.80%
Performance plan targets	1.76%	1.80%	1.80%	1.80%	1.80%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions ✓

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

- Portugal’s horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Portugal should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

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 (FRA) was fully implemented in the Lisboa flight information region (FIR), above FL245 in May 2009. In May 2014, the extension of the concept was achieved to Santiago/Asturias airspace (FRASAI). Further extension of the FRA to Santa Maria FIR is planned in winter 2024.	✓	3.2.1(c)	Page 57

Major ERNIP Recommended Measures:	11	Reference in PP	Reference in ERNIP
Measure included within performance plan?			
Madeira TMA optimisation	✓	3.2.1(c)	Page 122
Extension of Madeira TMA boundaries	✓	3.2.1(c)	Page 123
PBN transition plan	✓	3.2.1(c)	Page 65
ACC ATM system - step 1	✗	n/a	Page 188
New SID and STAR structure in Cascais	✓	3.2.1(c)	Page 206
Lisboa TMA point merge system	✓	3.2.1(c)	Page 206
TWR ATM system - step 2	✗	n/a	Page 218
Interface re-sectorisation	✓	3.2.1(c)	Page 222
Lisboa / Casablanca / Canarias axis phase 2	✓	3.2.1(c)	Page 222
CB FRA operations	✓	3.2.1(c)	Page 223
Free route airspace Santa Maria FIR – phase 2	✓	3.2.1(c)	Page 225

FUA Implementation according to latest LSSIP	Implementation
1	✓
2	✓
3	✓

The chart in section 2.1.1 shows that Portugal achieved a KEA of 1.79% in 2020. In 2021, Portugal reached a KEA of 1.65% which means it achieved the 2021 target of 1.80% in its performance plan.

Portugal committed to several major projects, both at a national and the Union-wide level. Portugal states it will to extend the Lisbon flight information region (FIR) free route airspace (FRA) to adjacent airspaces in collaboration with its neighbours. However, at the time of writing, mandatory entry and exit reporting points still existed in the Lisboa FIR. Three major cross-border initiatives are planned with partners including Spain and France to improve the flight efficiency in the 'south-west axis'. To the south, Portugal is actively collaborating with Morocco to extend FRA to Casablanca FIR. To the west, an improvement of the interface between Lisbon FIR and Santa Maria Oceanic FIR is also planned in order to improve flexibility in flight planning for oceanic traffic.

In addition, the implementation of several continuous descent operations (CDOs) initiatives are planned to improve terminal capacity to avoid inefficiency stemming from airport bottlenecks.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Portugal plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

PORTUGAL

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national targets are set equal to the national reference values and fall within the range of the delay forecast during 2022-2024. Capacity plans indicate that Portugal may face a minor capacity gap in 2023 and 2024 if additional capacity measures are not implemented. The introduction of the new TOPSKY ATM system in 2022 is identified as a special event, which may affect capacity performance negatively. There may be a minor inconsistency in the performance plan between planned number ATCO FTEs, capacity enhancement measures, planned capacity profiles and national targets.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

There are ten airports included in the performance plan. National targets are set considerably higher than in RP2 and represent a minor improvement compared to 2018 and 2019, however are still higher than average performance in RP2.

The performance plan contains capacity enhancement measures aimed at airport capacity, but the limitations of Lisbon airport are likely to result in high delays if traffic recovers to 2019 levels.

Lisbon and Porto airport are the two main drivers of delays. The performance of these airports is expected to be significantly worse than that of the group of similar airports. All other airports are expected to perform slightly worse than their respective group of similar airports.

3.1.3 Incentives

En route:

Portugal has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.

Maximum bonus and penalty is set at 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.

Terminal:

Portugal has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The pivot values are obtained by applying an Attributable Delay Factor (ADF), which should be the calculated share of ATC related delay over the last four years. The ADF cannot be verified.

Maximum bonus and penalty is set at 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.

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

There is a slight capacity shortage expected in Portugal during RP3.

There are capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities, but they are unable to provide the required capacity by themselves. Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

3.1.5 PRB conclusions

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

- The PRB appreciates the commitment from Portugal to contribute positively to the resolution of the network impact generated by the transition projects in France during 2022-2023.

- There is a discrepancy in the performance plan between planned number ATCO FTEs, capacity enhancement measures, planned capacity profiles and national targets.

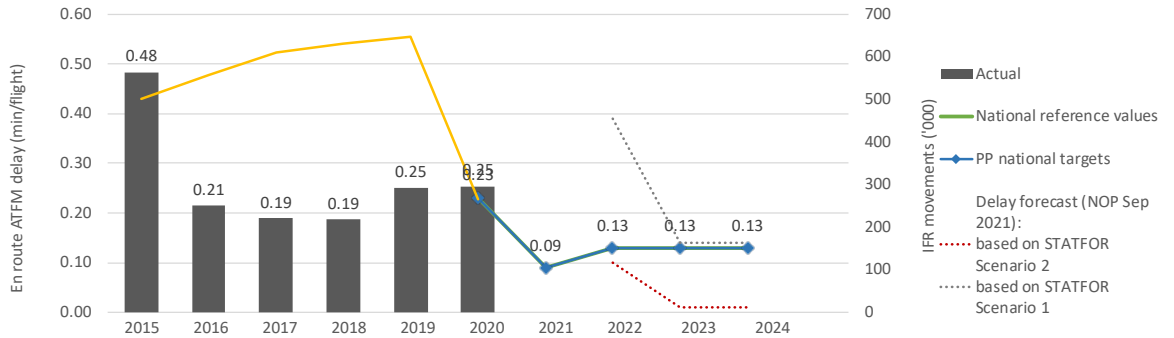
- The modulation of the terminal incentive scheme uses an Attributable Delay Factor which cannot be verified.

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

- Capacity plans indicate that Portugal may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast, and the impact generated by the transition projects in France is higher than expected. For this reason, Portugal has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight



Traffic variation	+5%	+10.8%	+9.7%	+3.3%	+2.7%	-59.0%				
Actual delay/flight	0.48	0.21	0.19	0.19	0.25	0.25				
National reference values						0.23	0.09	0.13	0.13	0.13
PP national targets						0.23	0.09	0.13	0.13	0.13
Based on STATFOR Scenario 1						-	0.39	0.14	0.14	0.14
Based on STATFOR Scenario 2						-	0.10	0.01	0.01	0.01

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
Deviation target vs reference value	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

During RP2, Portugal experienced capacity constraints related mostly to ATM capacity and equipment, including staffing issues for some years. Portugal missed its capacity targets throughout RP2.

The performance plan contains the following capacity enhancement measures that are in line with the NOP. Portugal claims that all measures have been and will be further coordinated with NM:

- transition to the new ATM system (TopSky) and new OPS room,
- airspace changes including FRA cross-border initiatives in line with the NM action plan,
- enhanced ATFCM procedures, including STAM measures,
- recruitment plan timely adjusted to allow the opening up to 11/13 en-route sectors by the end of the RP3.

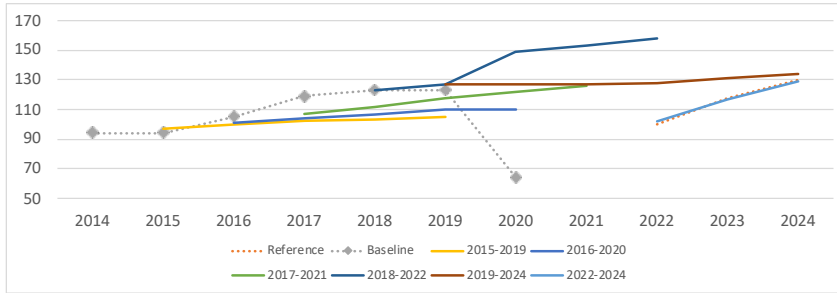
The planned number of ATCO FTEs shows an overall increase of almost 25% (36 FTEs) compared to 2019. This increase is gradual over the period, countering the planned retirements and allowing for a steady growth by adding 14-17 ATCO FTEs each year. This increase should largely contribute to capacity enhancement.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Lisbon ACC (LPPC)	Additional ATCOs in OPS to start working in the OPS room	0	12	17	16	15	16	14	+36
	ATCOs in OPS to stop working in the OPS room	0	8	15	11	5	4	7	
	ATCOs in OPS to be operational at year-end	142	146	148	153	163	175	182	
Total - NAV Portugal (Continental) (en route)	Additional ATCOs in OPS to start working in the OPS room	0	12	17	16	15	16	14	+36
	ATCOs in OPS to stop working in the OPS room	0	8	15	11	5	4	7	
	ATCOs in OPS to be operational at year-end	142	146	148	153	163	175	182	

3.2.3 Review of previous and existing capacity profile plans per ACC

Lisbon ACC (LPPC)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									100	118	130
Baseline	94	94	105	119	123	123	64				
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
2022-2024									102	117	129
Latest vs Reference									2%	-1%	-1%

- Historical data shows an average annual growth of 5.5% of the baseline values during RP2. Planned values were below the baseline in 2016 and 2017, above the baseline in 2015 and 2019 and matched the baseline 2018.

- Latest planned capacity profile shows an average annual growth of 12.5%, resulting in slightly higher values than in 2019. Planned values follow the trend of the reference profile: Lisbon ACC is expected to have a minor capacity surplus of 2% in 2022, followed by a minor capacity gap of -1% in 2023 and 2024.

- There may be a minor inconsistency in the performance plan between planned number ATCO FTEs, capacity enhancement measures, planned capacity profiles and national targets.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events

Review of the planned impact of special events in some years of RP3

Both the performance plan and the NOP identify the following events which may impact capacity:

- implementation of the PMS – Point Merge System in Lisbon TMA planned for 2022 (although related to airport it will impact the en route environment as well),
- 2023 implementation of a new ATM system – TOPSKY.

The plan does not provide enough details to assess the level of impact, although both events have been coordinated with NM and considered in the NOP, resulting in an increase of estimated delays for 2022.

Review of the capacity enhancement measures planned to mitigate the impacts of special events

The plan does not explicitly identify measures to mitigate the foreseen impact of the above mentioned events. It describes in details the change management process, which will be applied during the implementation and transition phases. However, the events are associated with the capacity enhancement measures, which are expected to ensure required capacity during second half of the RP3. The impact including mitigating measures have been coordinated with the NM, as provided by the plan. The effectiveness of the mitigating measures cannot be assessed based on the provided evidence. Based on estimations provided by both the performance plan and the NOP, a capacity gap might be experienced during 2022.

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

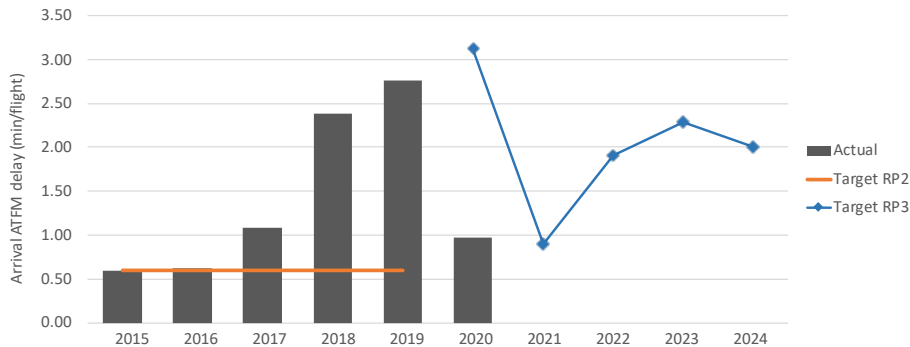
- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? n/a
No additional measures have been introduced.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? ✔
The NM has not proposed any measures in the NOP, however all measures proposed by the performance plan have been coordinated with the NM.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? n/a
n/a
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? ✘
The performance plan does not contain information on measures proposed by the NSA
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)? ⓘ
The planned increase in the number of ATCO FTEs should contribute to closing the capacity gap, however, this will also depend on the successful implementation of other capacity enhancement measures as well, most notably the timely implementation of the new ATM system.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ✔
The performance plan refers to using the flexible rostering internally by the ANSP but no details are available.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
The performance plan does not provide explicitly information on the limitations of the current ATM systems, however the current system and infrastructure have negatively contributed to missing of the capacity target during some years of RP2. The performance plan does provide that the new TOPSKY system will be implemented and transitioned to in 2022. The performance plan does expect that the new system will reduce ATCO workload and improve productivity.

3.2.6 PRB Key Points

- The proposed national targets are set equal to the national reference values, and fall within the range of the delay forecast during 2022-2024.
- Capacity plans indicate that Portugal may face a minor capacity gap in 2023 and 2024 if additional capacity measures are not implemented.
- The introduction of the new TOPSKY ATM system in 2022 is identified as a special event, which may affect capacity performance negatively.
- There may be a minor inconsistency in the performance plan between planned number ATCO FTEs, capacity enhancement measures, planned capacity profiles and national targets.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	0.60	0.60	0.60	0.60	0.60	3.12	0.90	1.91	2.28	2.00
Target (RP2/RP3)	0.60	0.63	1.08	2.38	2.76	0.97	-	-	-	-
Actual	0.87	0.93	1.22	2.03	3.09	0.77	0.81	1.48	2.26	1.70
Porto (LPPR)	0.79	0.88	1.65	3.82	4.13	1.72	1.46	3.20	3.37	3.20
Lisbon (LPPT)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02
Santa Maria (LPAZ)	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.24	0.22	0.99
Cascais (LPCS)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02
Flores (LPFL)	0.06	0.00	0.00	0.02	0.03	0.00	0.33	0.20	0.90	0.15
Faro (LPFR)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02
Horta (LPHR)	0.01	0.02	0.06	0.07	0.00	0.00	0.05	0.04	0.03	0.03
Madeira (LPMA)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02
Ponta Delgada (LPPD)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.03	1.65
Porto Santo (LPPS)										

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. The lack of aerodrome capacity and weather delays both in Lisbon and in Porto are the main reasons.

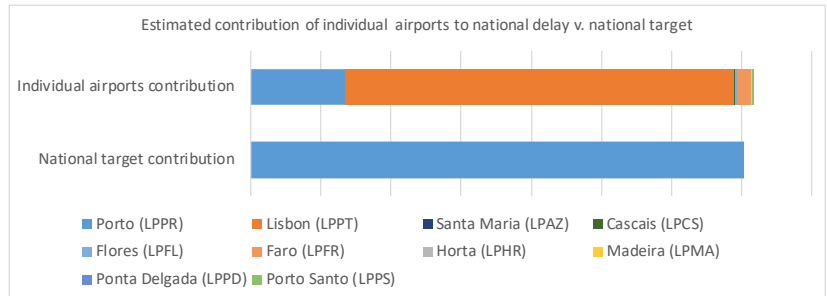
The performance plan for RP3 uses the STATFOR October 2021 base forecast with an estimated CAGR in IFR movements (2019-2014) of -0.3%.

There are several measures foreseen (Point Merge in Lisbon, expansion of the ATM/CNS systems in the Porto TWR and a parallel taxiway in Porto) but the plan states that in Lisbon the airport infrastructure is limited in terms of expansion and the only feasible alternative is the deployment of a complementary airport, so it is foreseeable that delays at Lisbon will start to increase again as soon as traffic approaches the 2019 figures.

The proposed targets vary each year and even if they represent an improvement with respect to the 2018 and 2019 performance, still represent very high delays at the two main Portuguese airports.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Porto (LPPR)	1.56
Lisbon (LPPT)	2.81
Santa Maria (LPAZ)	0.02
Cascais (LPCS)	0.43
Flores (LPFL)	0.02
Faro (LPFR)	0.40
Horta (LPHR)	0.02
Madeira (LPMA)	0.04
Ponta Delgada (LPPD)	0.02
Porto Santo (LPPS)	0.44
National Target	1.77



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 airports' targets contribution.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Porto (LPPR)	GROUP III	0.12	1.72	+1.60	1.56	+1.45
Lisbon (LPPT)	GROUP III	0.12	2.40	+2.28	2.81	+2.69
Santa Maria (LPAZ)	GROUP IV	0.00	0.00	-0.00	0.02	+0.02
Cascais (LPCS)	GROUP IV	0.00	0.00	-0.00	0.43	+0.43
Flores (LPFL)	GROUP IV	0.00	0.00	-0.00	0.02	+0.02
Faro (LPFR)	GROUP IV	0.00	0.02	+0.02	0.40	+0.39
Horta (LPHR)	GROUP IV	0.00	0.00	-0.00	0.02	+0.02
Madeira (LPMA)	GROUP IV	0.00	0.03	+0.03	0.04	+0.04
Ponta Delgada (LPPD)	GROUP IV	0.00	0.00	-0%	0.02	+2%
Porto Santo (LPPS)	GROUP IV	0.00	0.00	-0%	0.44	+4.4%

* 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 past performance of Lisbon and Porto was significantly worse than the performance of similar airports in the performance scheme. The targets for RP3 further and notably deviate from the performance of similar airports.

3.3.5 PRB Key Points

- There are ten airports included in the performance plan. National targets are set considerably higher than in RP2 and represent a minor improvement compared to 2018 and 2019, however are still higher than average performance in RP2.
- The performance plan contains capacity enhancement measures aimed at airport capacity, but the limitations of Lisbon airport are likely to result in high delays if traffic recovers to 2019 levels.
- Lisbon and Porto airport are the two main drivers of delays. The performance of these airports is expected to be significantly worse than that of the group of similar airports. All other airports are expected to perform slightly worse than their respective group of similar airports.

3.4 Capacity Incentive schemes

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	0.500%	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	0.13	0.13
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.13	0.13	0.13
Pivot values for RP3			0.12	0.12	0.12

Threshold and pivot value review

The pivot value is modulated according to the CRSTMP ratio over the previous four years, which Portugal reports as 95% for 2020. No ratio / or value is provided for 2022. There is a dead band of +/-0.03 minutes around the pivot value before penalties or bonuses apply. Maximum bonuses / penalties will result from performance exceeding pivot value +/-0.05 minutes.

Modulation review

The scheme is modulated for ATFM delay codes CRSTMP-only. The average ratio of CRSTMP to total delays over previous four years will apply. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect the financial incentive.

Review of financial advantages/disadvantages

A maximum bonus and penalty of 0.5% determined costs is possible.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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)			±0.325	±0.435	±0.235
Performance Plan targets			1.91	2.28	2.00
Pivot values for RP3			0.65	0.87	0.47

Threshold and pivot value review

The terminal incentive scheme includes a dead band of ±25% of the CRSTMP pivot value, enough to allow for small variations in performance with no associated bonuses/penalties. The pivot values, CRSTMP modulated, are higher than the average reported CRSTMP delays in RP2 (0.36 minutes per arrival).

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. This ADF is calculated as the average share of ATC related delays over the last four years. The plan states that for the year 2022 this ADF factor is 34.1 %, which is multiplied by the reference value of 1.91 returns a pivot value of 0.65. Nevertheless, this share cannot be verified. The reported share of CRSTMP delays in the period 2017-2020 was 23%.

Review of financial advantages/disadvantages

The scheme is symmetric. The maximum bonus / penalty is only 0.5%.

Given the high pivot values, past performance and traffic forecast, this incentive scheme is likely to result in a bonus.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

En route:

- Portugal has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP.
- Maximum bonus and penalty is set at 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.

Terminal:

- Portugal has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the target values for the ANSP. The pivot values are obtained by applying an Attributable Delay Factor (ADF), which should be the calculated share of ATC related delay over the last four years. The ADF cannot be verified.
- Maximum bonus and penalty is set at 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.

- 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.

3.5 Investments

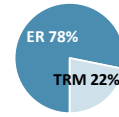
Portugal - NAV Portugal (Continental)

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	12.6	13.5	19.3	22.3	23.9	91.6
En route	M€ (nominal)	8.8	9.9	15.8	18.2	19.0	71.6
Terminal	M€ (nominal)	3.8	3.6	3.5	4.1	4.9	20.0

* 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 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	TRM
1	TOPLIS - TOPSKY ACC	<i>The project scope is the replacement of the 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.</i>	77.9	Yes	Yes	26.8	0.0
2	TOPLIS - TOPSKY TWR's	<i>The project scope is to replace the Lisbon FIR TWR's ATM systems (Porto, Cascais, Faro, Porto Santo and Madeira) with new ones in line with the SES/SESAR deployment requirements. A similar system will be deployed in the Lisbon Airport (under new major investment 3), and another is envisaged for the new Lisbon Airport (under new major investment 4) (out of RP3 period).</i>	9.7	Yes	Yes	0.0	2.1
3	Lisbon Airport Expansion (ATM, CNS and Infrass)	<i>The project scope is the deployment of the ATM and CNS systems, as well as a new TWR building support the Lisbon airport capacity expansion.</i>	9.7	No	Yes	0.0	0.5
4	Modernization of the Secondary Radars	<i>Replacement of ageing Secondary Radar Stations located at the Porto Airport, Montejunto, Lisbon Airport and the Faia. Those Radars are of old technology (Monopulse) and are being replaced by Mode S radars as mandated on the IR SPL.</i>	8.4	Yes	No	2.2	0.1
Total:						29.1	2.7

Airspace user feedback regarding major investments

The airspace users requested the NSA to ensure the priority of planned investments and their importance to NAV Portugal's performance. Portugal noted that only investments that were critical to operation were maintained.

Review of investments

New major investments represent 35% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 54% higher than the planned and the amount overspent was 29M€. Despite overspending on investments, in terms of depreciation and cost of capital, the total actual costs related to investments were 14.5M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Lisbon Airport Expansion (ATM, CNS and Infrass)	Network, Local	Capacity	Lisbon airport as the City hub, will receive a significant investment from the airport concessionaire to increase ground capacity and runway throughput. These investments will allow an increase in capacity of up to 48 mov/hour, with new parking gates and rapid taxiways. To do so, the current tower will need to be relocated. The overall investment will contribute to increase efficiency and reduce delays due to ground capacity (AD- Capacity).




Additional information

A minor part of the CAPEX budget is related to a new TWR ATM system, being the major part related to non ATM systems (CNS and infrastructures). The ATM CAPEX, less than 10M€, is of an order of magnitude lower than the planned by the airport (000's of M€). Since the ATM CAPEX is required for the target of 48 movements/hour envisaged by the enhancements of the airport layout, it is not appropriate to evaluate just in one part (ATM) the overall benefit of both 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 RP3 (M€)
Other new investments	45.1	45.1	1.2	2.3	3.3	4.0	4.5	15.2
Existing investments			11.4	10.4	10.0	6.5	6.4	44.7

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? 
- Lisbon ACC is expected to have a slight capacity shortfall during the second half of RP3, evolving from 2% in 2022 to -1% for 2023 and 2024.
- The main new major investment defined for RP3 contributing to enroute capacity is the TOPLIS - TOPSKY ACC investment linked to PCP/CP1 ATM Functionalities AF1, AF3, and AF4. The TOPLIS - TOPSKY TWR's and Lisbon Airport Expansion (ATM, CNS and Infrast) investments contribute to airport/TMA capacity enhancement. TOPLIS - TOPSKY ACC investment contributes to the digitalisation of the ATM platform in line with European ATM evolution and together with the other investments contribute to resilience, scalability and flexibility.
- Other (non-major) investments are described very briefly only and include investments to replacing end-of-life CNS systems, contributing to resilience.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 
- The TOPLIS - TOPSKY ACC investment integrates with the ACC system and introduces new safety nets (APW, MSAW and APM), SYSCO coordination facilities, AMAN capabilities and is expected to reduce controller workload and enable early conflict detection. The airport/TMA domain capacity enhancing investments introduce SESAR compliant TWR's systems and new ATM and CNS systems and TWR building at Lisbon airport.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? 
- The TOPLIS - TOPSKY ACC and TOPLIS - TOPSKY TWR's investments are planned to become operational in 2021-2022 but cannot respond to the demand growth by themselves. LISATM V9.2 and Lisbon ACC New System investments were planned as investments in the South-West FAB performance plan for RP2 as possible capacity enhancing investments (no details included in the RP2 performance plan).

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 54% higher than the planned and the amount overspent was 29M€. Despite overspending, the total actual costs related to investments were 14.5M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.
- There is a slight capacity shortage expected in Portugal during RP3.
- There are capacity enhancing investments planned for RP3 linked to PCP/CP1 ATM Functionalities, but they are unable to provide the required capacity by themselves.
- Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

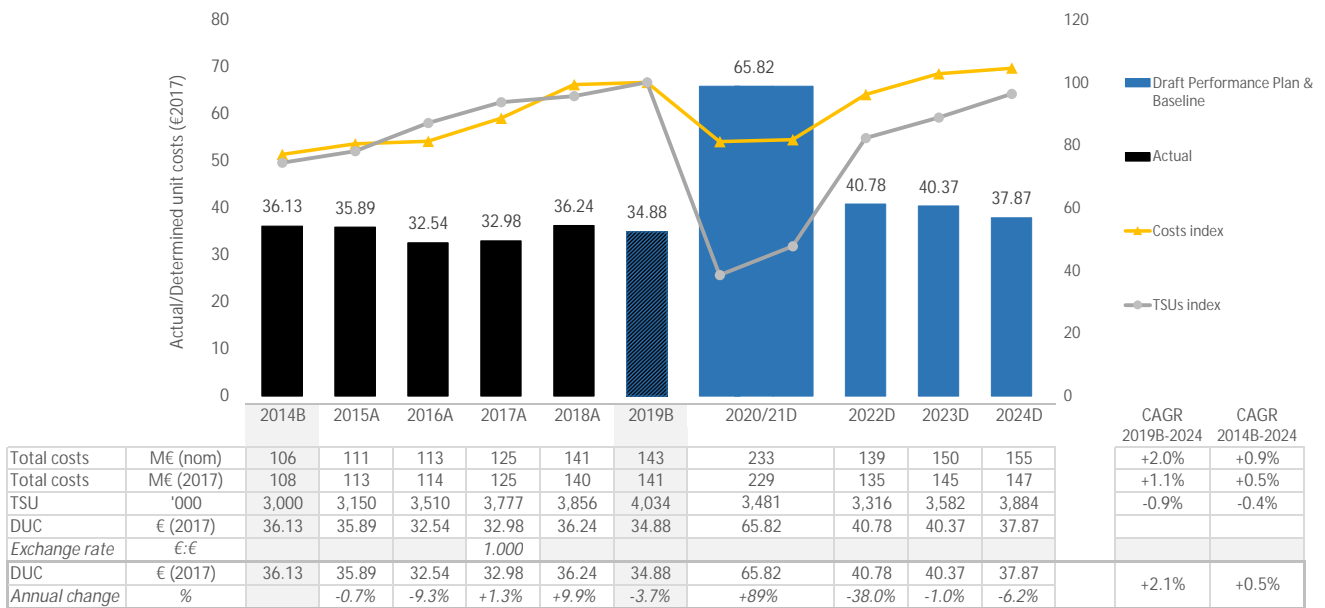
PORTUGAL

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Portugal Continental - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	34.88 €2017	✓
No major issues identified.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	+2.1%	✗
The DUC is planned to increase on average by +2.1% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%). However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	+0.5%	✗
The DUC is planned to increase on average by +0.5% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (39.74 €2017)?	-12.2%	✓
The 2019 DUC level is -12.2% lower than the average of the comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?	-	✓
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?	-	n/a

4.1.4 PRB Conclusions

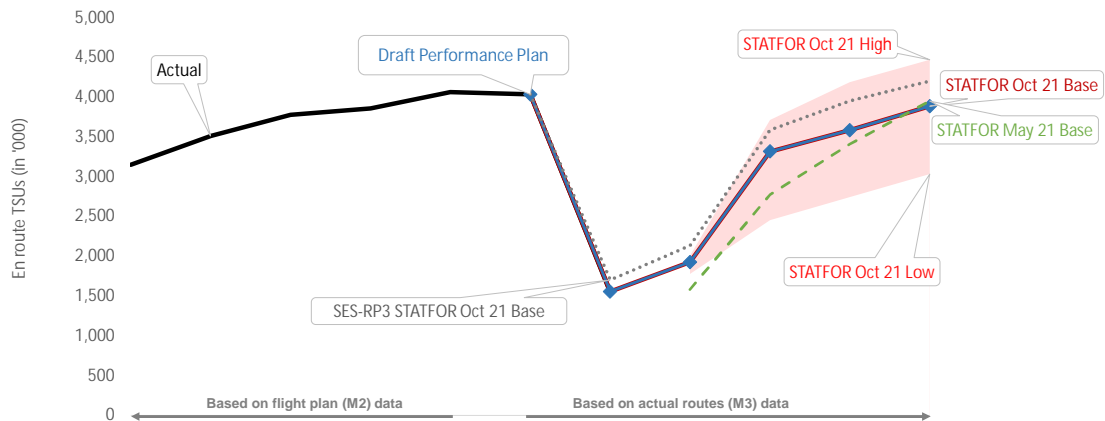
The PRB concludes that the cost-efficiency targets proposed by Portugal should be approved.

- Portugal is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Portugal is not consistent with the long-term Union-wide DUC trend.
- Portugal is consistent with the average DUC baseline of the comparator group.
- Portugal should detail the difference in the adjustments due to the cost allocation changes.

4.2 Review traffic forecasts and baseline

Portugal Continental - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	3,150	3,510	3,777	3,856	4,060	4,034	1,556					
Annual change	%		+11.4%	+7.6%	+2.1%	+5.3%	+4.6%	-61.4%					
STATFOR Oct 21 Base	'000 TSUs								1,925	3,316	3,582	3,884	-3.7%
Annual change	%								+23.7%	+72.2%	+8.0%	+8.4%	
STATFOR May 21 Base	'000 TSUs								1,581	2,770	3,407	3,949	-2.1%
Annual change	%								+1.6%	+75.2%	+23.0%	+15.9%	
Performance Plan	'000 TSUs						4,034	1,556	1,925	3,316	3,582	3,884	-3.7%
Annual change	%						+4.6%	-61.4%	+23.7%	+72.2%	+8.0%	+8.4%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	4,034		2014B (PP baseline)	3,000	
2019A (as in the Reporting tables, M2)	4,060		2014A (as in the Reporting tables, M2)	3,020	
2019B/ 2019A	-0.64%	-0.64%	2014B/ 2014A	-0.64%	-0.64%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.64%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.64%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Portugal is in line with the STATFOR October 2021 base scenario.

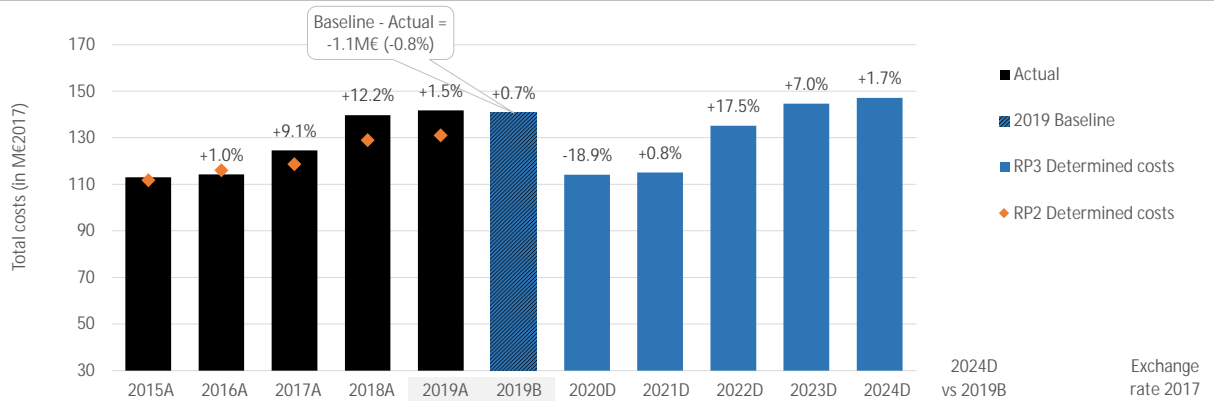
4.2.4 PRB Key Points

- Portugal en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Portugal Continental - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



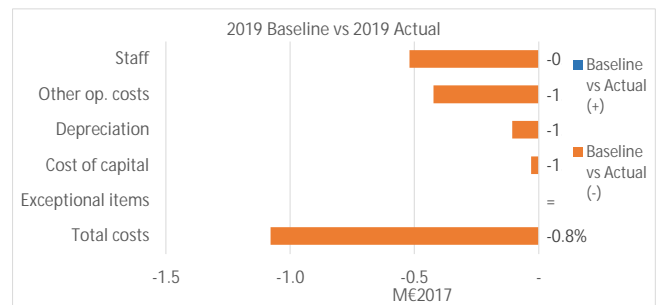
	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B	Exchange rate 2017
Total costs	M€ (nom)	111	113	125	141	144	143	116	117	139	150	155	+8.4%	€:€
Annual change	%		+1.5%	+10.5%	+13.3%	+1.7%	+1.0%	-19.0%	+1.5%	+18.6%	+8.0%	+2.8%	+4.8%	1.00000
Inflation index	2017 = 100	97.8	98.4	100.0	101.2	101.5	101.5	101.5	102.4	103.6	104.9	106.4		
Total costs	M€ (2017)	113	114	125	140	142	141	114	115	135	145	147	+4.5%	
Annual change	%		+1.0%	+9.1%	+12.2%	+1.5%	+0.7%	-18.9%	+0.8%	+17.5%	+7.0%	+1.7%	+4.5%	
Total costs	M€ (2017)	113	114	125	140	142	141	114	115	135	145	147	+4.5%	

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
⚠ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	-0.9	-0.9%
2019B vs 2019A	-1.1	-0.8%



2014 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Staff	-0.1
#2 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Other ops.	-0.0
#3 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Depreciation	-0.0
#4 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Cost of cap.	-0.0
#5 - Change of cost allocation of Met costs	MET	Staff	-0.5
#6 - Change of cost allocation of Met costs	MET	Other ops.	-0.3
#7 - Change of cost allocation of Met costs	MET	Depreciation	-0.1
#8 - Change of cost allocation of Met costs	MET	Cost of cap.	-0.0

2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Staff	-0.1
#2 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Other ops.	-0.0
#3 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Depreciation	-0.0
#4 - Change of cost allocation of NSA costs	NSA/EUROCONTROL	Cost of cap.	-0.0
#5 - Change of cost allocation of Met costs	MET	Staff	-0.4
#6 - Change of cost allocation of Met costs	MET	Other ops.	-0.4
#7 - Change of cost allocation of Met costs	MET	Depreciation	-0.1
#8 - Change of cost allocation of Met costs	MET	Cost of cap.	-0.0

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

Cost allocation between en route and terminal for NSA services has been changed in RP3, 15% of ANAC's (NSA) and IPMA's (MET ANSP) costs are allocated to terminal, and deducted from en route costs.

2014/2019 baseline analysis

The baseline adjustments for en route cost base are due to a new cost allocation. In RP2 100% of the ANACs and IPMA's costs were allocated to en route. In RP3 15% of these costs are deducted from en route and allocated to terminal. The 2014 baseline adjustments amount to -0.9M€2017. The 2019 adjustment for en route is correctly calculated based on the 2021 November reporting tables (-1.1M€2017). However, the terminal 2019 baseline adjustment is not corresponding (+1.5M€2017 instead of +1.1 M€2017).

4.3.3 Review of the RP3 determined costs and incentives



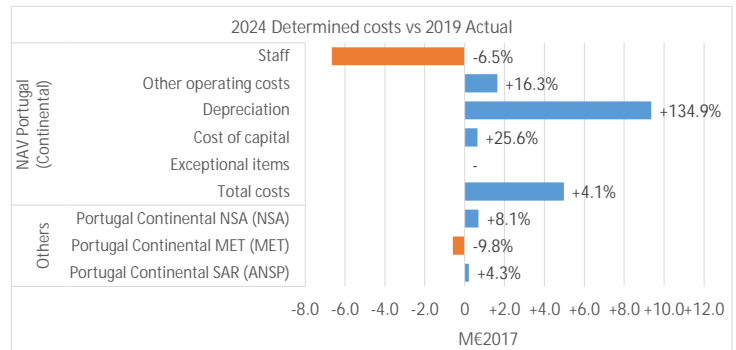
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

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



The total costs of Portugal are planned to increase by +3.7%, or +5.3M€2017, between actuals 2019 and planned 2024. The main contributor to this planned increase in costs is the main ANSP (NAV Portugal +4.1%, or +5.0M€2017 overall).

For NAV Portugal, the planned increase in costs is largely driven by additional depreciation costs (+134.9%, or +9.4M€2017).

- According to the information in Annexes A of the performance plan (Add I.1.f) "Depreciation is expected to increase from 2022, when the new ATM System is expected to go into operation".

- The only cost category that decreases during the period is staff costs (-6.5%, or -6.7M€2017), driven by the 2020 freeze salaries and a downward revision of the recruitment plan.

- Other operating costs are planned to increase by +1.6M€2017 between 2019 and 2024 (+16.3%) reflecting several operational changes, notably the maintenance costs associated with the COOPANS Alliance and the impact of the new requirements of the Implementing Regulation (EU) 2017/373.

- The cost of capital increase (+25.6%, or +0.6M€2017 between 2019 and 2024) is due to a significant increase in the net current assets, partially compensated by a decrease in the WACC (from 6.34% in 2019 to 2.87% in 2024) with both lower rates of return on equity and interest of debt financing RP3. The percentage of financing through equity is planned to go from 98.3% 2019 to around 60.79% in the last three years of RP3.

For the other entities of Portugal, only MET costs are planned to decrease between 2019 and 2024 (-9.8%), while the NSA and SAR costs are planned to increase by +8.1% and +4.3% respectively.

Total en route service units are forecast to be lower at the end of the period (-3.7%) than in 2019 according to the selected STATFOR October 2021 base forecasts. On the contrary, en route costs are planned to exceed, both 2019 actual and 2019 baseline values by 2023.

4.3.4 PRB Key Points



- Portugal includes corrections to the cost baselines due to changes in cost allocation. However, there is a small discrepancy between en route and terminal.
- After a decrease in the first years of RP3, the costs are planned to increase mostly due to depreciation.
- Staff costs are planned to decrease over the period following a downward revision of the recruitment plan.
- Portugal presented significant decreases in costs in 2020 and 2021 following cost saving efforts in response to the pandemic.

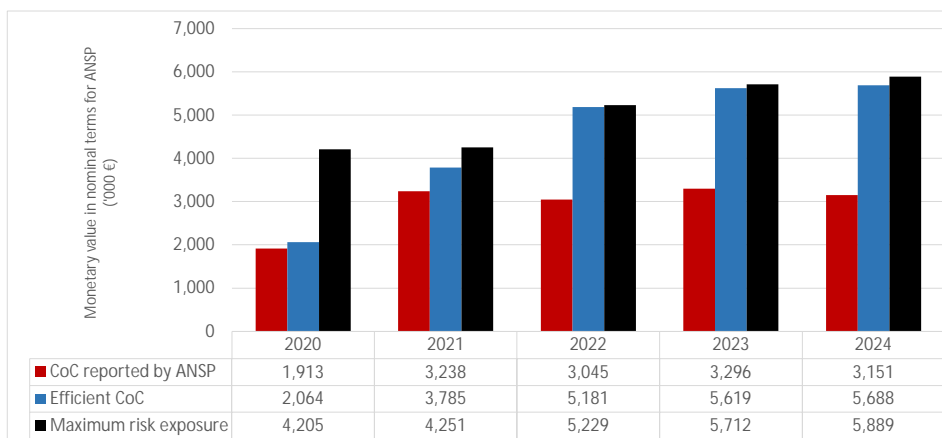
4.3.A Cost of capital

NAV Portugal (Continental) - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	95,572	96,616	118,833	129,814	133,840
Monetary value of Return on Equity	1,728	2,925	2,733	2,959	2,828
Ratio RoE/DC (%)	1.8%	3.0%	2.3%	2.3%	2.1%

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	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	6.0%	6.5%	6.0%	7.1%	4.2%	7.3%	4.2%	7.2%	4.2%	7.6%
Interest on debts	1.5%	1.5%	1.5%	1.5%	0.8%	1.2%	0.8%	1.3%	0.8%	1.4%
Capital structure (% debt)	29.9%	29.9%	29.9%	29.9%	39.3%	39.3%	39.2%	39.2%	39.2%	39.2%
WACC	4.6%	5.0%	4.6%	5.4%	2.9%	4.9%	2.9%	4.9%	2.9%	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 reported in the performance plan are duly justified and in line with competitive market practices.
- The efficient WACC has been calculated based on option 3.
- The embedded return on equity over RP3 varies from a minimum of 1.8% to a maximum of 3%. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	24,812	53,627	89,520	97,654	92,262
Net current assets	16,408	16,147	16,582	17,143	17,461
Adjustments total assets	0	0	0	0	0
Total asset base	41,220	69,774	106,102	114,796	109,724

- The fixed asset base is planned to significantly increase over RP3 in line with the increase in investments described in section 3.5 of this document.
- The net current assets do not seem to present major issues.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to increase over RP3, mainly driven by the increase in fixed asset base.

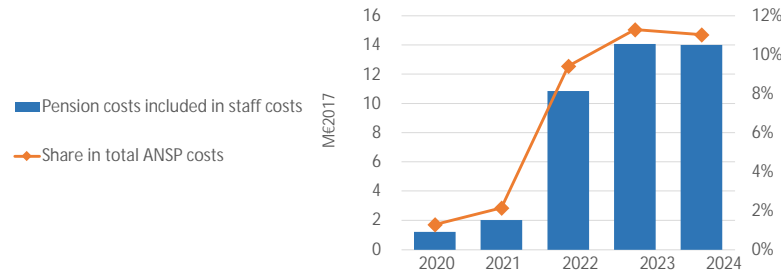
4.3.A.5 PRB Key Points

- The RP3 cost of capital does not present any major issue.

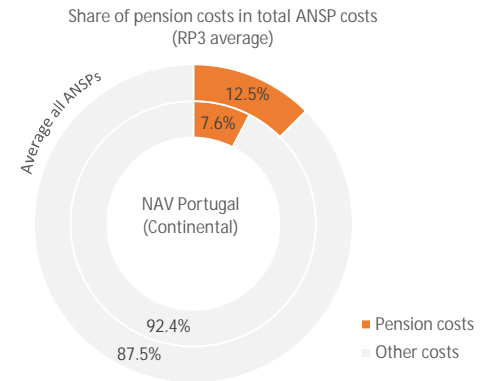
4.3.B Pensions

NAV Portugal (Continental) - En route

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		+66.3%	+438.3%	+29.7%	-0.5%
Share in total ANSP costs	%	1.3%	2.1%	9.4%	11.3%	11.0%
Year on year variation	p.p.		0.8p.p.	7.3p.p.	1.9p.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 Union-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**

NAV Portugal has three defined benefit pensions schemes for different categories of staff and depending on their recruitment date. All related costs are included as part of staff costs. NAV SINCTA Pension Fund covers all ATCO's employed before 30th September 2007. In 2020 and 2021, due to the financial constraints generated by the pandemic crisis, NAV Portugal did not and will not pay any contribution to this fund. For the remaining years of RP3, it is expected that the annual contribution to the fund will exceed the cost, with the objective of repairing the deficit. These extra payments are not part of the determined costs. It should be noted that the pension costs relating to defined contribution or State schemes are also included as staff costs but not isolated under the pension costs category. Therefore in the reporting tables, only the costs related to the three defined benefit pension plans are reported as pension costs based on the premise that "are the only ones that have an associated risk". This explains the difference between the pension costs reported in the reporting tables and shown in the graphic above, with those submitted in the performance plan, which include all the other pension costs schemes, therefore significantly higher.

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.

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 6.17% for non-ATCOs for all years of RP3.

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

NAV Portugal has three defined benefit pensions 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, except for the percentage expected return in plan assets which drops sharply after 2020 and 2021, and remains stable for the rest 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). For the remaining DB scheme (early retirement plan for ATCOs), Portugal reports in the performance plan that one potential action to manage the cost risk of 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 identified in the pensions schemes. However, total pension costs are those reflected in section 3.4.3.1 of the performance plan, which are much higher than the ones reflected in the chart above which only reflects the costs related to the defined benefit pension plans and reported under the pension category base on the premise that "are the only pension costs that have an associated risk".

4.3.C Methodology for cost allocation between ER and TRM

4.3.C.1 Cost allocation overview

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

- Portugal reports that the cost allocation methodology of the main ANSP has not changed compared to RP2 and it is based on the type of activity.
- The main ANSP defines cost centres for all the activities in accordance with its organisational structure.
- The main ANSP defines a cost allocation criterion based on the final service provided by each cost centre to each charging zone.
- Portugal reports that it modified the MET and NSA cost allocation between en route and terminal in RP3.
- In RP3, MET and NSA costs will be allocated 85% to en route and 15% to terminal. This is different from RP2 when MET and NSA costs were solely allocated to en route.
- The change in MET and NSA cost allocation is justified following analysis that shows that MET and NSA costs are also incurred in respect of the terminal area.
- Portugal adjusted its cost baseline to include the effect of the change in MET and NSA cost allocation.

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 change in MET and NSA cost allocation is justified following analysis performed by Portugal which shows that MET and NSA costs are also incurred in respect of the terminal area.

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

Partially

If, not what are the identified issues?

The analysis on which the new cost allocation is based has not been included in the performance plan.

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

Portugal reports a decrease of 1.1M€2017 in the baseline of en route costs as a result of the new allocation of 15% of MET and NSA costs to the terminal area. However, the terminal 2019 baseline adjustment does not fully correspond to the en route adjustment (it is +1.5M€2017 instead of +1.1 M€2017). The 2014 baseline adjustment for en route equals -0.9M€2017.

4.3.C.3 PRB Key Points

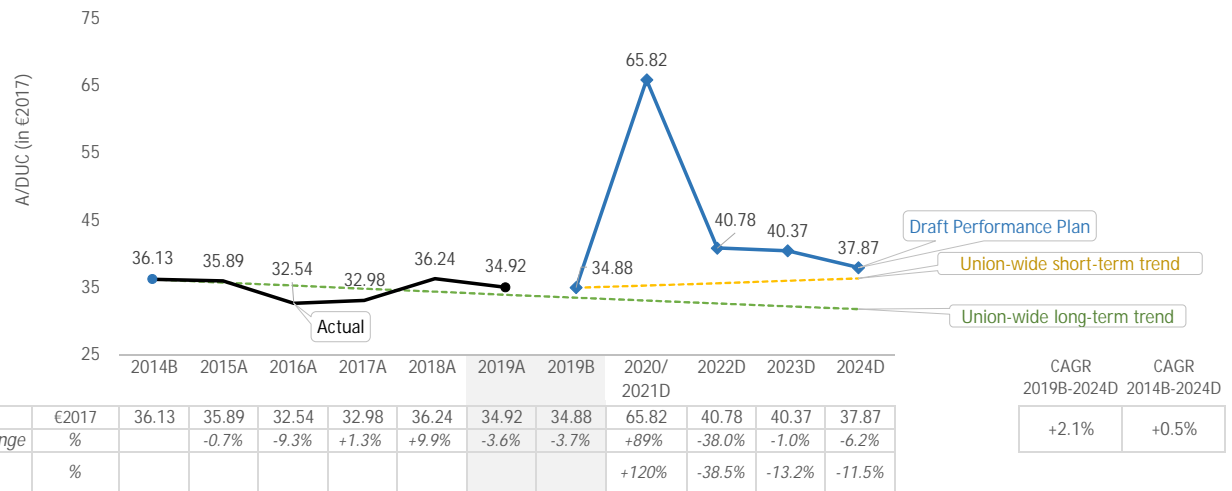


- Portugal has modified the cost allocation between en route and terminal for MET and NSA costs in RP3.
- In RP2, MET and NSA costs were allocated solely to en route. Following the changes, in RP3 MET and NSA costs will be allocated 85% to en route and 15% to terminal.
- There is no record of stakeholders opposing the proposed change in cost allocation. The allocation of the appropriate share of MET and NSA costs to terminal services implies that overflights are not financing for services which they do not use (see PRB en route and terminal cost allocation methodology review).
- The changes in allocation result in a decrease of 1.1M€2017 from the en route baseline costs, however there is a small inconsistency with the increase in terminal baseline costs, which amounts to 1.5M€2017.

4.4 Determined unit costs (DUC)

Portugal Continental - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+2.1%	+1.0%	+1.1p.p.
Trend (CAGR 2014B-2024)	+0.5%	-1.3%	+1.8p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	34.88	39.74	-12.2%

- The DUC is planned to increase on average by +2.1% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +0.5% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -12.2% lower than the average of the comparator group.

The majority of the cost increases are due to the implementation of the investment plans (i.e. TOPLIS-TOPSKY, more details in section 3.5 of this document). Such investments are considered relevant in order to achieve capacity targets. The total determined costs over RP3 equal to 26.8M€2017, which spread as average for the period 2021-2024 equals to 8.9M€2017. Portugal deviates by 6.1M€2017 from the RP3 Union-wide trend, such deviation is considered justified for the achievement of capacity targets.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

4.4.4 Analysis of the DUC deviation due to restructuring costs

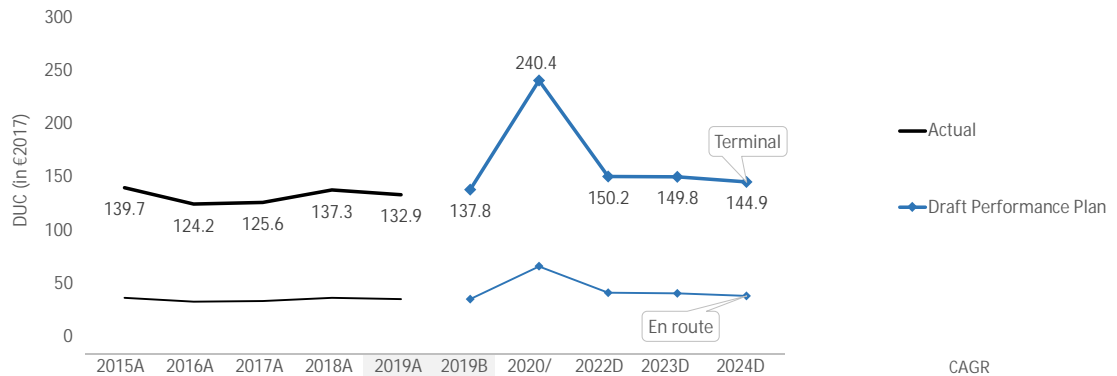
4.4.5 PRB Key Points

- Portugal is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (6.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Portugal is not consistent with the DUC long-term Union-wide trend.
- Portugal is consistent with the average DUC baseline of the comparator group.

4.5 Terminal

Portugal

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal	139.7	139.7	124.2	125.6	137.3	132.9	137.8	240.4	150.2	149.8	144.9	+1.3%
Annual Change	%		-11.1%	+1.1%	+9.3%	-3.2%	+0.4%	+74%	-37.5%	-0.3%	-3.3%	
DUC - En route	35.9	35.9	32.5	33.0	36.2	34.9	34.9	65.8	40.8	40.4	37.9	+2.1%
Annual Change	%		-9.3%	+1.3%	+9.9%	-3.6%	-3.7%	+89%	-38.0%	-1.0%	-6.2%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Porto (LPPR)	GROUP III	166.6	109.4	-34.3%	229.8	119.9	-47.9%
Lisbon (LPPT)	GROUP III	166.6	57.2	-65.6%	229.8	79.9	-65.3%
Santa Maria (LPAZ)	GROUP IV	669.6	1347.5	+101.2%	970.5	1426.2	+47.0%
Flores (LPFL)	GROUP IV	669.6	1533.5	+124.0%	970.5	1157.5	+19.3%
Faro (LPFR)	GROUP IV	669.6	153.9	-77.0%	970.5	179.5	-81.5%
Horta (LPHR)	GROUP IV	669.6	1019.9	+52.1%	970.5	1002.2	+3.3%
Madeira (LPMA)	GROUP IV	669.6	404.5	-39.6%	970.5	479.1	-50.6%
Ponta Delgada (LPPD)	GROUP IV	669.6	194.5	-70.9%	970.5	204.8	-78.9%
Porto Santo (LPPS)	GROUP IV	669.6	1631.6	+141.6%	970.5	2081.5	+114.5%
Cascais (LPCS)	GROUP IV	669.6	3162.0	+371.2%	970.5	2644.2	+171.5%

* 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

- 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, a trend that will continue during RP3.
- For the other eight airports, during RP2, five had higher average unit costs than the median of its comparator group and three lower average unit costs. The three with lower average unit costs keep a similar trend in their planned average unit costs in RP3. For the other five with higher average unit costs, the planned trend is to decrease this gap during RP3.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis		Δ '000 TSUs	%
2019B vs 2019A	TCZ1	0.0	+0%

2019 Traffic Baseline Adjustments	TCZ1	No
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Costs

Cost Baseline analysis		Δ M€2017	%
2019B vs 2019A	TCZ1	1.5	+3.7%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	M€2017
#1 - Change of cost allocation of NSA costs	TCZ1	NSA/EUROCONTROL	Staff	+0.2
#2 - Change of cost allocation of NSA costs	TCZ1	NSA/EUROCONTROL	Other ops.	+0.1
#3 - Change of cost allocation of NSA costs	TCZ1	NSA/EUROCONTROL	Depreciation	+0.0
#4 - Change of cost allocation of NSA costs	TCZ1	NSA/EUROCONTROL	Cost of cap.	+0.0
#5 - Change of cost allocation of Met costs	TCZ1	MET	Staff	+0.5
#6 - Change of cost allocation of Met costs	TCZ1	MET	Other ops.	+0.5
#7 - Change of cost allocation of Met costs	TCZ1	MET	Depreciation	+0.1
#8 - Change of cost allocation of Met costs	TCZ1	MET	Cost of cap.	+0.0

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

Cost allocation between en route and terminal for NSA services has been changed in RP3, 15% of ANAC's (NSA) and IPMA's (MET ANSP) costs are allocated to terminal, and deducted from en route costs.

2019 baseline analysis

The baseline adjustment for terminal is due to a new cost allocation. In RP2, 100% of the ANACs and IMPA's costs were allocated to en route. In RP3 15% of these costs are deducted from en route and allocated to terminal. The 2019 adjustment of 1.1M€2017 for en route is correctly calculated based on the 2021 November reporting tables. However, the terminal 2019 baseline adjustment equals to 1.5M€2017 and does not correspond to the en route adjustments.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Portugal is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

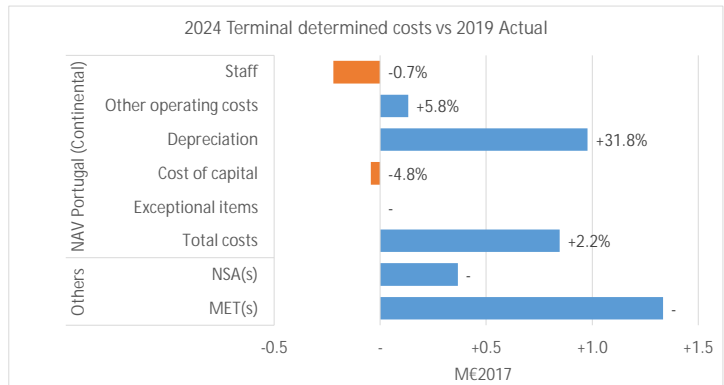
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
ⓘ Is inflation in PP in line with IMF (October 2021 forecast)?	Deviation from index < 1p.p. in 2024

Cost elements - NAV Portugal (Continental) (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)	0.50%
Maximum penalty (% of determined costs)	0.50%
Additional incentives?	No



- The share of terminal investment costs (22%) is almost equivalent to the share of terminal total costs (24%).
- Terminal WACC and its parameters are equivalent to the ones for en route.
- The share of terminal pension costs in total pensions costs (29%) is higher to the share of terminal costs in total determined costs (24%).
- The terminal DUC trend over RP3 planned for Portugal TCZ (+1.3% p.a.) is lower than the one planned for en route (+2.1% p.a.).
- For NAV Portugal, total costs in 2024 are planned to be above the 2019 level (+2.2%, or +0.8M€2017). The main driver, as for en route, is the depreciation costs, which are +31.8% higher in 2024 due to the new ATM System for the towers and the increase in capacity at the Lisbon airport. A detailed analysis of investments is provided in section 3.5 of this document.
- The total terminal service units are forecast to not reach the 2019 level in RP3 (-2.3% in 2024). On the contrary, terminal costs are planned to exceed 2019 actual costs by 2023, and 2019 baseline costs by 2024.

4.5.4 PRB Key Points ⓘ

- The terminal RP3 DUC trend is +1.3%, which is better than the en route RP3 DUC trend of +2.1%.
- The terminal RP3 DUC trend is +1.3%, which is better than the terminal RP2 DUC of -1.2%.
- Lisbon and Porto, the main airports, had a DUC -65.6% lower and -34.3% lower, respectively, than the median of their comparator group over RP2. The differences are expected to be -65.3%, and -47.9%, respectively, over RP3. The other airports included in the performance plan range from a DUC -77.0% lower to +372.2% higher over RP2. The differences are expected to range from -81.5% lower to +72.5% higher over RP3.
- Portugal adjusted the baseline for determined costs, however there is a discrepancy with en route.
- Portugal used the STATFOR October 2021 base forecast for terminal traffic as for en route.
- Terminal costs increase over the period, mainly due to depreciation costs.

PRB Assessment

ROMANIA

Draft Performance Plan

Context and scope

Romania

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 17/11/2021
 Documents no: F4566, F4567, F4569, F4570, F4571, F4572, F4574, F4581, F4582, F4583, F4584, F4585, F4586, F4587, F4577, F4578, F4588

Relative weight compared to the SES area (2019):

 % Flight-hours vs SES 2.9%
 % Serv. Units vs SES 3.9%
 % Costs vs SES 2.6%

Scope

FAB: DANUBE FAB

ROMATSA

ANSPs:

- ATS
- AIS
- CNS
- MET
- ATFM
- ASM

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

EUROCONTROL
 Romanian Civil Aeronautical Authority (RCAA)

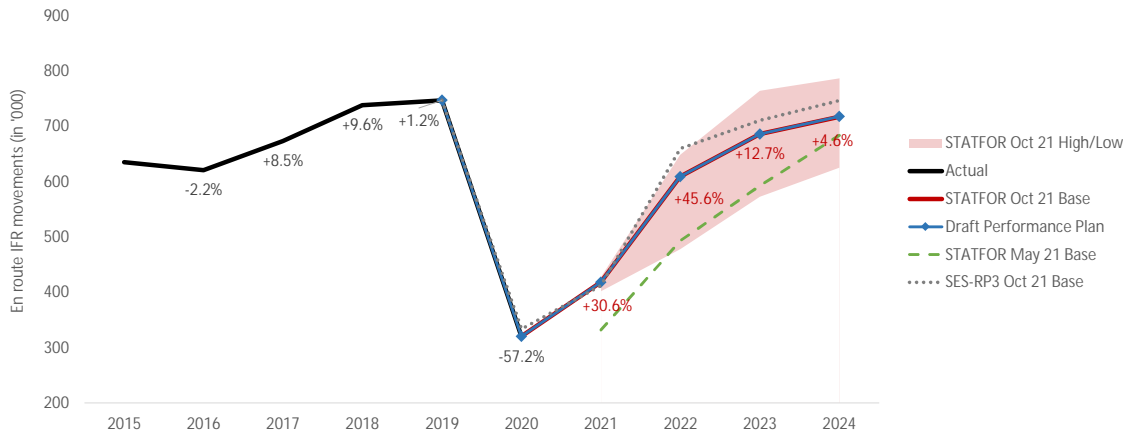
NM, CRCO
 Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Romania	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety ✓

Safety PP 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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment ✓

Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.55%	2.10%	2.05%	2.05%	2.05%

PRB assessment

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

- Romania's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Romania did not achieve the 2021 target of 2.10% in its performance plan. For this reason, Romania has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Romania's performance may be affected by the geo-political situation in Eastern Europe and Middle East.

3. Capacity ✓

Capacity PP targets

	2020	2021	2022	2023	2024
National target for en route ATFM delay per flight (min)	0.14	0.02	0.04	0.04	0.04
National target for terminal and airport ANS ATFM arrival delay per flight (min)	0.50	0.50	0.39	0.39	0.39

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, 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.
- Based on the evidence presented in the performance plan, more ambitious national targets for average airport arrival ATFM delay would be realistic.
- The terminal capacity incentive scheme defined in the performance plan does not have a material impact on the revenue at risk.

4. Cost-efficiency ✗

Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	65.45	41.94	38.16	38.18	+2.9%	+0.6%
Target for determined unit cost (DUC) (€2017) - Terminal	414.64	255.91	259.40	257.30	n/a	+4.3%

PRB assessment

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

- Romania is not consistent with the RP3 DUC trend in terms of average reduction.
- Romania is not consistent with the long-term Union-wide DUC trend.
- Romania is consistent with the average DUC baseline of the comparator group.
- Romania presents justifications for a deviation to achieve capacity targets, which seems to not be justified.

5. PRB recommendations**SAFETY**

- Romania should retain the high level of safety achieved in 2020 throughout RP3.

ENVIRONMENT

- Romania should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Romania 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.
- Romania should revise the terminal capacity incentive scheme so that it has a material impact on the revenues.

COST-EFFICIENCY

- Romania should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
- Romania should consider in the RP3 cost base the 32.5M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- Romania should justify the cost of capital assumptions and should revise downwards the cost of capital.
- Romania 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.

ROMANIA

Safety KPA

1.1 Summary of safety key data and assessment results

Romania

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 RP3 Union-wide safety targets, were either met or exceeded already in 2020.

1.1.2 Measures planned to reach the target (if applicable)

The Romanian ANSP has already met RP3 safety target levels. Therefore the measures put in place ensuring maintaining the safety levels to the end of RP3 are considered relevant and adequate.

1.1.3 Interdependencies and Trade-offs

The performance plan underlines that ROMATSA together with the NSA have established the formalised approach ensuring that safety performance will not be deteriorated during the implementations of the changes into the ATM functional system.

1.1.4 Change Management

Change management practices constitute an integral part of ROMATSA's Safety Management system and are supported by the Romanian NSA. Given the level of details provided in the performance plan, these practices should, if applied, be sufficient to control the impact on network performance.

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 sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

- In 2020, Romania exceeded the safety targets for RP3 and exceeded the targets planned for 2020. Romania should retain the high level of safety achieved in 2020 throughout RP3.

1.2 Targets for EoSM for ANSPs and Measures

Romania

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
ROMATSA	Safety policy and objectives	D	C	C	C	C	C	✓	
	Safety risk management	D	C	C	C	C	D	✓	
	Safety assurance	D	C	C	C	C	C	✓	
	Safety promotion	D	C	C	C	C	C	✓	
	Safety culture	D	C	C	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, were either met or exceeded already in 2020. The targets should have been revised and adopted to current level of the ANSP.

The performance plan indicates that ROMATSA achieved or exceeded the RP3 safety targets. To maintain the safety level to the end of RP3, the specific measures will be decided based on yearly review of application of the CANSO Standard of Excellence in Safety Management Systems (i.e. SoE in SMS). Some measures in safety monitoring at ANSP level are listed.

Moreover, the Romanian NSA performs continuous oversight activities and safety performance monitoring under the relevant EU legislation, national and internal procedures.

Considering that the ANSP is already at safety target levels, the measures put in place ensuring maintaining the safety levels to the end of RP3 are relevant and adequate.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

During RP3, the ATM 2015+ system is implemented with the aim of increasing capacity. The 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 the ATM functional system will not deteriorate safety performance. Additionally, specific metrics are used to monitor the safety levels during implementation.

Moreover, the performance plan indicates that the resources have been assured to maintain the safety activities during RP3.

1.3.2 Change Management Practices

Change management practices are an integral part of ROMATSA's Safety Management Manual and are supported by the NSA. Change management processes cover the lifecycle of change, including implementation and operations. Implementation of the change is monitored and compared to the expected outcome derived from the safety assessment. This approach ensures proactive management of emerging risks.

Change management processes involve all affected stakeholders to guarantee a suitable application of the change and minimising negative impact on network performance.

ROMANIA

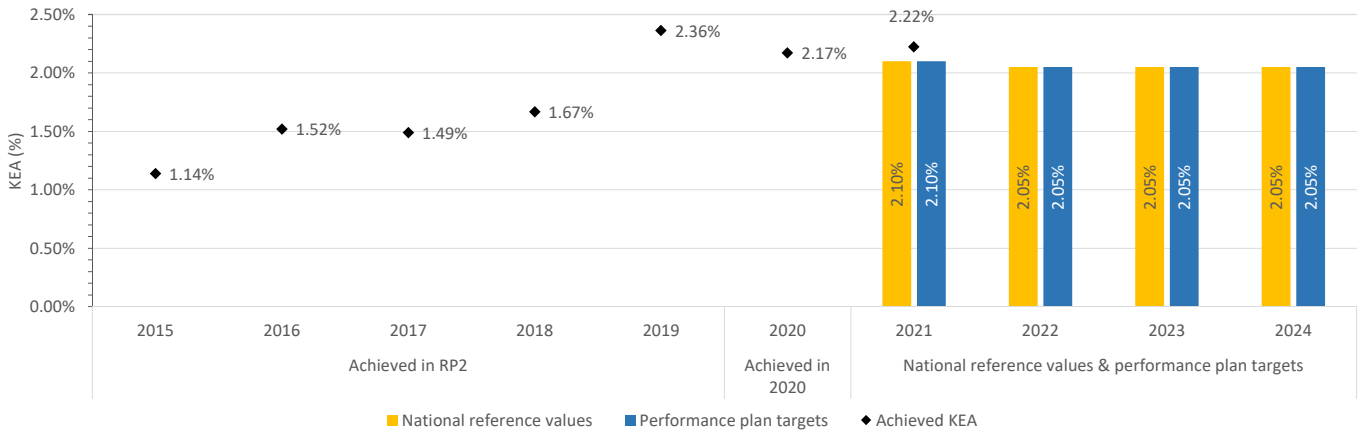
Environment KPA

2.1 Summary of 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
National reference values	1.55%	2.10%	2.05%	2.05%	2.05%
Performance plan targets	1.55%	2.10%	2.05%	2.05%	2.05%
Comparison of draft performance targets with reference values	n/a	▲0.00%	▲0.00%	▲0.00%	▲0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Romania's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Romania did not achieve the 2021 target of 2.10% in its performance plan. For this reason, Romania has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Romania's performance may be affected by the geo-political situation in Eastern Europe and Middle East.
- Romania should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Romania

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, Romania operates within south-east free route airspace (SEE FRA) - the 24-hour cross-border FRA that includes Bulgaria and Hungary. SEE FRA was expanded on 28 January 2021 to include Slovakia.	✓	3.2.1(c)	Page 73
Major ERNIP Recommended Measures:	6	Reference in PP	Reference in ERNIP
Measure implemented or included within performance plan?			
PBN Transition Plan	✓	3.2.1(c)	Page 166
SEE FRA Airspace Planning Reduction	✓	3.2.1(c)	Page 121
Single CDR Category (SCC)	✗	3.2.1(c)	Page 159
SEE FRA Phase 3	✓	3.2.1(c)	Page 174
Bucuresti ACC re-organisation	✓	3.2.1(c)	Page 178
CB FRA operations (Poland, Slovakia, Bulgaria, Hungary, Ukraine, and Moldova)	✓	3.2.1(c)	Page 218
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

Since November 2019, Romania operates south-east Europe free route airspace (SEE FRA) - the 24 hour FRA including Bulgaria and Hungary.

The chart in section 2.1.1 shows that Romania achieved a KEA of 2.17% in 2020. In 2021, Romania reached a KEA of 2.22% which means it did not achieve the 2021 target of 2.10% in its performance plan.

Romania's RP2 performance showed a deterioration of KEA (2.36% in 2019 vs 1.14% in 2015). Romania provided a comprehensive explanation of the challenges it is facing. Romania stated that:

- KEA is heavily influenced by the geopolitical situation in Ukraine and Syria;
- Traffic bans between Ukraine and Russia further increased pressure;
- Meteorological conditions;
- Airspace users' policies and planning procedures result in flying longer trajectories and thus negatively influence the KEA indicator.

Romania is uniquely affected by external influences that have reflected in its KEA performance. Additional performance indicators, such as the shortest constrained route and Romania's analysis in Annex P shows that the local performance has remained as good as it can be despite the longer routes flown due to network issues.

Romania plans several initiatives such as the performance based navigation (PBN) transition plan, implementation of the new airspace architecture and cross-border FRA (CB FRA) operations with Poland, Ukraine and Moldova. Of particular interest, given the issues Romania raised concerning network inefficiencies impacting its local performance, is the CB FRA plans – the PRB looks forward to seeing the impact of this on Romania's performance. The area control centre (ACC) re-organisation that will follow the operational experience with SEE FRA is also an aspect that will help Romania to improve performance. The en route projects sit alongside a host of terminal airspace measures, such as arrival manager (AMAN) and new ATS routes to shorten routes near terminal airspace.

ROMATSA has a dedicated team responsible for civil-military coordination and expect increased airspace requirements from military users that plan to procure new fighter aircraft with advanced capabilities. To counteract this, Romania pledged to improve its flexible use of airspace (FUA) processes including advanced FUA. This is crucial since airspace users must currently avoid temporary reserved areas (TRAs) and temporary segregated areas (TSAs) that are subject to airspace reservation.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Romania plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

ROMANIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

National targets are set equal to national reference values for all years of RP3 and there are no delays forecasted.

Capacity plans show a significant surplus of 34% in 2022 and reasonable surpluses for 2023 and 2024. Capacity plans indicate that Romania will not face a capacity gap in RP3.

There is a discrepancy within the performance plan between capacity enhancement measures and planned capacity profiles.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

The proposed national targets for 2022-2024 are set at 0.39 minutes per arrival, more than double of the observed average performance during RP2 and considerably worse than the past observed performance of similar airports. The proposed targets are based on the a CAGR of 0.4% of IFR movements (STATFOR October 2021 base forecast).

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.

The performance plan refers to various capacity improvement measures and declares that ATC capacity will be set at optimum level. Historical performance shows an improving trend of average delays in RP2 and zero delays so far in 2020 and 2021.

Based on the evidence presented in the performance plan, more ambitious national targets for average airport arrival ATFM delay would be realistic.

3.1.3 Incentives

En route:

Pivot value is not based on reference values published in NOP but is updated yearly based on the average share of CRSTMP-only delays (attributed by ANSP) in previous three years.

Maximum bonus is fixed at 0.5% of determined cost, whereas maximum penalty is fixed at 4% of determined cost. 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 the financial incentive.

Terminal Incentives:

The pivot values are modulated for CRSTMP related delays only, and are further adjusted yearly based on the actual share of CRSTMP related delays in the given year.

Maximum penalty and bonus are set at 0.5% of determined cost, which, together with the low risk of not meeting the targets, 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

Romania's CAPEX execution level over RP2 was only 51% of the planned values. The airspace users have financed 32.5M€ for investments that have not been materialised.

There is a capacity surplus in Romania during RP3.

New major investment during RP3 contributes to enroute capacity and is linked to PCP/CP1 ATM functionalities AF1, AF3 and AF5. Additional non-major investments contribute also to airport/TMA capacity.

Investments are in line with the overall European ATM evolution and contribute to resilience, scalability and flexibility.

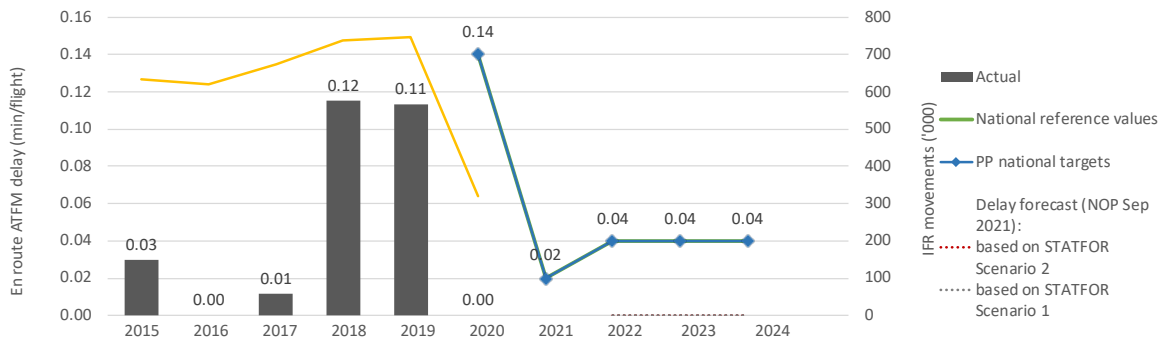
3.1.5 PRB conclusions

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

- Existing capacity plans indicate that if capacity enhancement measures are implemented successfully, 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.
- Based on the evidence presented in the performance plan, more ambitious national targets for average airport arrival ATFM delay would be realistic.
- The terminal capacity incentive scheme defined in the performance plan does not have a material impact on the revenue at risk.
- Romania 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.
- Romania should revise the terminal capacity incentive scheme so that it has a material impact on the revenues.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight



Traffic variation	+6%	-2.2%	+8.5%	+9.6%	+1.2%	-57.2%				
Actual delay/flight	0.03	0.00	0.01	0.12	0.11	0.00				
National reference values						0.14	0.02	0.04	0.04	0.04
PP national targets						0.14	0.02	0.04	0.04	0.04
Based on STATFOR Scenario 1						-	0.00	0	0	0.00
Based on STATFOR Scenario 2						-	0.00	0	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures

Assessment of capacity enhancement measures and review against NOP

There are three main capacity enhancement measures listed in the performance plan:

- Implementation of a new ATM system expected to enter into operations by the end of 2021,
- Airspace configuration, focusing on FRA implementation the operational excellence programme of the NM,
- Recruitment of new ACC ATCOs.

The measures presented in the performance plan are in line with those of the NOP 2022-2024.

The descriptions of the measures are properly detailed, their positive impact on capacity performance is established, although the benefits are neither quantified nor are there elaborate qualitative descriptions.

The planned number of ATCO FTEs shows an overall increase of 14.6% over RP3, and is justified in detail by presenting the issue of the ageing ACC ATCO population of ROMATSA. The planned number of ATCOs to start working in the OPS room is reasonable.

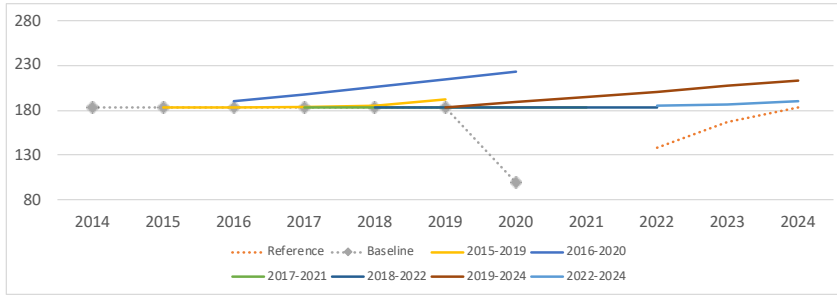
ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Bucharest ACC (LRBB)	Additional ATCOs in OPS to start working in the OPS room	25	0	0	12	12	12	24
	ATCOs in OPS to stop working in the OPS room	1	4	8	2	4	6	6
	ATCOs in OPS to be operational at year-end	237	233	225	235	243	249	267
Total - ROMATSA (en route)	Additional ATCOs in OPS to start working in the OPS room	25	0	0	12	12	12	24
	ATCOs in OPS to stop working in the OPS room	1	4	8	2	4	6	6
	ATCOs in OPS to be operational at year-end	237	233	225	235	243	249	267

2024 (end) - 2020 (beg.)	
	+34
	+34

3.2.3 Review of previous and existing capacity profile plans per ACC

Bucharest ACC (LRBB)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									138	167	183
Baseline	183	183	183	183	183	183	99				
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
2022-2024									185	187	190
Latest vs Reference									34%	12%	4%

- Historical data shows that baseline values remained flat during 2014-2019. Planned profiles followed this for most of the years, except in 2015 and 2016, when higher capacity profiles were planned. However, these were never realised 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 and 2019.

- While capacity plans reacted to the growth of traffic, capacity has not been increased, thus Bucharest ACC generated delays above the local reference values in RP2, except in 2016. The excess delay was minimal with the maximum of 0.11 minutes per flight in 2018.

- The latest planned capacity profiles show a significant surplus of 34% in 2022. In 2023 and 2024 the capacity surplus is 12% and 4% respectively, indicating that no capacity gap is expected.

- The link between planned capacity enhancement measures is hard to establish. The planned intake of ATCOs combined with the additional measures indicate a higher growth rate of capacity profiles, than the 1.3% CAGR included in the latest capacity profile plan.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

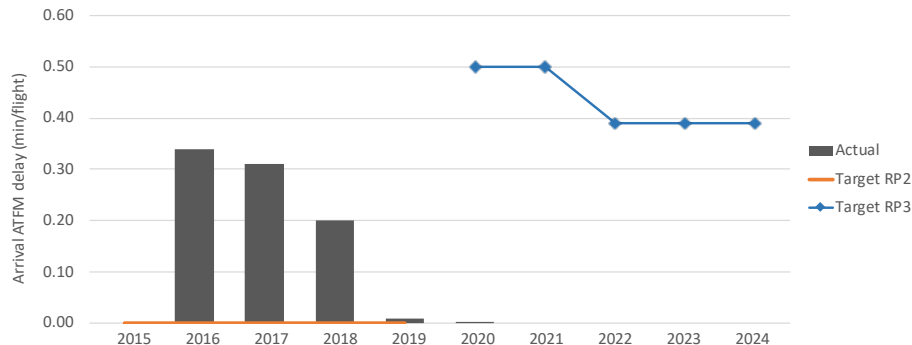
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- National targets are set equal to national reference values for all years of RP3 and there are no delays forecasted.
- Capacity plans show a significant surplus of 34% in 2022 and reasonable surpluses for 2023 and 2024. Capacity plans indicate that Romania will not face a capacity gap in RP3.
- There is a discrepancy within the performance plan, between capacity enhancement measures and planned capacity profiles.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	Target (RP2/RP3)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	Actual	0.00	0.34	0.31	0.20	0.01	0.00	-	-	-	-
Bucharest/ Otopeni (LROP)		0.00	0.35	0.32	0.21	0.01	0.00	0.51	0.40	0.40	0.40
Bucharest/ Băneasa (LRBS)		0.00	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

During RP2, Romania largely surpassed the ambitious arrival ATFM delay target of zero delays in 2016, 2017 and 2018.

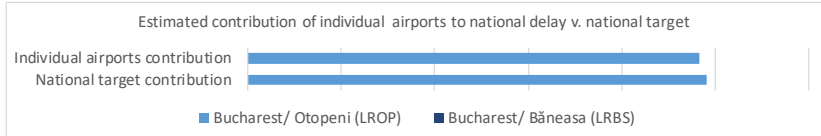
For the last three years of RP3, the proposed national targets are set at 0.39 minutes per arrival, more than double of the observed average performance during RP2. The actual performance in 2020 and 2021 (so far) showed zero delays.

According to the Romanian performance plan, the arrival delay targets are set focusing on foreseen aerodrome related delays, as the ATC capacity will be set to an optimum level. Rehabilitation works for several taxiways and extension of the aircraft platform no.2 are planned from 2022.

Romania has used the STATFOR October 2021 base forecast that estimates a CAGR (in IFR movements) for 2019-2024 of 0.4%.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Bucharest/ Otopeni (LROP)	0.43
Bucharest/ Băneasa (LRBS)	0.00
National Target	0.42



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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Bucharest/ Otopeni (LROP)	GROUP III	0.12	0.18	+0.06	0.43	+0.25
Bucharest/ Băneasa (LRBS)	GROUP IV	0.00	0.00	-0.00	0.00	-0.00

* 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 $< 80,000$

During RP2, Bucharest Otopeni showed slightly worse 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

- The proposed national targets for 2022-2024 are set at 0.39 minutes per arrival, more than double of the observed average performance during RP2 and considerably worse than the past observed performance of similar airports. The proposed targets are based on the a CAGR of 0.4% of IFR movements (STATFOR October 2021 base forecast).
- 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.
- The performance plan refers to various capacity improvement measures and declares that ATC capacity will be set at optimum level. Historical performance shows an improving trend of average delays in RP2 and zero delays so far in 2020 and 2021.
- Based on the evidence presented in the performance plan, more ambitious national targets for average airport arrival ATFM delay would be realistic.

3.4 Capacity Incentive schemes

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%	4.000%
	✓	✓

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			0.04	0.04	0.04
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.04	0.04	0.04
Pivot values for RP3			0.04	0.02	0.02

Threshold and pivot value review

The pivot value is updated annually from the reference value in the Network Operations Plan (NOP). Pivot value will be modulated for CRSTMP delay causes only, based on percentage of CRSTMP attributed delays in previous three years. (% of CRSTMP in 2018: 31%; 2019: 80%; 2020 & 2021: 0 delay) Huge deviations possible for calculation of modulation over three year period 2019-2021.

Modulation review

Romania is applying modulation of scope of incentives by only considering the ATFM delays attributed, by the ANSP, to CRSTMP delay codes.

Review of financial advantages/disadvantages

Maximum bonus is fixed at 2% of determined cost, whereas maximum penalty is fixed at 4% of determined cost. 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 the financial incentive.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal 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)			±0.035	±0.020	±0.010
Performance Plan targets			0.39	0.39	0.39
Pivot values for RP3			0.07	0.04	0.02

Threshold and pivot value review

The terminal incentive scheme includes a dead band of 10% of the CRSTMP pivot value (dead band: 0.063 - 0.077 minutes 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. The pivot values are modulated to consider only CRSTMP delay causes and adjusted every year.

Modulation review

Romania has chosen to modulate the pivot values in a two-fold way: according to CRSTMP causes and also for each year 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 observed in the previous three years. The initial pivot values applied in the performance plan however do not correspond to any observed share.

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. Maximum penalty and bonus is set at 0.5% of determined cost, which, together with the low risk of not meeting the targets (based on historical performance and evidence provided in the performance plan), 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 updated yearly based on the average share of CRSTMP-only delays (attributed by ANSP) in previous three years.

- Maximum bonus is fixed at 0.5% of determined cost, whereas maximum penalty is fixed at 4% of determined cost. 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 the financial incentive.

Terminal Incentives:

- The pivot values are modulated for CRSTMP related delays only, and are further adjusted yearly based on the actual share of CRSTMP related delays in the given year.

- Maximum penalty and bonus are set at 0.5% of determined cost, which, together with the low risk of not meeting the targets, 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 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	19.7	18.7	19.5	19.8	19.7	97.4
En route	M€ (nominal)	17.8	16.9	17.8	18.0	17.9	88.4
Terminal	M€ (nominal)	1.9	1.8	1.7	1.8	1.8	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 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	TRM
1	ATM System 2015+ Phase 2	<i>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 November 2021 and will include several functionalities.</i> <i>More details can be found in section 2.1 of the performance plan.</i>	6.8	Yes	Yes	3.4	0.0
Total:						3.4	0.0

Airspace user feedback regarding major investments

The airspace users had several questions regarding the investments:

- Requested more details regarding the other new investments. These details have been provided in Annex E of the performance plan.
- Expressed their concerns with regards to the 100% en route costs allocation of the new major investment. Romania clarified that the second phase of the investment (which is continuing from RP2) covers only en route functionalities.
- Enquired about the other new investments covering airports, which were not included in the performance plan. Romania clarified that the part of costs included in the performance plan only covers the two Bucharest airports included in the performance plan.

Review of investments

New major investments represent 14% of the total determined costs of investments over RP3. The new major investment ("ATM System 2015+ Phase 2") was also included in the RP2 performance plan, however it was delayed to RP3 following the re-submission of the RP2 performance plan in 2018. The RP2 actual CAPEX was 48% of the planned value for the same period and the amount underspent was 56M€. In terms of depreciation and cost of capital, the airspace users have financed 32.5M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 RP3 (M€)
Other new investments	59.6	43.3	3.5	1.9	3.7	6.5	8.5	24.1
Existing investments			16.2	16.6	14.9	12.2	10.1	69.9

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls? 

There is a significant capacity surplus in Romania in the beginning of RP3, reducing from 34% in 2022 to 4% in 2024.

There is one new major investment in Romania during RP3, which contributes to en route capacity, the ATM2015+ System Phase 2 investment. The investment is linked to PCP/CP1 ATM Functionalities AF1, AF3, and AF5. The investment contributes to scalability and flexibility and is in line with the overall European ATM evolution.

Other (non-major) investments contribute further to en route capacity (Management of air traffic capacity and flows investment), to airport/TMA capacity (TWR modernisation program and Arrival Manager (AMAN) investments) and digitalisation of the ATM system (Modernisation of aeronautical information systems and Modernisation of systems for the use of aeronautical meteorological information investments). Further communications, navigation and surveillance investments contribute to resilience, scalability and flexibility.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 

According to Annex E of the performance plan, the Phase 1 of the ATM2015+ System investment was implemented in 2019, introduced the new ATM-system and its core functionalities (FDPS, RDPS, CWP/HMI improvements), which contributed to capacity improvements and continue doing so during the ongoing reference period and beyond.

The Phase 2 improvements planned for deployment for 2021 target safety nets associated with ASM, extended AMAN (supporting adjacent ANSP), support functions and AIM/MET improvements and additional capacity contributions may be expected from the further improvements to the Tactical Tool (TCT). Improvements in MET data availability may improve capacity in non-nominal situations when weather phenomena may already have decreased the capacity from the baseline values.

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

While the ATM2015+ system implementation has been delayed by several years from the original deployment target date, the current capacity surplus combined with the ATM2015+ System investment Phases 1 and 2 ensure a proactive approach to capacity management.

3.5.4 PRB Key Points

- Romania's CAPEX execution level over RP2 was only 48% of the planned values. The airspace users have financed 32.5M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- There is a capacity surplus in Romania during RP3.
- New major investment during RP3 contributes to en route capacity and is linked to PCP/CP1 ATM functionalities AF1, AF3 and AF5. Additional non-major investments contribute also to airport/TMA capacity.
- Investments are in line with the overall European ATM evolution and contribute to resilience, scalability and flexibility.

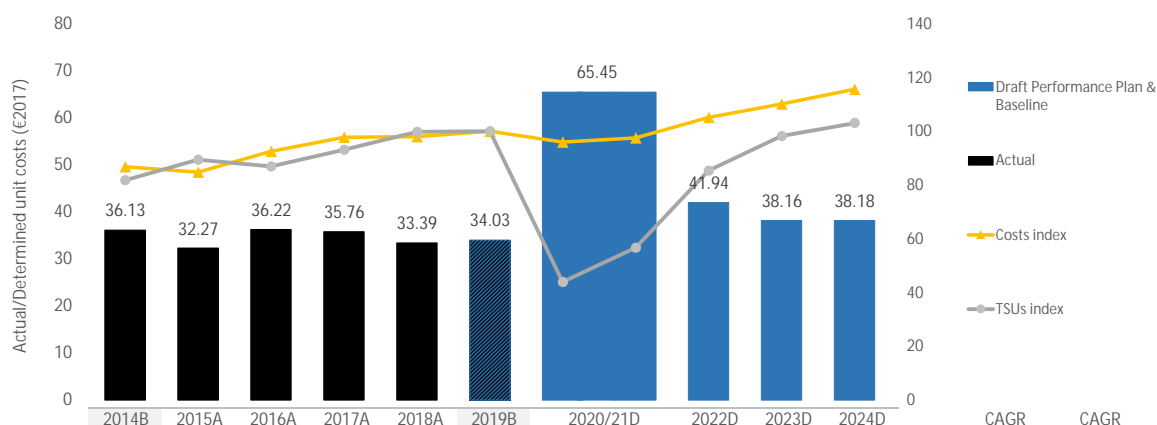
ROMANIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Romania - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



Total costs	MRON (nom)	692	674	728	777	805	850	1,692	946	1,013	1,088	CAGR 2019B-2024	CAGR 2014B-2024
Total costs	MRON (2017)	689	674	735	777	778	794	1,537	835	875	919	+6.4%	+2.8%
TSU	'000	4,178	4,571	4,443	4,757	5,101	5,112	5,144	4,360	5,022	5,269	+3.7%	+1.6%
DUC	RON (2017)	165.00	147.37	165.39	163.28	152.49	155.38	298.87	191.50	174.25	174.33	+0.8%	+0.3%
Exchange rate	RON:€			4.566									
DUC	€ (2017)	36.13	32.27	36.22	35.76	33.39	34.03	65.45	41.94	38.16	38.18		
Annual change	%		-10.7%	+12.2%	-1.3%	-6.6%	+1.9%	+92%	-35.9%	-9.0%	+0.0%	+2.9%	+0.6%

4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	34.03 €2017	✓
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No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	+2.9%	✗
The DUC is planned to increase on average by +2.9% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	+0.6%	✗
The DUC is planned to increase on average by +0.6% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (39.84 €2017)?	-14.6%	✓
The 2019 DUC level is -14.6% lower than the average of the comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?	-	✗
Romania presents justifications for a deviation to achieve capacity targets amounting to 84.7M€2017. However, this amount seems to not be justified.		
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?	-	n/a

4.1.4 PRB Conclusions

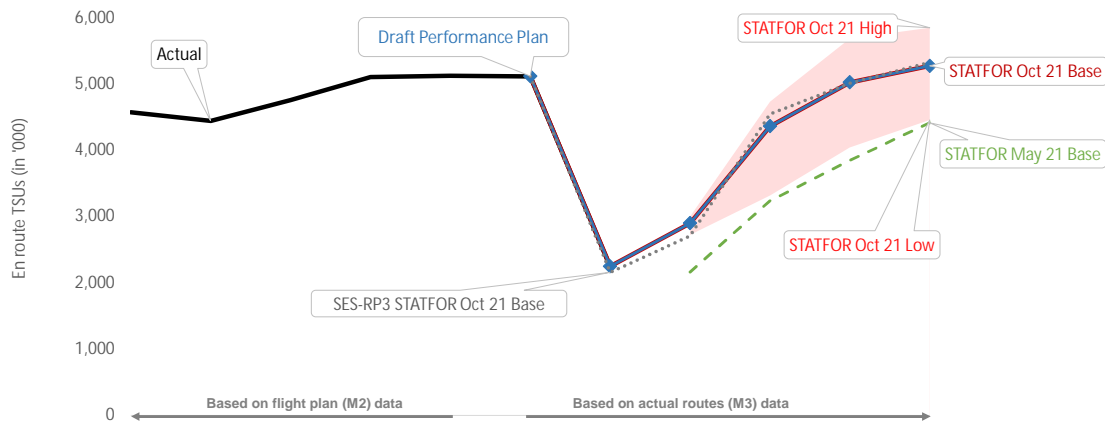
The PRB concludes that the cost-efficiency targets as proposed by Romania should not be approved.

- Romania is not consistent with the RP3 DUC trend in terms of average reduction.
 - Romania is not consistent with the long-term Union-wide DUC trend.
 - Romania is consistent with the average DUC baseline of the comparator group.
 - Romania presents justifications for a deviation to achieve capacity targets, which seems to not be justified.
-
- Romania should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
 - Romania should consider in the RP3 cost base the 32.5M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
 - Romania should justify the cost of capital assumptions and should revise downwards the cost of capital.
 - Romania 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.

4.2 Review traffic forecasts and baseline

Romania - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	4,571	4,443	4,757	5,101	5,117	5,112	2,246					
Annual change	%		-2.8%	+7.1%	+7.2%	+0.3%	+0.2%	-56.1%					
STATFOR Oct 21 Base	'000 TSUs								2,898	4,360	5,022	5,269	+3.1%
Annual change	%								+29.1%	+50.5%	+15.2%	+4.9%	
STATFOR May 21 Base	'000 TSUs								2,159	3,234	3,842	4,410	-13.7%
Annual change	%								-3.9%	+49.8%	+18.8%	+14.8%	
Performance Plan	'000 TSUs					5,112	2,246	2,898	4,360	5,022	5,269	+3.1%	
Annual change	%					+0.2%	-56.1%	+29.1%	+50.5%	+15.2%	+4.9%		

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	5,112		2014B (PP baseline)	4,178	
2019A (as in the Reporting tables, M2)	5,117		2014A (as in the Reporting tables, M2)	4,182	
2019B/ 2019A	-0.10%	-0.10%	2014B/ 2014A	-0.10%	-0.10%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M3/M2 coefficient (-0.10%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.10%). The coefficient slightly decreases the number of the 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Romania is in line with the STATFOR October 2021 base scenario.

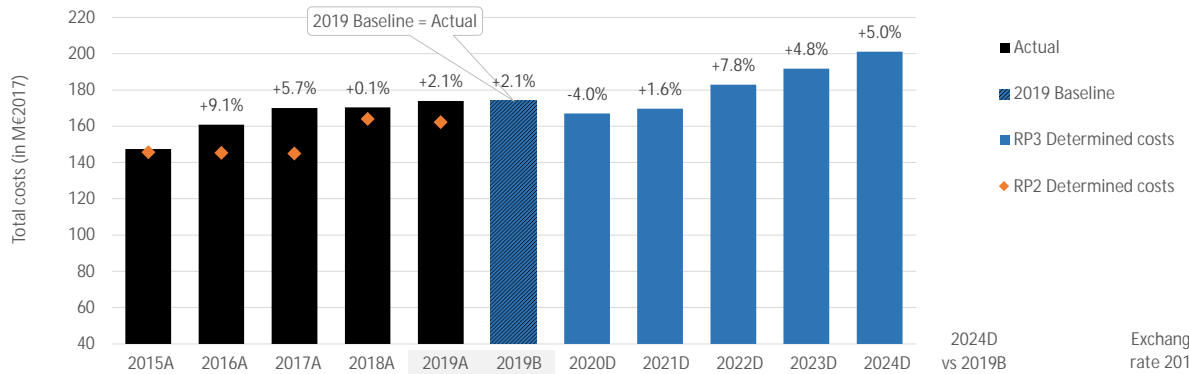
4.2.4 PRB Key Points

- Romania en route traffic forecast is in line with STATFOR October 2021 forecast.
- No major issues identified.

4.3 Review of determined costs and baseline

Romania - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	MRON (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	MRON (nom)	674	728	777	805	850	850	829	863	946	1,013	1,088	+28.1%
Annual change	%	-	+8.1%	+6.7%	+3.7%	+5.5%	+5.5%	-2.4%	+4.0%	+9.7%	+7.1%	+7.4%	+13.0%
Inflation index	2017 = 100	100.0	98.9	100.0	104.1	108.2	108.2	110.6	113.7	116.1	119.1	122.2	+15.6%
Total costs	MRON (2017)	674	735	777	778	794	794	762	775	835	875	919	+15.6%
Annual change	%	-	+9.1%	+5.7%	+0.1%	+2.1%	+2.1%	-4.0%	+1.6%	+7.8%	+4.8%	+5.0%	+15.6%
Total costs	M€ (2017)	148	161	170	170	174	174	167	170	183	192	201	+15.6%

Exchange rate 2017
RON:€
4.56629

✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

The inflation index is in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

No adjustments applied to 2014 and 2019 costs baselines.

2014/2019 baseline analysis

The 2014 and 2019 cost baselines are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

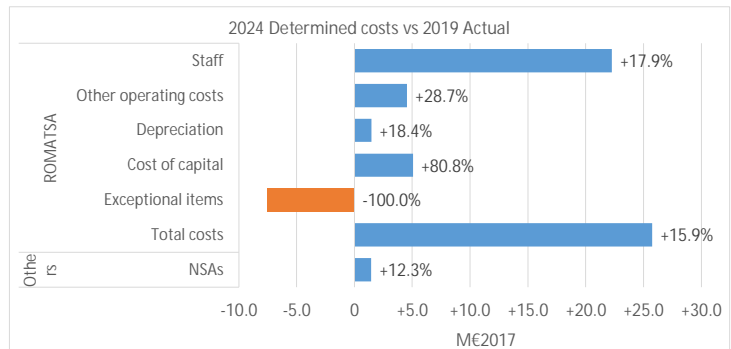
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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)	4.00%
Additional incentives?	No



The costs of Romania are planned to increase by +15.6%, or +27.2M€2017, between actuals 2019 and planned 2024. The main contributor to this planned increase in costs is ROMATSA (+15.9%, or +25.7M€2017 overall).

For ROMATSA, the planned increase in costs is largely driven by additional staff costs (+17.9%, or +22.3M€2017 between 2019 and 2024).

- According to the information in Annexes A and R of the performance plan the increase in staff costs is explained mainly by a significant intake of ATCOs (already started during RP2 and planned to continue over RP3) to cover the retirement of ATCOs, and an increase of social security contributions primarily due to the removal of the ceiling for the contribution, which led to an overall increase in gross staff costs.

- Other operating costs are planned to increase by +4.6M€2017 (+28.7%) between 2019 and 2024, covering the ATCOs and ATSEPs training, as well as the costs for services needed to comply with EU Regulations regarding Datalink and PBN. These also reflect increases in energy prices and raw materials.

- The increase in depreciation costs (+18.4%, or +1.5M€2017 between 2019 and 2024) is mainly accountable to the entry into operation of phase 1 of the new ATM system in 2019, followed by phase 2 in 2022, and to the costs related to the upgrade of the fall-back system due to be authorised in 2021 for the period 2022-2024.

- The cost of capital increase (+80.8%, or +5.1M€2017 between 2019 and 2024) is due for the most part by an increase in the net current assets and an increase in the RoE (from 6.48% in 2019 to 12.21% in 2024), which is however partially offset by the introduction of debt financing in RP3 at the rate of 2.72%. The percentage of financing through equity is planned to go from 100% in actuals 2019 to around 50% in the last three years of RP3.

- Exceptional items relating to provisions for employee benefits were recorded in actual RP2 costs. As no amounts are recorded in this category in RP3, this represents a decrease by -7.6M€2017 between 2019 and 2024. It is not clear whether these provisions materialised and/or whether these are now included in the determined staff costs for RP3.

The NSA costs are also planned to increase between 2019 and 2024 (+12.3%).

En route service units are forecast to reach 2019 levels in 2024, while en route costs are planned to reach the 2019 actual level already in 2021.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.

- Between 2019 and 2024, the total costs for Romania are planned to increase by +15.6%. The main contributor is the increase in staff cost for ROMATSA (+15.9%, or +25.7M€2017).

- The increase in the costs of ROMATSA is explained by a significant intake of ATCOs (already started during RP2 and planned to continue over RP3) to cover the retirement of ATCOs, and an increase of social security contributions primarily due to the removal of the ceiling for the contribution, which led to an overall increase in gross staff costs.

- In RP2, in terms of depreciation and cost of capital, airspace users have financed 32.5M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

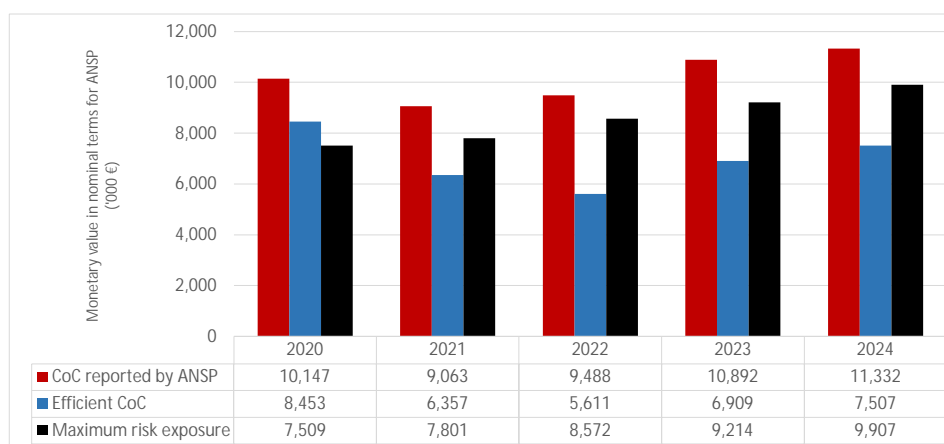
4.3.A Cost of capital

ROMATSA - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	170,655	177,289	194,810	209,404	225,168
Monetary value of Return on Equity	9,923	7,723	7,609	8,931	9,479
Ratio RoE/DC (%)	5.8%	4.4%	3.9%	4.3%	4.2%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	1,694	2,706	3,877	3,983	3,825

Total 2020-2024	16,086
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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	9.1%	7.6%	11.7%	7.6%	13.6%	6.7%	12.8%	7.1%	12.2%	7.3%
Interest on debts	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
Capital structure (% debt)	7.1%	7.1%	42.8%	42.8%	55.2%	55.2%	50.9%	50.9%	46.7%	46.7%
WACC	8.7%	7.2%	7.9%	5.5%	7.6%	4.5%	7.7%	4.9%	7.8%	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 are duly justified and in line with competitive market practices.
- The reported return on equity is exceeding the efficient return on equity throughout RP3, resulting in a WACC reported in the performance plan that is excessively high compared to the efficient WACC. The efficient WACC has been calculated based on option 3.
- Over RP3, the reported cost of capital is 16.1M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 3.9% and 5.8%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	103,129	101,858	102,911	105,455	108,858
Net current assets	13,864	13,372	22,206	36,328	36,878
Adjustments total assets	0	0	0	0	0
Total asset base	116,993	115,230	125,118	141,783	145,735

- The fixed asset base is planned to increase over RP3, which is partially in line with the increase in investments described in section 3.5 of this document.
- The net current assets will significantly increase over RP3 and seem excessive in 2023 and 2024 compared to the expected cash flow. Romania noted that net current assets include the amounts stemming from the under recoveries of 2020 and 2021.
- The RAB does not include adjustments to the total asset base.
- The total asset base is planned to increase over RP3, mainly driven by the increase in net current assets.

4.3.A.5 PRB Key Points

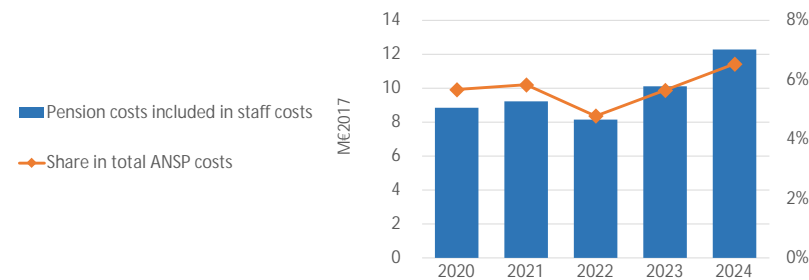


- The reported cost of capital is 16.1M€ above the efficient cost of capital over RP3. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 3.9% and 5.8%).
- The net current assets will significantly increase over RP3 and seem excessive in 2023 and 2024 compared to the expected cash flow. Romania noted that net current assets include the amounts stemming from the under recoveries of 2020 and 2021.

4.3.B Pensions

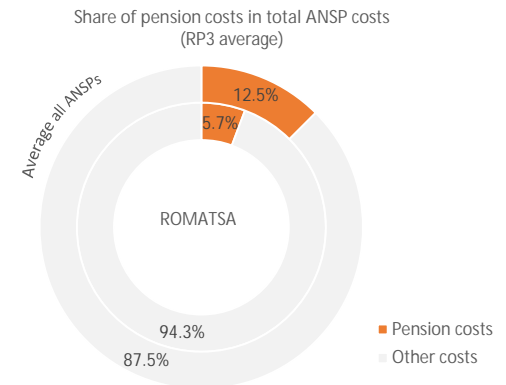
ROMATSA - En route

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	8.8	9.2	8.1	10.1	12.3
Year on year variation	% change		+4.3%	-11.7%	+24.1%	+21.4%
Share in total ANSP costs	%	5.7%	5.8%	4.8%	5.6%	6.5%
Year on year variation	p.p.		0.2p.p.	-1.1p.p.	0.9p.p.	0.9p.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 Union-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**

The State pension contributions are set by law, and although for now these have been transferred entirely to the employee, there might be future changes through which the contribution will be again split between employer and employee.

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

The employer pays 5.45% of the employee's gross wages. For 2020 and 2021, the contribution has been limited to the minimum deductible amount.

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

The actuarial calculation takes into account the entries for the ATCO recruitment process, retirements for age limit and, where applicable, special working conditions. An increase in salaries was foreseen starting from 2022, taking into consideration inflation rate (IMF forecast April 2021) and compensation for the net loss of income in 2020-2021 due to higher than projected inflation rates and no salaries increase.

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

This has been reported as n/a in Romania's performance plan.

4.3.B.4 PRB Key Points

- No major issues identified. **✓**

4.3.C Methodology for cost allocation between ER and TRM

Romania

4.3.C.1 Cost allocation overview

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

- Romania mentioned that ROMATSA updated the cost allocation methodology in RP3 *"in order to reflect the current regulatory framework"*.
- While the allocation criteria remain the same, ROMATSA increased the shares of costs allocated to en route due to an update of the underlying statistical data.
- In general, ROMATSA allocates the costs of each territorial unit that serves both en route and terminal based on the following criteria: 1) the organisational structure, 2) the average distance flown or time spent, and 3) the personnel employed.
- ROMATSA uses the following percentages for en route allocation in RP3: APP, 100%; combined APP/TWR, 50% considering the average distance flown and time spent, provision of information services and search and rescue; MET, 80%; headquarters costs, 90%; CNS staff wages, according to the percentage of the equipment served; and administrative staff wages, according to the average allocation of the other categories of staff.

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

Romania proposes to increase the following allocation percentages to en route with respect to RP2:

- In RP3, the combined APP/TWR is allocated 50/50 taking into account the average distance flown and time spent, provision of information services, and search and rescue. In RP2, the combined APP/TWR used to be allocated 32% to en route, 68% to terminal.
- In RP3, MET costs are allocated 80% to en route and 20% to terminal. In RP2, MET costs used to be allocated 75% to en route and 25% to terminal.

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

No

If, not what are the identified issues?

Romania does not justify the changes in the allocation percentages between en route and terminal, other than stating that it is due to an update of the underlying statistical data.

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

Romania does not provide the impact that the changes in the cost allocation keys have in the determined costs or in the baseline.

4.3.C.3 PRB Key Points

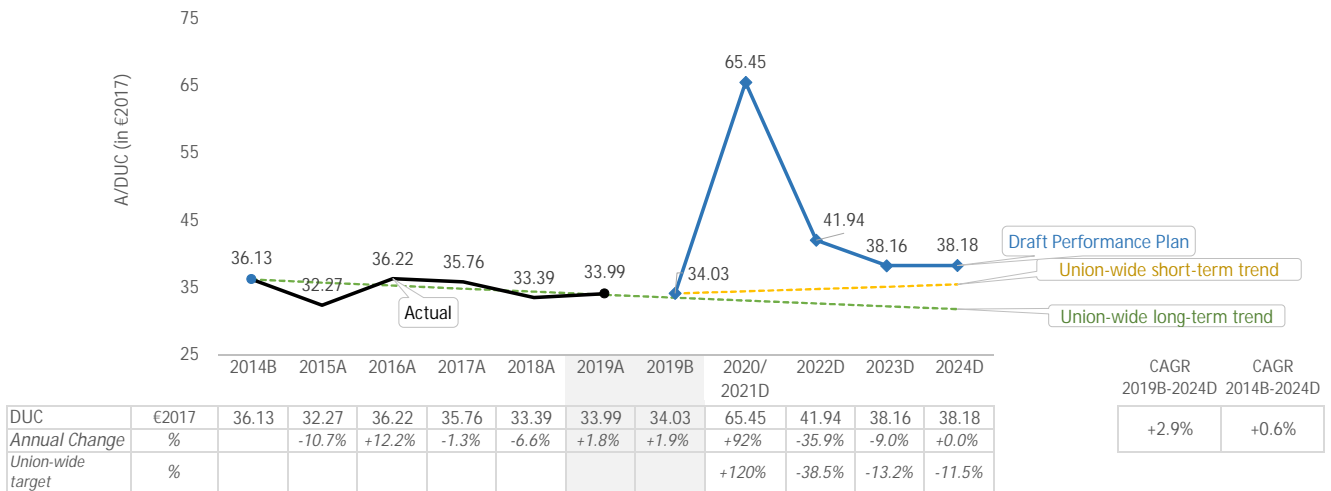


- Romania mentioned that ROMATSA updated the cost allocation methodology *"in order to reflect the current regulatory framework"*.
- While the allocation criteria remain the same, ROMATSA increased the shares of costs allocated to en route due to an update of the underlying statistical data.
- Statistical data can be considered a valid method to calculate cost allocation shares (see PRB en route and terminal cost allocation methodology review).
- There is no record of stakeholders opposing the proposed change in cost allocation shares.
- It is unclear whether or not the changes in the allocation percentages of combined approach/tower and MET services have an impact on the cost base.

4.4 Determined unit costs (DUC)

Romania - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+2.9%	+1.0%	+1.9p.p.
Trend (CAGR 2014B-2024)	+0.6%	-1.3%	+1.9p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline	34.03	39.84	-14.6%

- The DUC is planned to increase on average by +2.9% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +0.6% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -14.6% lower than the average of the comparator group.
- Romania presents justifications for a deviation to achieve capacity targets, which seems to not be justified.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets

vs RP3 criteria +14.6

vs RP2+RP3 criteria +31.9

Additional determined costs related to measures necessary to achieve the en route capacity targets (in M€2017)

	2020D	2021D	2020/2021D	2022D	2023D	2024D	Σ 2020-2024	PP deviation
Staff	3.4	7.0	10.4	9.5	13.6	18.1	51.6	17.2
of which, pension costs	-	-	-	-	-	-	-	-
Other operating costs	1.7	2.0	3.7	1.9	1.8	1.8	9.1	3.0
Depreciation	0.8	1.5	2.3	3.3	3.4	3.6	12.5	4.2
Cost of capital	1.2	1.5	2.7	2.2	3.3	3.3	11.5	3.8
Exceptional items	-	-	-	-	-	-	-	-
Total additional costs of measures	7.0	12.0	19.0	16.9	22.1	26.7	84.7	28.2

Overall description of the measures necessary to achieve the en-route capacity targets for RP3, which induce additional costs

The measures reported by Romania to be necessary to achieve the en route capacity targets are:

- ATCO recruitment and training for en route activity (training costs part of other operating costs);
- ATM system phase 1 put into operations in April 2019 with depreciation costs starting from 2020 and phase 2 about to be transferred into operations by end 2021 with depreciation costs starting from 2022;
- Traffic complexity and assessment tool due to be implemented in 2024;
- Datalink service contract with CSPs.

Demonstration that the deviation is exclusively due to the additional costs related to measures necessary to achieve the capacity targets

Romania indicates that it would not be able to meet its capacity targets and its performance would significantly deteriorate in RP4 if ROMATSA does not follow the recruitment plan assumed in the performance plan. Even though the biggest impact is to be experienced in RP4, ROMATSA must continue to implement a recruitment plan now as it takes between three to five years to train a fully licenced ATCO with all necessary ratings.

Analysis

- An ATCO recruitment plan seems justified, given the age of the of the current controllers (more than half above 50 years old in the ACC), the time needed to train new ATCOs and the risk that a new pension legislation is foreseen to enter into force in 2023 will accelerate the retirement rate, as some ATCOs would be able to benefit from a reduced retirement age. However, as the measure will only show benefits in the next reference period and the costs associated with the planned recruitment and planning is unjustifiably high, the amount proposed for a deviation seems to not be justified.

- As far as the investment costs for the ATM system phases 1 and 2, the RP2 CAPEX monitoring report shows that the RP2 CAPEX for phase 2 was not realised over the whole reference period, and the total actual investment costs have been significantly lower than those determined in the performance plan by 29.0M€2017. Therefore, the costs proposed for a deviation relating to investments do not seem justified.

- The total amount proposed for a deviation (28.2M€2017 considered for the PP deviation) is not exclusively due to additional costs related to measures necessary to achieve the capacity targets. When estimating the staff costs for the new ATCOs using the average staff costs for ATCOs in OPS reported by Romania in the ACE 2019 benchmarking report (122,186€2017/FTE), these would amount to 5.4M€2017 for the PP deviation, which together with the 3.0M€2017 for the training costs reported as other operating costs would result in an amount of 8.4M€2017 for the ATCO recruitment plan, which would not suffice to cover the deviation from the Union-wide trends, whether for RP3 (+14.6M€2017) or for the long-term trend (+31.9M€2017). Even when considering the additional staff costs relating to new ATCOs in 2024, the year when all the 60 new ATCOs are planned to be in OPS, the estimated amounts for the deviation would be 7.3M€2017 in staff costs and 1.8M€2017 in other operating costs, amounting to 9.1M€2017, hence still not sufficient to cover the deviation from the Union-wide trends, whether for RP3 (+14.6M€2017) or for the long-term trend (+31.9M€2017).

4.4.4	Analysis of the DUC deviation due to restructuring costs	n/a
4.4.5	PRB Key Points	✘

- Romania is not consistent with the RP3 DUC trend in terms of average reduction.

- Romania is not consistent with the DUC long-term Union-wide trend.

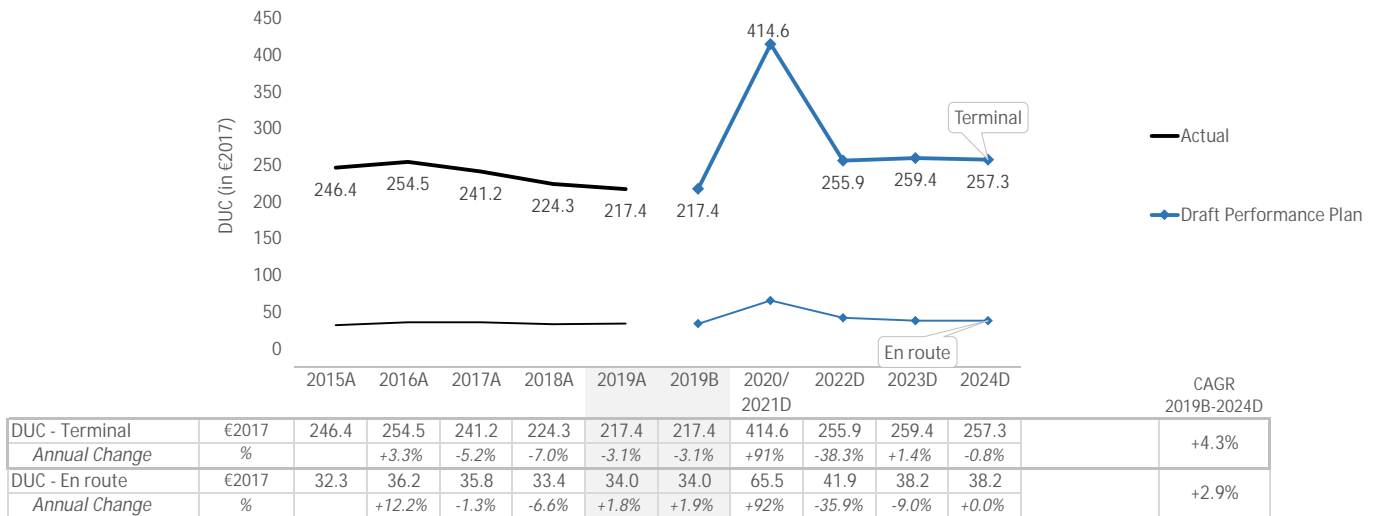
- Romania is consistent with the average DUC baseline of the comparator group.

- Romania presents justifications for a possible deviation to achieve capacity targets amounting to 84.7M€2017. However, this amount seems to not be justified.

4.5 Terminal

Romania

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Bucharest/ Băneasa (LRBS)	GROUP IV	680.0	4082.0	+500.3%	994.4	1926.8	+93.8%
Bucharest/ Otopeni (LROP)	GROUP III	166.6	196.6	+18.0%	234.2	238.6	+1.9%

* 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 differences between the average DUC for Bucharest airports and the median DUCs of the comparator groups is planned to reduce significantly in RP3 compared to RP2, being however +93.8% higher.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP
n/a

2019 baseline analysis

Romania has not applied any adjustments to the 2019 traffic or costs baselines.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Romania is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

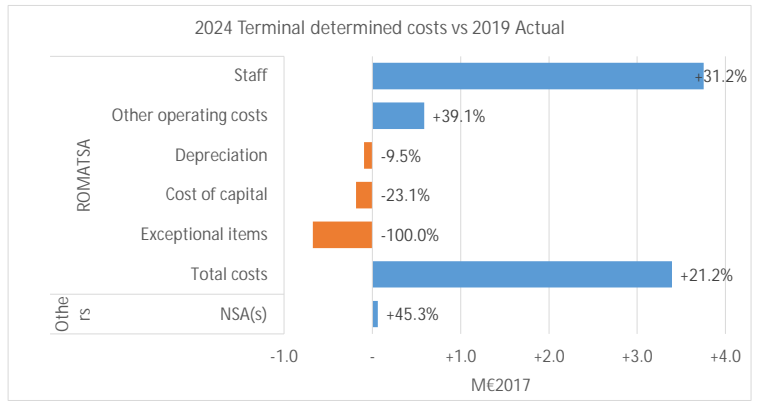
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

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	4.40%
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 (9%) is in line with 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 (+4.3% p.a.) is higher than that planned for en route (+2.9% p.a.).
- Over RP3, the terminal costs are planned to increase by +21.5% (+3.5M€2017). The drivers behind this planned increase, especially linked to the evolution of staff costs (+31.2%, or +3.8M€2017), are similar to those described in detail for en route in section 4.3.3 of this document and mostly reflect the planned intake of ATCOs in OPS for terminal service provision.
- Terminal service units are forecasted to reach 2019 levels in 2024, while terminal costs are planned to reach the 2019 actual level already in 2021.

4.5.4 PRB Key Points ✘

- The terminal RP3 DUC trend is +4.3%, which is worse than the en route RP3 DUC trend of +2.9%.
- The terminal RP3 DUC trend is +4.3%, which is worse than the terminal RP2 DUC trend of -3.1%.
- Bucharest Otopeni, the main airport, had a DUC higher (+484.8%) than the median of its comparator group over RP2. The difference is expected to become +93.8%, over RP3.
- Romania used the STATFOR October 2021 base forecast for terminal traffic, as for en route.
- Terminal costs increase over the period, mainly due to staff costs.

PRB Assessment

SLOVAKIA

Draft Performance Plan

Context and scope

Slovakia

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 15/12/2021
 Documents no: F4724, F4729, F4883, F4725, F4731, F4884, F4730

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 0.8%
 % Serv. Units vs SES 1.0%
 % Costs vs SES 0.8%

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

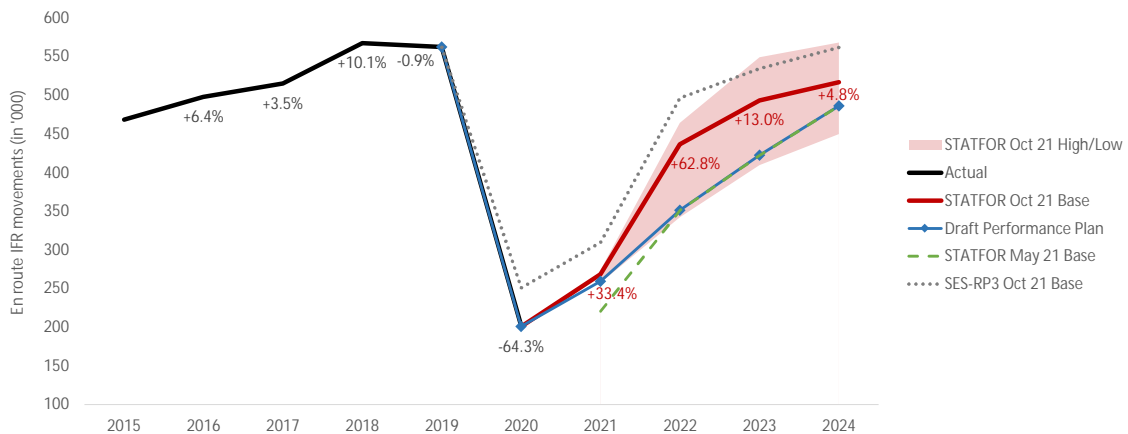
NM, CRCO National Supervisory Authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Slovakia	n/a	No	No	No	
Terminal (TRM)	n/a	0	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



PRB assessment

Slovakia - Draft Performance Plan

1. Safety



Safety PP 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 EoS safety targets are consistent with the Union-wide performance targets.
- Relevant ANSP measures are described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	2.10%	2.15%	2.13%	2.13%	2.13%

PRB assessment

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

- Slovakia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Slovakia did not achieve the 2021 target of 2.15% in its performance plan. For this reason and due to missing measures to achieve the RP3 targets, Slovakia has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.60	0.05	0.07	0.08	0.07
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 be approved.

- Capacity plans indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	80.51	68.51	59.12	51.88	+2.4%	-1.1%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	-

PRB assessment

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

- Slovakia is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (3.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Slovakia is not consistent with the long-term Union-wide DUC trend. However, the deviation (1.3M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Slovakia is not consistent with the average DUC baseline of the comparator group.

5. PRB recommendations

SAFETY

- Slovakia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Slovakia should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

SLOVAKIA

Safety KPA

1.1 Summary of safety key data and assessment results

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 RP3 Union-wide safety targets, are planned to be attained at the end of RP3. The ANSP starts RP3 with maturity levels that are lower than the RP3 targets.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan declares that the LPS developed an integrated action plan with multiple measures to improve safety performance together with other areas in order to meet Union-wide targets by the end of RP3. The measures listed in safety area are considered relevant and sufficient. Specific NSA derived measures should be provided.

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 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.
- Relevant ANSP measures are described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

-Slovakia should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Slovakia

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
LPS	Safety policy and objectives	B	B	B	B	C	C	✓	
	Safety risk management	D	C	C	C	C	D	✓	
	Safety assurance	C	B	B	C	C	C	✓	
	Safety promotion	B	B	C	C	C	C	✓	
	Safety culture	B	B	B	B	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. LPS starts RP3 with maturity levels that are lower than the RP3 targets.

The performance plan declares that the LPS developed an integrated action plan with multiple measures to improve safety performance together with other areas in order to meet Union-wide targets by the end of RP3. The safety measures include:

- formalisation of Just Culture process and related training for employees,
- regular monitoring of Safety Culture,
- harmonisation, integration and further development of emergency response procedures and related exercises,
- development of formal review process for relevant legislation of safety/SMS training and its planning process in the organisation.

The measures listed are considered relevant and sufficient. Specific NSA derived measures should be provided.

1.3 Interdependencies and Change management practices

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 for assessing the impact of any change on safety. LPS SR consistently applies these processes, as well as maintain and further develop them in accordance with the latest requirements. The performance plan declares that safety will not be compromised at any time.

Additionally, the CAA inspectors regularly supervise and review the ANSP financial and personnel resources in accordance with relevant regulatory requirements (Commission Implementing Regulation (EU) 2017/373) to ensure sufficient resources for safety activities are granted.

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.

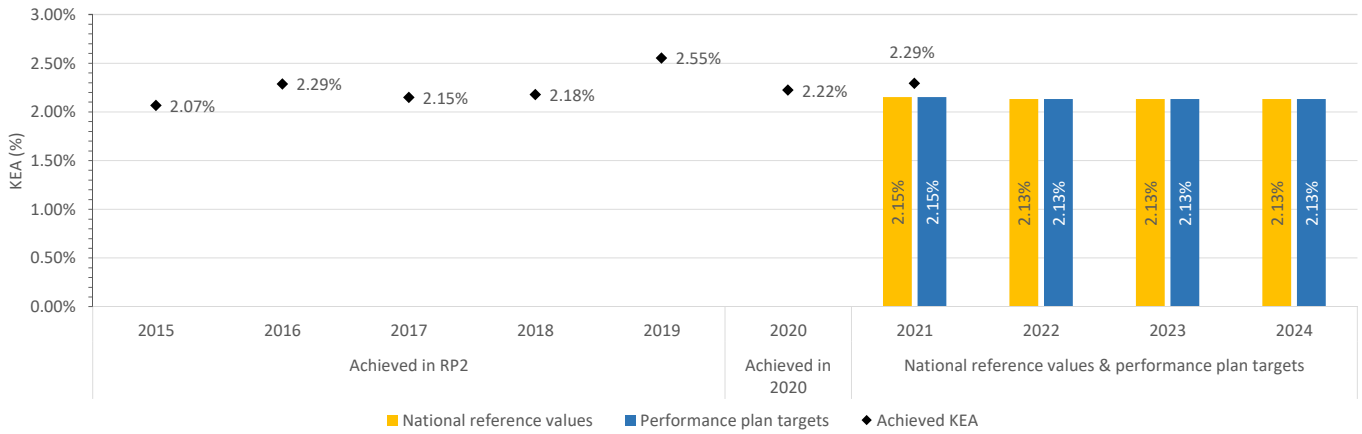
SLOVAKIA

Environment KPA

2.1 Summary of Key Data and Assessment Results

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

	2020	2021	2022	2023	2024
National reference values	2.10%	2.15%	2.13%	2.13%	2.13%
Performance plan targets	2.10%	2.15%	2.13%	2.13%	2.13%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Slovakia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Slovakia did not achieve the 2021 target of 2.15% in its performance plan. For this reason and due to missing measures to achieve the RP3 targets, Slovakia has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Slovakia should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Slovakia

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. Since the end of January 2021, Slovakia is a part of 24-hour cross-border FRA of the south-east Europe free route airspace (SEE FRA).	

Reference in PP	Reference in LSSIP
3.2.1(c)	Page 35

Major ERNIP Recommended Measures:	6
Measure included within performance plan?	
PBN transition plan	✗
SEE FRA Phase 2	✓
CB FRA operations	✓
Bratislava ACC re-sectorisation – step 2	✓
CB FRA operations	✗
Interface re-sectorisation	✓

Reference in PP	Reference in ERNIP
n/a	Page 73
3.2.1(c)	Page 118
3.2.1(c)	Page 174
3.2.1(c)	Page 193
n/a	Page 218
3.2.1(c)	Page 225

FUA Implementation according to latest LSSIP	Implementation
1	✓
2	✓
3	✓

The chart in section 2.1.1 shows that Slovakia achieved a KEA of 2.22% in 2020. In 2021, Slovakia reached a KEA of 2.29% which means it did not achieve the 2021 target of 2.15% in its performance plan.

In April 2019, 24-hour Bratislava free route airspace (BRAFRA) was implemented within Slovakian airspace. Slovakia has joined the south-east Europe free route airspace (SEE FRA) in January 2021, a 24-hour cross-border FRA, which enables airspace users to plan their flights freely across the airspace of four states - Bulgaria, Hungary, Romania and Slovakia. Slovakia plans to extend the cross-border FRA to Poland in 2022 and to Ukraine in 2024 according to the ERNIP.

Slovakia stated that the implementation of the FRA did not significantly improve the environmental performance indicator and that many factors are outside of its control. The external factors negatively influencing the situation according to Slovakia are:

- Airspace users' route choices;
- Lack of capability and willingness of airspace users to effectively use FRA;
- Weather phenomena;
- Geopolitical issues.

However, Slovakia did not include all major ERNIP measures foreseen by the Network Manager to achieve the targets within the performance plan. The performance plan did not include a PBN transition plan or the cross-border FRA operations with Ukraine that have the potential to improve the environmental performance.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

SLOVAKIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to the national reference values, and fall above the range of the delay forecast during 2022-2024. Capacity plans indicate that the Slovakia will have a major capacity surplus of 48% in 2022, 25% in 2023 and 21% in 2024 thus plans to further increase capacity in RP3 may be unnecessary.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

n/a

3.1.3 Incentives

En route:

Slovakia has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the national reference values. Modulation is based on the CRSTMP delay share of the last three years, however, since there were no delays in 2020 and 2021, huge deviations are possible in the calculation of the modulation. Maximum bonus is set at 0.5% and maximum penalty is set at 1%.

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

Slovakia will reimburse 5.1M€ of depreciation costs to the airspace users in RP3.

There is a significant capacity surplus expected in Slovakia during RP3.

There are no investments planned for RP3 linked to PCP/CP1 ATM Functionalities.

Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

3.1.5 PRB conclusions

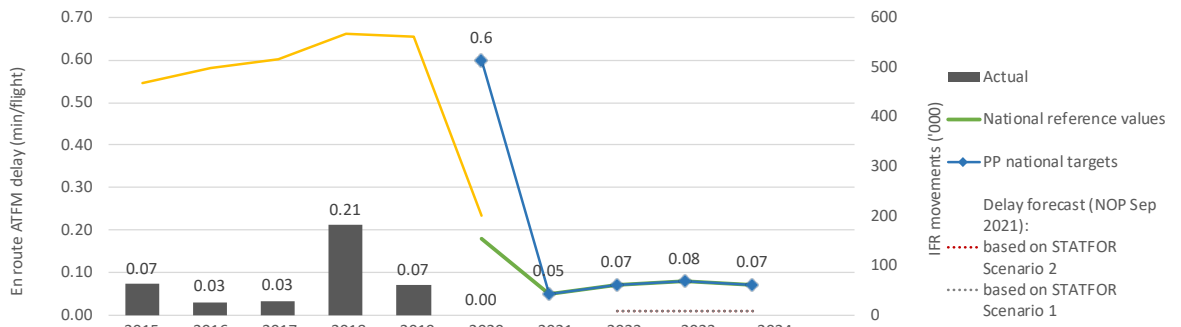


The PRB concludes that the capacity targets proposed by Slovakia should be approved.

- Capacity plans indicate a major capacity surplus over RP3, thus plans to further increase capacity in RP3 may be unnecessary.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✔



Traffic variation	+7%	+6.4%	+3.5%	+10.1%	-0.9%	-64.3%				
Actual delay/flight	0.07	0.03	0.03	0.21	0.07	0.00				
National reference values						0.18	0.05	0.07	0.08	0.07
PP national targets						0.60	0.05	0.07	0.08	0.07
Based on STATFOR Scenario 1							-	0.01	0.01	0.01
Based on STATFOR Scenario 2							-	0.01	0.01	0.01

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures 🔔

Assessment of capacity enhancement measures and review against NOP

During RP2, Slovakia experienced capacity constraints related mostly to ATM capacity and weather.

The performance plan contains the following capacity enhancement measures, which are in line with the measures introduced in the NOP:

- ATM system hardware upgrade finalized in 2021 and Air/Ground Datalink (AGDL) functionality (CPDLC),
- revaluation and increase of physical sector capacity,
- joining the SEE FRA project (South East Europe Free Route Airspace),
- participation in the Network Manager's airspace reconfiguration EAAS initiative,
- optimisation of sectors opening times,
- Horizontal East/West sector configuration (ready to be implemented although it is not expected to happen in RP3 due to STATFOR),
- improved ATFCM techniques, including STAM throughout the RP3 (DAM/STAM project has been concluded in cooperation with FAB CE partners in 2019),
- continuous ATCO recruitment including changes in methodologies for selecting and training processes.

The ATMS system hardware upgrade, including the AGDL/CPDLC functionality is not described by the NOP.

All capacity enhancement measures included in the plan are considered appropriate to achieve the national target.

The planned number of ATCO FTEs shows an overall increase of almost 17% (9 FTEs) compared to 2019. This increase is planned to be delivered steadily over RP3, in line with capacity profile plans.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
Bratislava ACC (LZBB)	Additional ATCOs in OPS to start working in the OPS room	0	0	1.4	3	3	3	3
	ATCOs in OPS to stop working in the OPS room	0	0.7	0	0	1	1	2
	ATCOs in OPS to be operational at year-end	54.3	53.6	55	58	60	62	63
Total - LPS SR (en route)	Additional ATCOs in OPS to start working in the OPS room	0	0	1.4	3	3	3	3
	ATCOs in OPS to stop working in the OPS room	0	0.7	0	0	1	1	2
	ATCOs in OPS to be operational at year-end	54.3	53.6	55	58	60	62	63

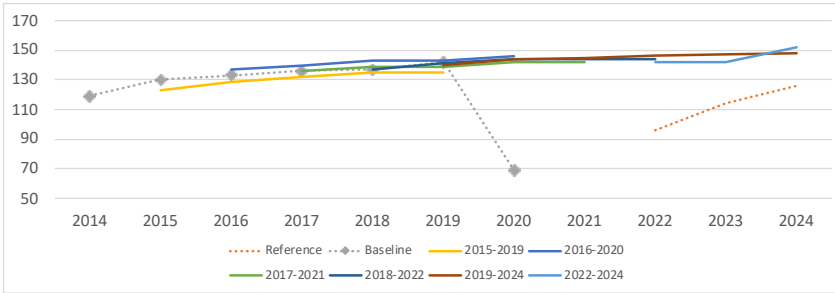
2024 (end) - 2020 (beg.)

+9

+9

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Bratislava ACC (LZBB)



- Historical data shows an average annual growth of 3.6% in the baseline values over RP2. The planned values were below the baseline in 2015 and 2019, above the baseline 2016, and in line with the baseline in 2017 and 2018.

- Latest planned capacity profile shows an average annual growth of 3.5% over the period, resulting in significantly higher values than in 2019. The planned values are considerably higher than the reference profile values: Bratislava ACC is expected to have a major capacity surplus of 48% in 2022, 25% in 2023 and 21% in 2024.

- Given the size of the capacity surplus, plans to further increase capacity in RP3 may be unnecessary.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									96	114	126
Baseline	119	130	133	136	137	142	69				
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
2022-2024									142	142	152
Latest vs Reference									48%	25%	21%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

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

- a) Performance plan contains additional measures compared to the NOP in order to close the capacity gap? ✔
The plan references the SEE FRA project (South East Europe Free Route Airspace) which is not specifically listed in the NOP as a capacity enhancement measure for Slovakia. The performance plan also includes an ATM system hardware upgrade, including the AGDL/CPDLC functionality which is not described by the latest NOP.
- b) Measures proposed by the NM to enhance capacity are planned and described in the performance plan? n/a
There have been no measures proposed by the NM.
- c) The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described? n/a
n/a
- d) The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap? n/a
No capacity gap is expected.
- e) Staffing plans adequately address the capacity gap closure (Increasing number of ATCOs is aligned to capacity requirements)? ✔
No staffing shortage has been experienced during previous years. The plan offers capacity surplus which is supported by the planned ATCO numbers.
- f) The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity? ⚠
The plan does not make direct reference to the flexible rostering system.
- g) The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome? ✔
No specific limitation of the current ATM system are described. The investments related to the ATM system (CPDLC) is expected to enable capacity improvements in the restructured and reorganised airspace.

3.2.6 PRB Key Points ✔

- The proposed national capacity targets are set equal to the national reference values, and fall above the range of the delay forecast during 2022-2024.
- Capacity plans indicate that the Slovakia will have a major capacity surplus of 48% in 2022, 25% in 2023 and 21% in 2024 thus plans to further increase capacity in RP3 may be unnecessary.

3.3. Arrival ATFM delay per flight - not applicable

Slovakia

3.4 Capacity Incentive schemes

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			0.07	0.08	0.07
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.07	0.08	0.07
Pivot values for RP3			0.00	0.00	0.00

Threshold and pivot value review

The pivot value will be updated and adjusted each year based on modulation for CRSTMP, no figure is provided for 2022. A deadband of 0.01 will apply around the pivot value before penalties / bonuses apply. Maximum bonuses / penalties will apply at +/-0.05 around the pivot value.

Modulation review

There will be modulation of the national target according to the average ratio of ATFM delay codes CRSTMP over the preceding three years. Since there was zero delay in Slovakia in 2020 and 2021, huge deviations are possible for calculation of modulation over three year period 2019-2021.

Review of financial advantages/disadvantages

A maximum penalty of 1% of determined costs is countered with a maximum potential bonus of 0.5% determined costs.

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:

- Slovakia has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the national reference values. Modulation is based on the CRSTMP delay share of the last three years, however, since there were no delays in 2020 and 2021, huge deviations are possible in the calculation of the modulation.
- Maximum bonus is set at 0.5% and maximum penalty is set at 1%.
- 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.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	6.7	5.8	6.3	7.4	8.0	34.2
	En route	6.7	5.8	6.3	7.4	8.0	34.2
	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 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	TRM
1	Data Link Service Implementation	Data Link Service Implementation in the ATM system.	0.0	Yes	Yes	1.5	0.0
Total:						1.5	0.0

Airspace user feedback regarding major investments

The airspace users welcomed Slovakia's decision to reimburse the unspent capital expenditure of RP2 to the airspace users in RP3. More details regarding the information on planned investments were requested. Slovakia provided a breakdown of the investments, grouped by domain.

Review of investments

The new major investment represents 4% of the total determined costs of investments over RP3. This category of investments covers only one project, Data Link Service Implementation. Several investments that were included in the RP2 performance plan will continue throughout RP3, as other new investments. The actual CAPEX for RP2 was 38% of the planned values for the same period and the amount underspent was 38.3M€. In terms of depreciation and cost of capital, the airspace users have financed 9.9M€ for investments that have not been materialised. Slovakia noted that there will be no double charging of RP2 investments and that 5.1M€ of depreciation costs will be reimbursed to the airspace users in RP3 through adequately reducing depreciation in individual years of the period.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 RP3 (M€)
Other new investments	27.7	27.7	0.3	0.2	1.2	2.6	3.7	8.1
Existing investments			6.9	6.9	6.2	5.8	5.3	31.1

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	Complexity tool	0.4	0.4	0.0	0.0	0.0	0.1	0.1	0.2	Migration of the main ATM system to new hardware together with adaptation of new operational improvements, like processing and display of aircraft derived data, establishes technical potential for increase of the ATM system sectors.
2	ATC simulator	0.9	0.9	0.0	0.0	0.1	0.1	0.1	0.4	After implementation of this upgrade, the existing ATC simulator shall be capable to provide the same functionalities as upgraded operational ATM system.
3	VoIP	1.1	1.1	0.0	0.0	0.0	0.1	0.1	0.3	The upgrade of voice communication systems, related recording systems and relevant network infrastructure have been prepared for incoming VoIP applications.
4	Surveillance	0.5	0.5	0.0	0.0	0.0	0.1	0.1	0.1	The reliable Mode S enhanced surveillance coverage was built up by appropriate Mode S stations during RP2 and these applications will be improved by the ADS-B / MLAT sensors technology in RP3.
5	Radio-com system	0.9	0.9	0.0	0.0	0.0	0.0	0.1	0.1	Enhancement of air-ground communications based on 8,33 kHz channel spacing was achieved by replacement of the obsolete radio equipment.
6	SACON	2.1	2.1	0.0	0.0	0.0	0.3	0.5	0.8	Requirements on the data distribution management and information technology are also reflected in gradual upgrade of the communication infrastructure enhancing certain applications, like VoIP or IPv6 protocol.
7	Information Systems	1.5	1.5	0.0	0.0	0.1	0.1	0.2	0.4	High level quality of services provided by the aeronautical information management has been developed, maintained and will be improved by the hardware and software development investments.
8	PBN new DME	3.6	3.6	0.0	0.1	0.4	0.5	0.5	1.6	The existing ground based navigation infrastructure had been revised and consequently its rationalization and the systems upgrade project resulted from this assessment.
9	DVOR, DME refurbishment	2.4	2.4	0.0	0.0	0.1	0.1	0.3	0.5	
10	NAV Test platform	1.0	1.0	0.0	0.0	0.1	0.1	0.1	0.3	

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls? 

B Bratislava ACC is expected to have a significant capacity surplus during RP3, evolving from 48% in 2022 to 25% for 2023 and 21% for 2024.

There is only one new major investment defined for RP3, the Data Link Service Implementation investment, which can be seen as an enabler for future capacity delivery. The investment contributes to the digitalisation of ATM systems in line with European ATM evolution and scalability, and flexibility. Investment is not linked with PCP/CP1 ATM Functionalities.

There are several (10) other (non-major) investments and the main capacity contributor from these investments is the complexity tool investment. Remaining other (non-major) investments are linked mostly to communications, navigation and surveillance systems replacement and modernisation, contributing to resilience, scalability and flexibility.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 

The complexity tool investment will enable more accurate analysis of ATC capacity, complexity of expected traffic and estimated controller workload.

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

The Data Link Service Implementation investment is considered an enabler for future capacity delivery, and it should be noted that the deployment of DLS capabilities in Slovakia is delayed from the deadline as defined in the Commission Regulation (EC) No 29/2009 and its amending Regulations. This delay is due to the need to upgrade the ATM system in order to be able to establish DLS capabilities.

3.5.4 PRB Key Points 

- The actual CAPEX for RP2 was 38% of the planned values for the same period and the amount underspent was 38.3M€. The airspace users have financed 9.9M€ for investments that have not been materialised. Slovakia noted that 5.1M€ of depreciation costs will be reimbursed to the airspace users in RP3 through adequately reducing depreciation in individual years of the period.

- There is a significant capacity surplus expected in Slovakia during RP3.

- There are no investments planned for RP3 linked to PCP/CP1 ATM Functionalities.

- Investments contribute to resilience, scalability and flexibility in line with the European ATM evolution.

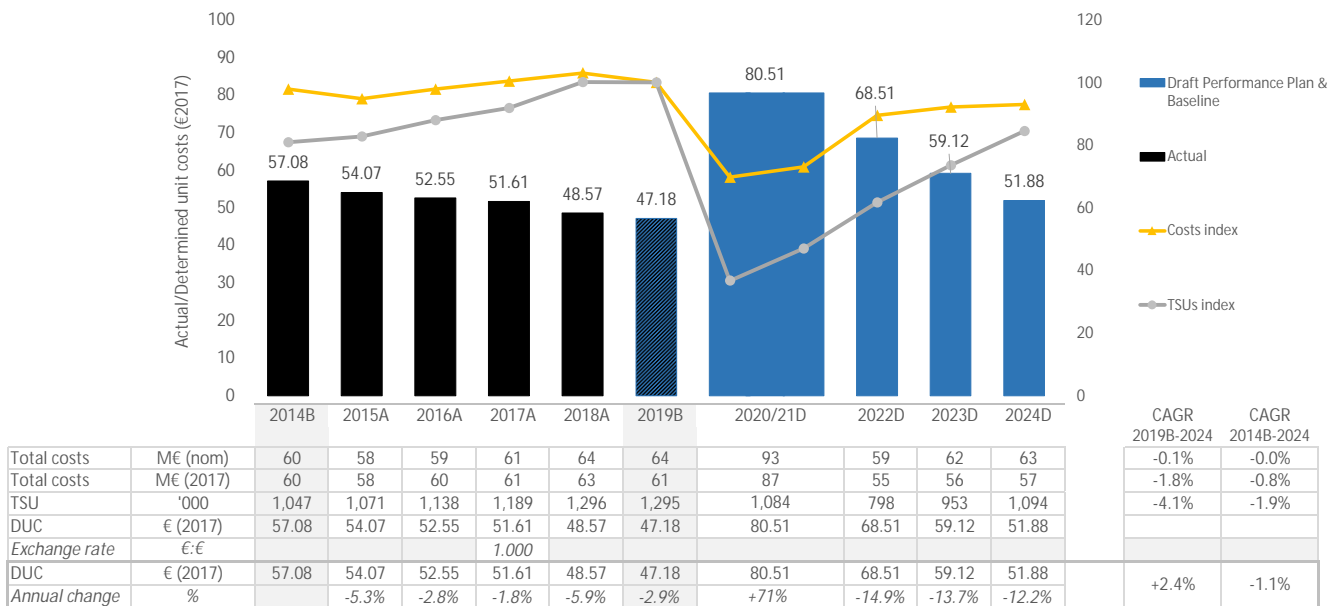
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Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Slovakia - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	47.18 €2017	✓
The DUC baseline is consistent with actual unit costs 2019.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	+2.4%	✗
The DUC is planned to increase on average by +2.4% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%). However, the deviation (3.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	-1.1%	✗
The DUC is planned to decrease on average by -1.1% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%). However, the deviation (1.3M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.		
c) DUC level (2019 baseline) lower than the average of comparator group (C) average (38.20 €2017)?	+23.5%	✗
The 2019 DUC level is +23.5% higher than the average of the comparator group.		
d) Deviation exclusively due to measures necessary to achieve the capacity targets?	-	✓
e) Deviation exclusively due to restructuring measures, which will deliver a net financial benefit to users?	-	n/a

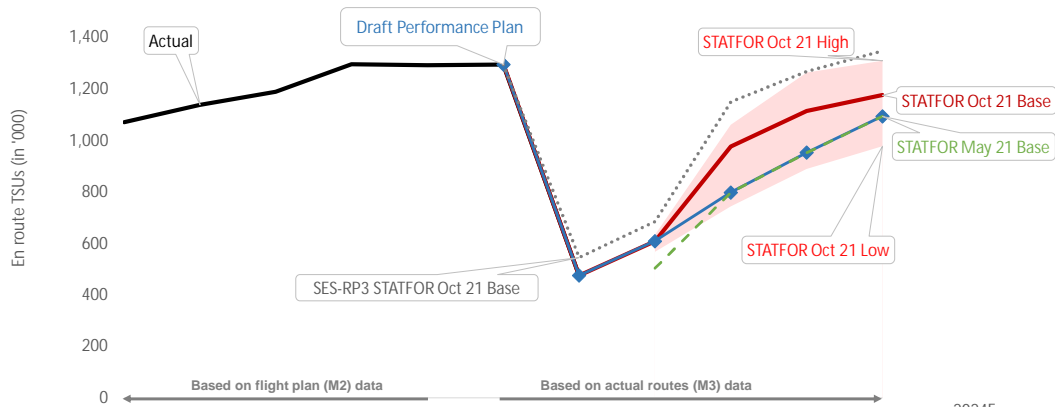
4.1.4 PRB Conclusions

The PRB concludes that the cost-efficiency targets proposed by Slovakia should be approved.	✓
<ul style="list-style-type: none"> - Slovakia is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (3.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets. - Slovakia is not consistent with the long-term Union-wide DUC trend. However, the deviation (1.3M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets. - Slovakia is not consistent with the average DUC baseline of the comparator group. 	

4.2 Review traffic forecasts and baseline

Slovakia - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	1,071	1,138	1,189	1,296	1,292	1,295	475					
Annual change	%		+6.2%	+4.5%	+9.0%	-0.4%	-0.1%	-63.3%					
STATFOR Oct 21 Base	'000 TSUs								609	976	1,115	1,176	-9.2%
Annual change	%								+28.0%	+60.4%	+14.2%	+5.5%	
STATFOR May 21 Base	'000 TSUs								504	798	953	1,094	-15.5%
Annual change	%								+5.9%	+58.5%	+19.4%	+14.9%	
Performance Plan	'000 TSUs						1,295	475	609	798	953	1,094	-15.5%
Annual change	%						-0.1%	-63.3%	+28.1%	+31.0%	+19.4%	+14.8%	

4.2.2 Traffic baseline review

Year	'000 TSUs	CRCO 12-month coefficient
2019	1,295	
2019B (PP baseline, M3)	1,295	
2019A (as in the Reporting tables, M2)	1,292	
2019B/ 2019A	0.27%	+0.27%

Year	'000 TSUs	CRCO 12-month coefficient
2014	1,047	
2014B (PP baseline)	1,047	
2014A (as in the Reporting tables, M2)	1,044	
2014B/ 2014A	0.27%	+0.27%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (+0.27%).

Review of 2014 and 2019 traffic baseline
 The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (+0.27%). The coefficient slightly increases the number of 2014 and 2019 traffic baselines while decreasing the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? **No**

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- Slovakia selected the STATFOR October 2021 base forecast only for the year 2021 but considers it excessively optimistic for the 2022-2024 period. In Annex T to the performance plan, Slovakia expresses serious doubts about the pace of recovery maintaining its current strength considering, among others, the risk of a new wave of the COVID-19 pandemic and the possibility of business travel not reaching 2019 levels by 2023 as expected by STATFOR. Slovakia has been one of the most hardest hit countries by the pandemic in terms of traffic and revenue loss in 2020 and 2021.
- Slovakia states that the risk of selecting STATFOR October base forecast and this not materialising would have a very serious impact on LPS SR. For these reasons Slovakia has opted to keep the STATFOR May 2021 base forecast for the 2022-2024 period, as initially submitted in October.

Review of the PP traffic forecast
 The selection by Slovakia of the STATFOR May 2021 base forecast, supported by airspace users in the consultation held in August, considers the volatility of traffic due to the pandemic and the risk factors expressed in the performance plan.

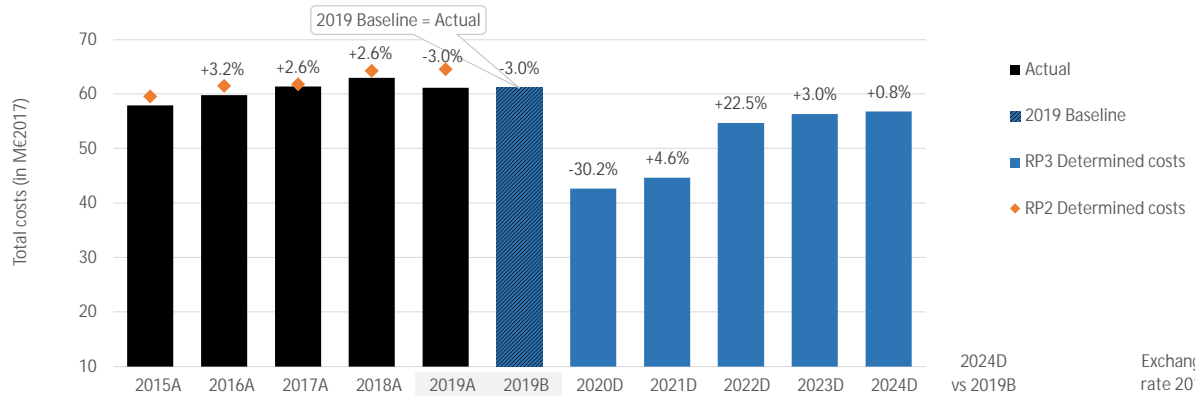
4.2.4 PRB Key Points

- Except for 2021, Slovakia en route traffic is based on STATFOR May 2021 base scenario.

4.3 Review of determined costs and baseline

Slovakia - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	58	59	61	64	64	64	45	48	59	62	63	-0.4%
Annual change	%		+2.9%	+3.7%	+4.6%	-0.7%	-0.7%	-29.5%	+5.9%	+24.8%	+4.5%	+2.3%	+9.6%
Inflation index	2017 = 100	99.1	98.6	100.0	102.5	105.4	105.4	107.5	108.8	110.9	113.1	115.5	
Total costs	M€ (2017)	58	60	61	63	61	61	43	45	55	56	57	-7.1%
Annual change	%		+3.2%	+2.6%	+2.6%	-3.0%	-3.0%	-30.2%	+4.6%	+22.5%	+3.0%	+0.8%	
Total costs	M€ (2017)	58	60	61	63	61	61	43	45	55	56	57	-7.1%

Exchange rate 2017	€:€
	1.00000

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? Yes
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 No adjustments applied to the 2014 or 2019 cost baselines.

2014/2019 baseline analysis

The 2014 and 2019 baseline costs are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

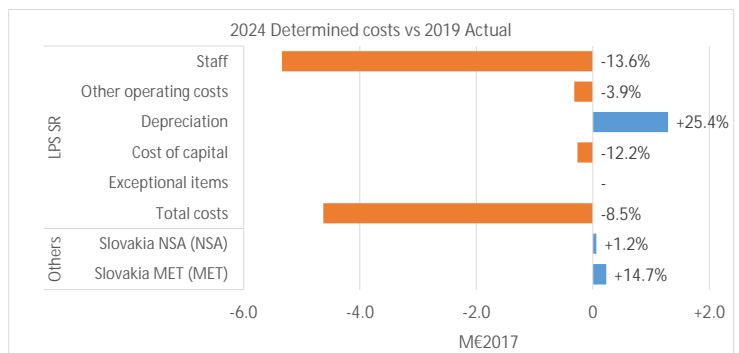
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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 total costs of Slovakia are planned to decrease by -7.1%, or -4.3M€2017, between 2019 actuals and planned 2024. The main contributor to this planned decrease in costs is the main ANSP LPS SR.

The main ANSP (LPS SR) costs in 2024 are -8.5% (or -4.6M€2017) lower than in 2019. This is mainly driven by the staff costs which are -13.6% (or -5.3M€2017) lower in 2024 than in 2019, only partially compensated by an increase in depreciation costs of +25.4% (or +1.3M€2017).

- Staff costs decrease despite LPS SR' plans to increase the number of ATCOs by +9 FTEs in 2024 compared to 2019. This is possible thanks to the cost saving efforts in response to the pandemic, almost 10% of the staff was laid off and substantial salary reductions were applied, resulting in a -30% and -25% cost reduction for 2020 and 2021 compared to 2019, respectively.

- Other operating costs are also lower in 2024 than in 2019 (-3.9%, or -0.3M€2017) due to the cost saving measures in 2020 and 2021.

- The increase in depreciation costs reflects LPS SR' investment plan, whereas for the cost of capital the asset pricing model (CAPM) is applied resulting in a decrease of -12.2% (or -0.3M€2017) in 2024 compared to 2019.

NSA costs are planned to increase by +1.2% (or +0.1M€2017) between 2024 and 2019 despite some cost-cutting measures applied in 2020 and 2021.

MET costs are +14.7% (or +0.2M€2017) higher in 2024 than in 2019, mostly due to the planned modernisation of the AWOS MET equipment and system.

As requested by airspace users during the consultation, Slovakia has decided to implement an asymmetric incentive scheme (1% of determined costs for penalties, 0.5% for bonus).

En route service units are not forecast to reach 2019 levels in RP3, reaching only -16% in 2024 according to the selected STATFOR May 2021 base forecast, or -9% according to the October 2021 base forecast. En route costs are also not planned to reach the 2019 actual/baseline levels during RP3, closing 2024 at -7.1% of 2019.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for LPS SR are planned to decrease by -8.5% (or -4.6M€2017).
- Slovakia presented significant decreases in costs for the entire period, especially in 2020 and 2021 following cost saving efforts in response to the pandemic.

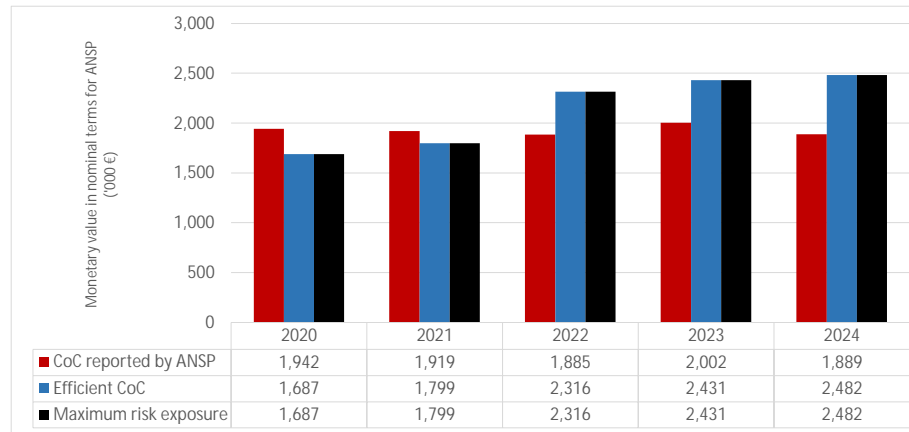
4.3.A Cost of capital

LPS SR - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	38,339	40,886	52,628	55,240	56,400
Monetary value of Return on Equity	1,942	1,917	1,881	1,999	1,887
Ratio RoE/DC (%)	5.1%	4.7%	3.6%	3.6%	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	PP	Efficient	PP	Efficient	PP	Efficient	PP	Efficient
Return on Equity	4.4%	n/a	4.7%	n/a	5.1%	n/a	4.9%	n/a	4.7%	n/a
Interest on debts	0.0%	n/a	0.05%	n/a	0.05%	n/a	0.05%	n/a	0.05%	n/a
Capital structure (% debt)	0.0%	n/a	10.9%	n/a	21.0%	n/a	16.0%	n/a	10.8%	n/a
WACC	4.4%	3.8%	4.2%	4.0%	4.0%	5.0%	4.1%	5.0%	4.2%	5.5%

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

- The interest rate assumptions and the explanation for the weighted average interest on debts used to calculate the cost of capital pre-tax are duly justified and in line with the competitive market practices.
- The efficient cost of capital has been computed in line with the maximum risk exposure (based on option 4).
- The embedded return on equity over RP3 varies from a minimum of 3.3% to a maximum of 5.1%. The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.
- Adjustments to the proposed cost of capital do not seem to be necessary over RP3.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	40,498	42,323	43,662	43,108	38,271
Net current assets	3,408	3,143	3,089	5,431	6,453
Adjustments total assets	0	0	0	0	0
Total asset base	43,906	45,466	46,751	48,539	44,724

- The fixed asset base will increase for the period 2020-2022 and decrease as of 2023. This is not in line with the gradual increase throughout RP3 of the investments described in section 3.5 of this document.
- The net current assets will almost double over RP3, Slovakia did not provide an explanation.
- The regulated asset base does not include adjustments to the total asset base.
- The total asset base will slightly increase over RP3, this is due to the increase in net current assets.

4.3.A.5 PRB Key Points

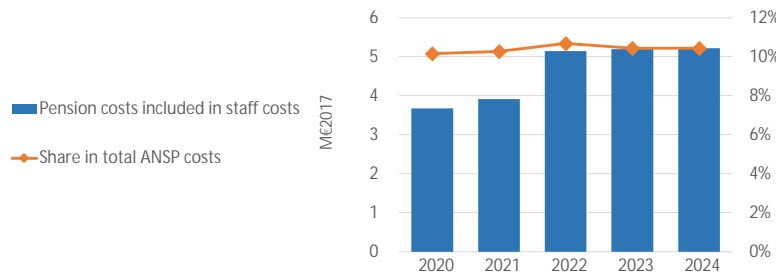


- The net current assets will almost double over RP3, Slovakia did not provide an explanation.
- The monetary value of the embedded return on equity is commensurate to the determined costs over RP3.

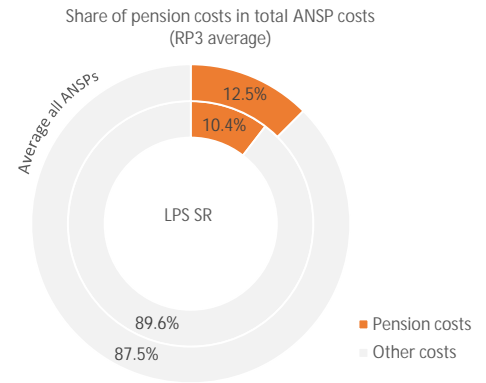
4.3.B Pensions

LPS SR - En route

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	3.7	3.9	5.1	5.2	5.2
Year on year variation	% change		+6.5%	+31.4%	+0.9%	+0.4%
Share in total ANSP costs	%	10.2%	10.3%	10.7%	10.4%	10.4%
Year on year variation	p.p.		0.1p.p.	0.4p.p.	-0.3p.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 Union-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% for all years of RP3. However, an annual social insurance settlement is planned to be introduced from 2022, but Slovakia reported in the performance plan that its impact cannot be quantified yet.

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 Methodology for cost allocation between ER and TRM

Slovakia

4.3.C.1 Cost allocation overview

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

- 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.
 - "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

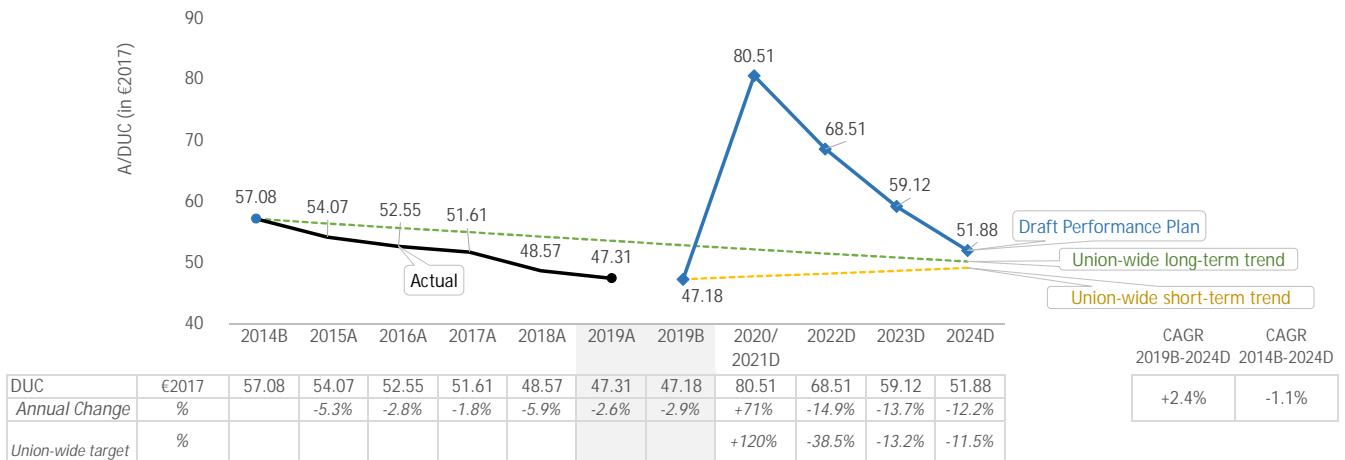


- Slovakia did not mention changing the cost allocation methodology with respect to RP2.
 - No major issues identified.

4.4 Determined unit costs (DUC)

Slovakia - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency

✘ DUC consistency with the Union-wide RP3 DUC trend

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+2.4%	+1.0%	+1.4p.p.

✘ DUC consistency with the Union-wide long-term DUC trend

	Performance Plan	Union-wide	Difference
Trend (CAGR 2014B-2024)	-1.1%	-1.3%	+0.2p.p.

✘ DUC level consistency

	Performance Plan	Average comparator group	Difference
2019 baseline	47.18	38.20	+23.5%

- The DUC is planned to increase on average by +2.4% between 2019 and 2024, which is worse than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -1.1% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +23.5% higher than the average of the comparator group.

The increase in the number of ATCOs in OPS, as well as the new major investment and some of the other new investments (i.e. 1, 2, 3, 5, and 6; see section 3.5 of this document for details) are deemed necessary to achieve the capacity targets. The costs for the new ATCOs in OPS are estimated at 6.2M€2017, considering an additional 37 FTEs (yearly intakes at 1 January) over RP3 and the average staff costs for ATCOs in OPS reported by Slovakia in the ACE 2019 benchmarking report (168,519€2017/FTE). The determined costs related to major investment 1 and other new investments (1, 2, 3, 5, 6) are estimated at 3.3M€2017.

The total determined costs over RP3 for these two items is estimated at 9.5M€2017, which spread as average for the period 2021-2024 equals to 3.2M€2017. As Slovakia deviates by 3.1M€2017 from the RP3 trend and 1.3M€2017 from the long-term trend, such deviations are considered justified for the achievement of capacity targets.

4.4.3 Analysis of the DUC deviation for achieving the capacity targets



4.4.4 Analysis of the DUC deviation due to restructuring costs

n/a

4.4.5 PRB Key Points



- Slovakia is not consistent with the RP3 DUC trend in terms of average reduction. However, the deviation (3.1M€2017) from the RP3 Union-wide trend is considered justified for the achievement of capacity targets.
- Slovakia is not consistent with the DUC long-term Union-wide trend. However, the deviation (1.3M€2017) from the long-term Union-wide trend is considered justified for the achievement of capacity targets.
- Slovakia is not consistent with the average DUC baseline of the comparator group.

4.5 Terminal (not applicable)

Slovakia has not established any terminal charging zone for RP3.

PRB Assessment

SLOVENIA

Draft Performance Plan

1. Safety



Safety PP 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 EoS safety targets are consistent with the Union-wide performance targets.
- The ANSP measures are sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.68%	1.55%	1.55%	1.55%	1.55%

PRB assessment

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

- Slovenia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.23	0.05	0.09	0.09	0.09
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.

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	101.44	62.11	59.84	56.19	+0.9%	-1.9%
Target for determined unit cost (DUC) (€2017) - Terminal	n/a	n/a	n/a	n/a	n/a	-

PRB assessment

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

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

5. PRB recommendations

ENVIRONMENT

- Slovenia should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

COST-EFFICIENCY

- Slovenia should report the real WACC parameters instead of notional WACC parameters.

SLOVENIA

Safety KPA

1.1 Summary of safety key data and assessment results

Slovenia

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 RP3 Union-wide safety targets, are planned to be attained at the end of RP3. Slovenia Control has already achieved the safety targets levels in four out of five management objectives.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan described both ANSP's and CAA measures, including specific measures relevant for safety risk management. Considering the ANSP's current safety levels, the measures are considered relevant and sufficient.

1.1.3 Interdependencies and Trade-offs

The performance plan describes in detail the approach to address the impact of changes to the ATM functional system on interdependencies and trade-offs with safety at the ANSP and CAA level. It is stated that safety constitutes the highest priority and cannot be compromised with other key performance areas. The approach provides confidence that the implementation of changes to ATM functional system will not deteriorate safety levels.

1.1.4 Change Management

The performance plan describes detailed change management processes compliant with Commission Implementing Regulation (EU) 2017/373. The process provides 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 Slovenia should be approved.

- The EoSM safety targets are consistent with the Union-wide performance targets.
- The ANSP measures are sufficiently described to demonstrate how the ANSP will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

1.2 Targets for EoSM for ANSPs and Measures

Slovenia

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
Slovenia Control	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	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. Slovenia has already achieved the safety targets levels in four out of five management objectives. Only safety risk management area requires to be improved. The ANSP could achieve the targets earlier than in 2024.

The performance plan states that the ANSP has developed an ongoing improvement process for their SMS according to Eurocontrol/CANSO Standard of Excellence and EoSM (EASA) Guidelines.

Moreover, the progress of improving the safety risk management from level C to target level D by 2024, is closely monitored by NSA.

As part of the oversight, the CAA verifies the completeness of risk assessments and ANSP's risk management performance against established indicators. The goals set in the Risk Management Implementation Plan and the progress made are also the subject of the oversight.

The measures listed are considered relevant and sufficient.

1.3 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

The performance plan states that safety has the highest priority and shall not be compromised by any circumstance. No trade-offs are possible on account of safety. To ensure this, the process of monitoring the KPIs and PIs within all performance areas is established, as a part of annual reports to the European Commission and CAA. The CAA regularly supervises and reviews the ANSP financial and personnel resources in accordance with relevant regulatory requirements - Commission Implementing Regulations (EU) 1035/2011 and 2017/373.

1.3.2 Change Management Practices

Slovenia has developed a robust change management procedure to mitigate any negative impact of the system changes that is applied for the implementation of the ATM Data as a Service (ADaaS) and FRA projects. Multi-phase implementation procedure, taking into account progressively the impact and interfaces with NM, neighbouring ANSPs and other stakeholders gives assurance to mitigate negative impact on the network.

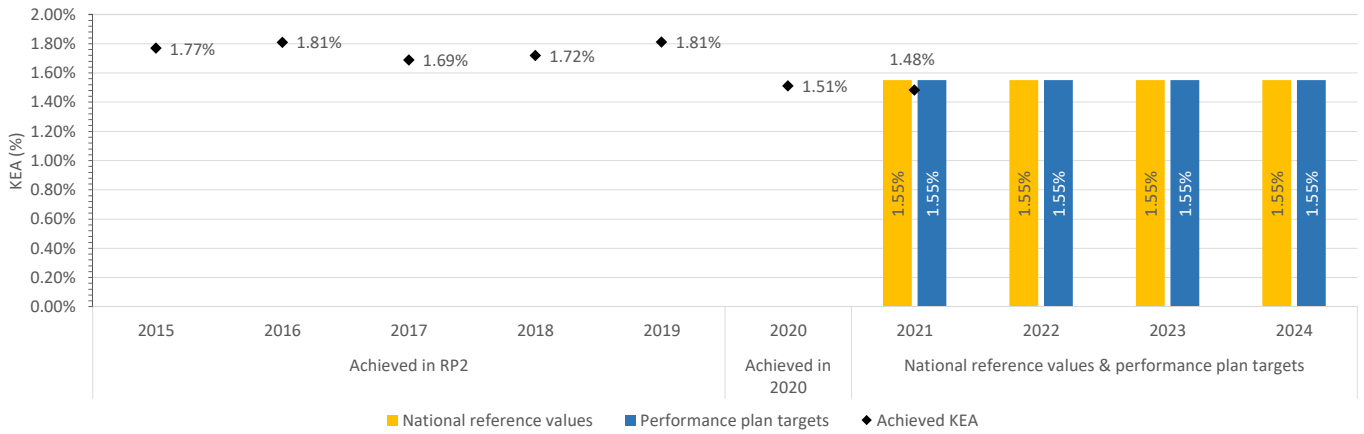
SLOVENIA

Environment KPA

2.1 Summary of Key Data and Assessment Results

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

	2020	2021	2022	2023	2024
National reference values	1.68%	1.55%	1.55%	1.55%	1.55%
Performance plan targets	1.68%	1.55%	1.55%	1.55%	1.55%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Slovenia's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Slovenia should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
Slovenia implemented free route airspace above FL245. Slovenia is now a part of the South East Common Sky Initiative Free Route Airspace (SECSI FRA) and therefore airspace users have greater freedom flying between Slovenia, Austria, Bosnia & Herzegovina, Croatia, Serbia and Montenegro.		3.2.1(c)	Page 35
Major ERNIP Recommended Measures:	2	Reference in PP	Reference in ERNIP
Measure included within performance plan?		n/a	Page 66
PBN transition plan	✗	3.2.1(c)	Page 148
SECSI FRA – FRALB H24 cross-border FRA	✓		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Slovenia achieved a KEA of 1.51% in 2020. In 2021, Slovenia reached a KEA of 1.48% which means it achieved the 2021 target of 1.55% in its performance plan.

Slovenia undertook initiatives consistent with the ERNIP recommendation to expand free route airspace (FRA) beyond its flight information region (FIR) by supporting South East Common Sky Initiative Free Route Airspace FRA (SECSI FRA). SECSI FRA sought to merge the Slovenian and Austrian cross-border FRA (SAXFRA from GND to FL660) and South-East axis FRA (SEAFRA from FL205 to FL660) of Bosnia and Herzegovina, Croatia, Serbia and Montenegro to create a large volume of cross-border free route airspace, among Single European Sky (SES) and non-SES States. In doing so, Slovenia implemented the major ERNIP measures. Further cross-border extensions are planned between SECSI FRA and the free route airspace of Albania (FRALB). Performance based navigation (PBN) should also be implemented to improve flight efficiency.

Slovenia stated further environment improvements may be limited beyond what is achieved by the implementation of SECSI FRA. The essential external factors negatively influencing the situation according to Slovenia are:

- Weather phenomena;
- Geopolitical situations leading to less efficient trajectories;
- Network-wide measures;
- Airspace users' route choices.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Slovenia plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

SLOVENIA

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

The proposed national capacity targets are set equal to the national reference values and are above the range of the delay forecast during 2022-2024. Slovenia is expected to have sufficient capacity to meet traffic demand in RP3.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

n/a

3.1.3 Incentives

En route:

Slovenia has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP and the modulation is based on delay code attribution extracted from the ANS performance dashboard, which have not been validated to ensure that the reason for the regulation was accurate. The threshold is asymmetric around the pivot values, triggering penalties at a relatively lower level than bonuses.

Maximum bonus and penalty is set at 1%.

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: not applicable.

3.1.4 Investments

There are no major investments planned for RP3.

There is a slight capacity surplus expected in Slovenia during RP3.

There may be capacity enhancing other (non-major) investments planned for RP3, but details of the capabilities introduced by these investments are not defined.

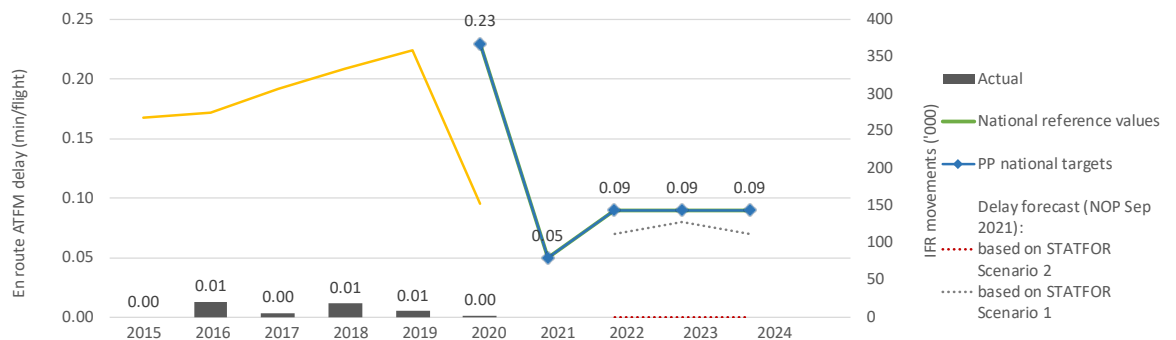
3.1.5 PRB conclusions



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

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✔



Traffic variation	-2%	+2.9%	+11.7%	+8.7%	+7.3%	-57.5%				
Actual delay/flight	0.00	0.01	0.00	0.01	0.01	0.00				
National reference values						0.23	0.05	0.09	0.09	0.09
PP national targets						0.23	0.05	0.09	0.09	0.09
Based on STATFOR Scenario 1							-	0.07	0.08	0.07
Based on STATFOR Scenario 2							-	0.00	0	0.00

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✔	✔	✔	✔
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✔	✔	✔	✔

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 2024?	Yes

3.2.2 Review of planned capacity enhancement measures ✔

Assessment of capacity enhancement measures and review against NOP

During RP2, Slovenia experienced capacity constraints related mostly to ATM capacity and weather, registering only minor delays.

The performance plan contains the following capacity enhancement measures, which are in line with the measures introduced in the NOP:

- Enhanced ATFCM techniques, including STAM,
- Enhanced sectorisation according to the FAB CE Airspace Plan,
- Flexible sector configurations, adapting regularly based on demand,
- Revision of the sector opening schemes,
- A new study of sector capacities and configurations (2022),
- New ATCOs.

The NOP includes additional references to:

- Stepped FRA implementation (SAX FRA, SECSI FRA projects) and FRA related projects,
- Minor ATM systems upgrades.

The performance plan provides additionally the following measures:

- New rostering adaptation,
- Re-organisation of the ATCOs' additional tasks, projects involvement and office work.

The proposed measures are largely in line with those included in the NOP, although it is not fully possible to assess if all measures from the NOP are included in the performance plan.

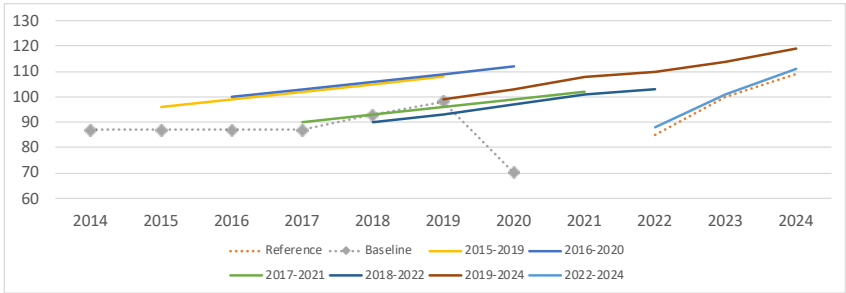
The planned number of ATCO FTEs shows a 9% increase (6 FTEs) over 2019 values, which is in line with the capacity plans. The performance plan notes potential staffing issues in RP4.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Ljubljana ACC (LJLA)	Additional ATCOs in OPS to start working in the OPS room	65.5	0	0	3	3	0	3	+6
	ATCOs in OPS to stop working in the OPS room	0	0	1	0	2	0	0	
	ATCOs in OPS to be operational at year-end	65.5	65.5	64.5	67.5	68.5	68.5	71.5	
Total - Slovenia Control, Ltd (en route)	Additional ATCOs in OPS to start working in the OPS room	65.5	0	0	3	3	0	3	+6
	ATCOs in OPS to stop working in the OPS room	0	0	1	0	2	0	0	
	ATCOs in OPS to be operational at year-end	65.5	65.5	64.5	67.5	68.5	68.5	71.5	

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Ljubljana ACC (LJLA)



- Historical data shows an average annual growth of 2.4% in baseline values, which happened mostly during 2018 and 2019. Planned values were higher than the baseline in all years except in 2018.

- Latest planned capacity profile shows an average annual growth of 12.3% , resulting in significantly higher values than in 2019. Planned values are higher than the reference profile values: Ljubljana ACC is expected to have a minor capacity surplus of 4%, 1% and 2% in 2022, 2023 and 2024 respectively.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									85	100	109
Baseline	87	87	87	87	93	98	70				
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
2022-2024									88	101	111
Latest vs Reference									4%	1%	2%

- Capacity enhancement measures are in line with capacity profile plans, although the performance plan identifies a possible staffing issue in RP4.

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events 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 national capacity targets are set equal to the national reference values and are above the range of the delay forecast during 2022-2024.
- Slovenia is expected to have sufficient capacity to meet traffic demand in RP3.

3.3. Arrival ATFM delay per flight - not applicable

Slovenia

3.4 Capacity Incentive schemes

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			0.09	0.09	0.09
Alert threshold for bonus (Δ Ref. value in fraction of min)			-0.050	-0.050	-0.050
Alert threshold for penalty (Δ Ref. value in fraction of min)			+0.038	+0.038	+0.038
Performance Plan targets			0.09	0.09	0.09
Pivot values for RP3			0.07	0.07	0.07

Threshold and pivot value review

Pivot values are indicative only since they will be updated and adjusted annually. There is a dead band of +/-0.01 around the pivot value before penalties or bonuses apply. Full bonuses will apply at 0.05 below the pivot value whereas maximum penalties will apply relatively earlier at approximately 0.04 above the pivot value.

Modulation review

The scheme includes only ATFM delay codes CRSTMP. The pivot values will be updated annually according to the previous three years ratio of CRSTMP delays. However, the plan states that this information will be extracted from the ANS performance dashboard. The delay code attribution on the dashboard has not been validated to ensure that the reason for the regulation was accurate.

Review of financial advantages/disadvantages

A maximum bonus of 1% DC is countered with an equivalent maximum penalty of 1% DC. As with all incentive schemes based on CRSTMP-only delays, inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect the 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:

- Slovenia has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation are the reference values for the ANSP and the modulation is based on delay code attribution extracted from the ANS performance dashboard, which have not been validated to ensure that the reason for the regulation was accurate.
- The threshold is assymmetric around the pivot values, triggering penalties at a relatively lower level than bonuses.
- Maximum bonus and penalty is set at 1%.
- 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: not applicable.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total	
Total determined costs of investments*	M€ (nominal)	5.4	4.6	4.6	4.7	4.6	23.9	
	En route	M€ (nominal)	5.4	4.6	4.6	4.7	4.6	23.9
	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 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	TRM
Total:						0.0	0.0

Airspace user feedback regarding major investments

Slovenia did not plan any new major investment. The airspace users inquired about the new building of Slovenia Control and the possible postponement of investments aimed at improving capacity.

Slovenia clarified the importance of the new administrative building and mentioned that certain investments related to capacity are replacement of outdated equipment and other improvements.

Review of investments

Slovenia did not plan any new major investment. Other new investments represent 21% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 64% and the amount underspent was 4.4M€. In terms of depreciation and cost of capital, the airspace users have financed 1.7M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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 RP3 (M€)
Other new investments	0.0	18.6	0.0	0.1	0.6	1.9	2.5	5.1
Existing investments			5.4	4.5	3.9	2.8	2.2	18.7

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	NAVIGATION (DME/DME, GNSS)	0.0	2.3	0.0	0.0	0.0	0.1	0.3	0.5	Refer to Annex E
2	SURVEILLANCE (WAM)	0.0	0.5	0.0	0.0	0.0	0.1	0.1	0.2	Refer to Annex E
3	ATM SYSTEMS	0.0	3.0	0.0	0.0	0.2	0.3	0.4	1.0	Refer to Annex E
4	ATM Data as a Service (ADaaS)	0.0	0.7	0.0	0.0	0.0	0.0	0.1	0.2	Refer to Annex E
5	COMMUNICATION (VCS, VHF, MW links)	0.0	2.4	0.0	0.0	0.1	0.4	0.4	0.9	Refer to Annex E
6	AIS (AMHS, WebPortal, Notam SW)	0.0	1.1	0.0	0.0	0.0	0.1	0.1	0.3	Refer to Annex E
7	BUILDING	0.0	4.9	0.0	0.0	0.0	0.3	0.4	0.8	Refer to Annex E
8	SECURITY & IT (including CYBER SEC)	0.0	2.6	0.0	0.0	0.1	0.4	0.5	1.0	Refer to Annex E
9	OTHER	0.0	1.2	0.0	0.0	0.1	0.1	0.1	0.3	Refer to Annex E

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? 
- There is a slight capacity surplus in Slovenia during RP3, 4% in 2022 reducing to 2% in 2024.
- There are no new major investments defined for RP3 in Slovenia.
- Annex E to the Slovenian performance plan lists other (non-major) investments planned for RP3. Investments in the communications, navigation and surveillance domains related mostly to replacement of current systems and upgrade of capabilities contributing to resilience and scalability. ATM Data as a Service (ADaaS) investment together with the upgrades to FDPS and SDPS may contribute to enroute capacity, but no explicit capabilities introduced by these investments are defined. According to LSSIP Slovenia 2020 an FDPS and SDPS upgrade is planned for 2021-2022 but this is not confirmed in the RP3 investment plan in Annex E. The ADaaS investment is aligned with the overall digitalisation of European ATM ecosystem.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? 
- As there are no details related to the investments potentially contributing to capacity, it is not possible to assess how enroute capacity would be affected by system changes during RP3.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? 
- As Ljubljana ACC has a slight capacity surplus throughout RP3 capacity related investments may not be required. However, to ensure sufficient capacity is available beyond RP3 monitoring of the situation is required.

3.5.4 PRB Key Points

- There are no new major investments planned for RP3.
- The actual CAPEX for RP2 was 64% and the amount underspent was 4.4M€. The airspace users have financed 1.7M€ for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.
- There is a slight capacity surplus expected in Slovenia during RP3.
- There may be capacity enhancing other (non-major) investments planned for RP3, but details of the capabilities introduced by these investments are not defined.

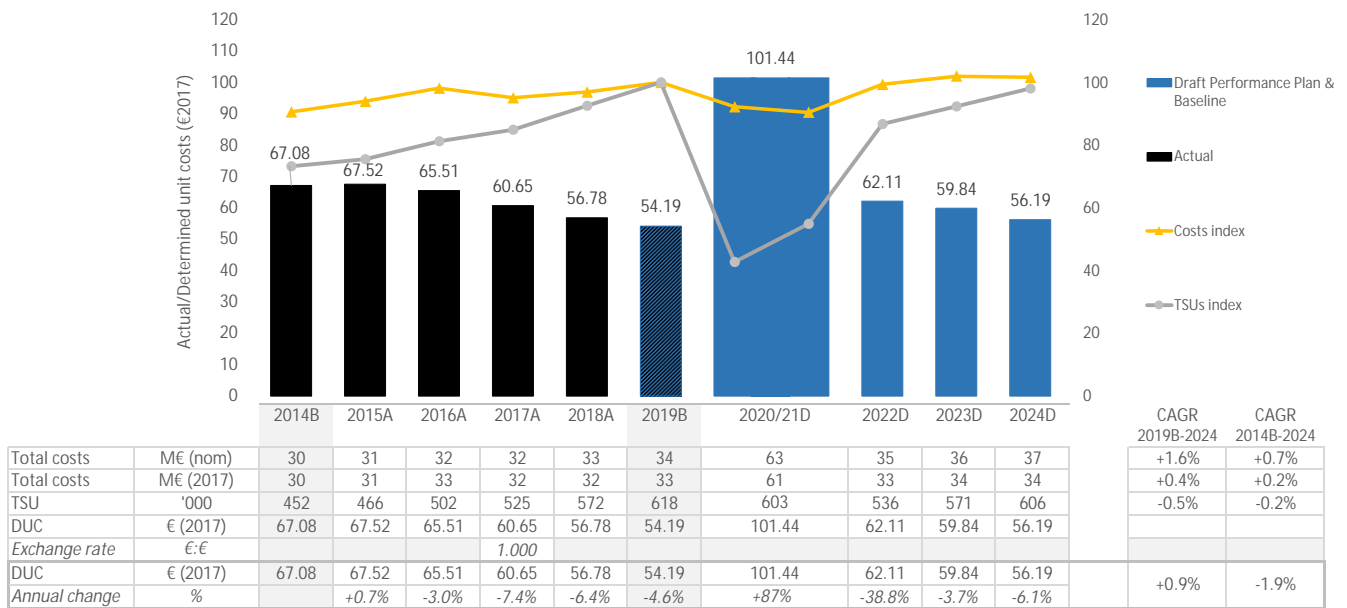
SLOVENIA

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Slovenia - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	54.19 €2017	✓
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The DUC baseline is consistent with actual unit costs 2019.

4.1.3 Summary of cost-efficiency assessment results

- | | | |
|--|--------|-----|
| a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? | +0.9% | ✓ |
| The DUC is planned to increase on average by +0.9% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%). | | |
| b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? | -1.9% | ✓ |
| The DUC is planned to decrease by -1.9% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%). | | |
| c) DUC level (2019 baseline) lower than the average of comparator group (C) average (37.32 €2017)? | +45.2% | ✗ |
| The 2019 DUC level is +45.2% 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

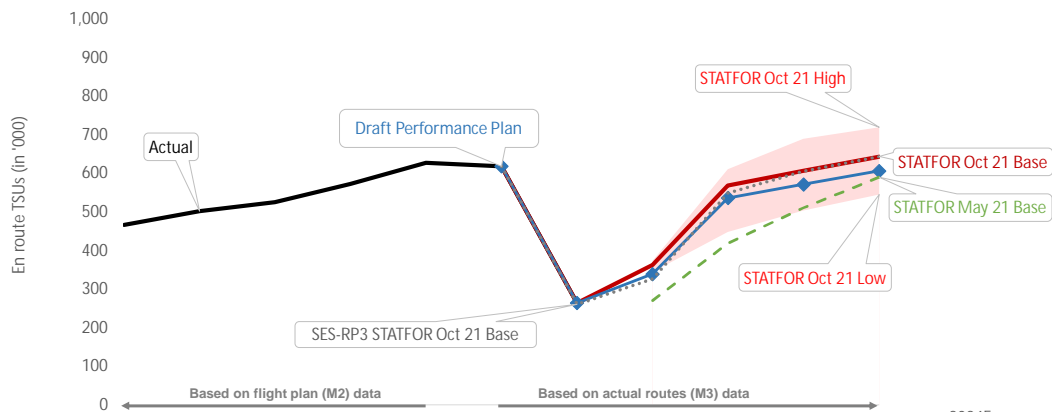
The PRB concludes that the cost-efficiency targets proposed by Slovenia should be approved.

- Slovenia is consistent with the RP3 DUC trend in terms of average reduction.
- Slovenia is consistent with the long-term Union-wide DUC trend.
- Slovenia is not consistent with the average DUC baseline of the comparator group.
- Slovenia should report the real WACC parameters instead of notional WACC parameters.

4.2 Review traffic forecasts and baseline

Slovenia - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	466	502	525	572	627	618	264					
Annual change	%		+7.6%	+4.6%	+9.0%	+9.7%	+8.0%	-57.3%					
STATFOR Oct 21 Base	'000 TSUs								362	568	606	643	+4.1%
Annual change	%								+37.2%	+56.8%	+6.7%	+6.2%	
STATFOR May 21 Base	'000 TSUs								270	419	511	590	-4.6%
Annual change	%								+2.3%	+55.1%	+22.0%	+15.4%	
Performance Plan	'000 TSUs						618	264	339	536	571	606	-2.0%
Annual change	%						+8.0%	-57.3%	+28.4%	+58.1%	+6.5%	+6.1%	

4.2.2 Traffic baseline review

Year	'000 TSUs	CRCO 12-month coefficient
2019	618	-1.50%
2019B (PP baseline, M3)	618	-1.50%
2019A (as in the Reporting tables, M2)	627	-1.50%
2019B/ 2019A	-1.50%	-1.50%
2014	452	-1.50%
2014B (PP baseline)	452	-1.50%
2014A (as in the Reporting tables, M2)	459	-1.50%
2014B/ 2014A	-1.50%	-1.50%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-1.50%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-1.50%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while increasing the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? No

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

- Slovenia considers the STATFOR October 2021 base forecast for service units excessively optimistic.
- The STATFOR October 2021 forecast foresees a service unit to IFR movement ratio of 1.4 for RP3, whereas this ratio was between 1.29 and 1.32 in the STATFOR May 2021 base forecast, and between 1.298 and 1.32 for the high forecast. Slovenia considers the 1.4 ratio unjustified considering that the ratio was 1.34 for 2019 and 1.35 for 2020, the latter being the result of a high proportion of heavier aircraft in the traffic mix that Slovenia does not consider likely to continue. For the first 10 months of 2021, the ratio of service unit to IFR movement was 1.31.
- For these reasons, Slovenia has adopted the STATFOR October 2021 base forecast for IFR movements and applied a service units to IFR movement ratio of 1.31 for 2021 gradually increasing to 1.325 in 2024.
- Detailed explanations of the above arguments are presented by Slovenia in Annex D to the performance plan.

Review of the PP traffic forecast

The forecast selection by Slovenia considers the volatility of traffic due to the pandemic and the arguments presented in the performance plan.

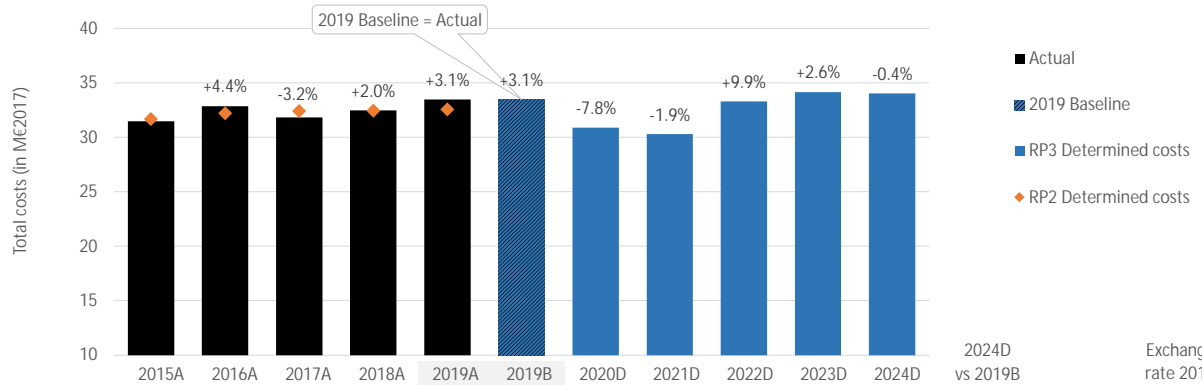
4.2.4 PRB Key Points

- Slovenia considers the STATFOR October 2021 base forecast for service units excessively optimistic.
- Starting from the IFR STATFOR October 2021 base forecast, Slovenia applies local coefficients to derive the service unit forecast.

4.3 Review of determined costs and baseline

Slovenia - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B	Exchange rate 2017
Total costs	M€ (nom)	31	32	32	33	34	34	32	31	35	36	37	+6.4%	€:€
Annual change	%		+4.2%	-2.0%	+3.5%	+4.4%	+4.4%	-7.8%	-1.2%	+11.3%	+3.9%	+1.1%	+5.8%	1.00000
Inflation index	2017 = 100	98.6	98.4	100.0	101.9	103.6	103.6	103.6	104.5	106.0	107.8	109.7		
Total costs	M€ (2017)	31	33	32	32	33	33	31	30	33	34	34	+1.7%	
Annual change	%		+4.4%	-3.2%	+2.0%	+3.1%	+3.1%	-7.8%	-1.9%	+9.9%	+2.6%	-0.4%	+1.7%	
Total costs	M€ (2017)	31	33	32	32	33	33	31	30	33	34	34	+1.7%	

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? Yes
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? No

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 No adjustments applied to the 2014 or 2019 cost baselines.

2014/2019 baseline analysis
 The 2014 and 2019 cost baselines are in line with 2014 and 2019 actual costs as presented in the en route reporting tables.

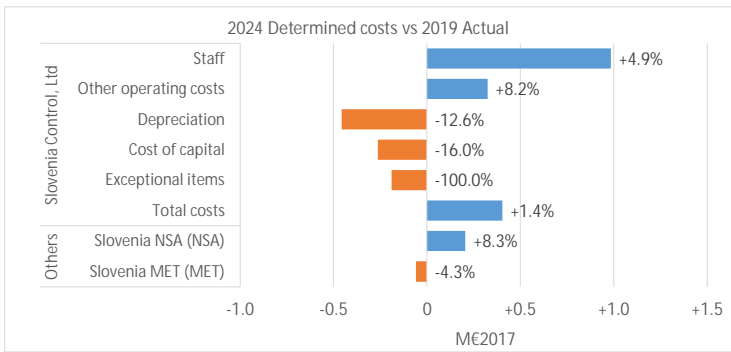
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



The total costs of Slovenia are planned to increase by +1.7%, or 0.6M€2017, between 2019 actuals and planned 2024. The main contributor to this planned increase in costs is Slovenia Control.

The main ANSP (Slovenia Control) costs in 2024 are +1.4% (or +0.4M€2017) higher than in 2019. This is mainly driven by the staff and other operating costs which are +4.9% (or +1.0M€2017) and +8.2% (or +0.3M€2017) higher in 2024 than in 2019, respectively. This is only partially compensated by decreases in the other cost categories.

- Slovenia achieved staff cost reductions for 2020 and 2021 in response to the pandemic as a result of a successful social dialogue that allowed for temporary changes to the collective agreement, e.g. reduced number of shifts for operational staff, reduced "holiday allowance" to minimum legally allowed amount, etc. However, these changes fully apply only until the end of 2021. As of 2022, only some of these provisions apply and at the same time it is foreseen that new ATCOs start working in operations. For 2023 and 2024 the full collective agreement is back in place with a new group of ATCOs planned to start to work in operations in 2024, resulting in the observed increase in staff costs.

- Depreciation costs in 2024 are -12.6% (or -0.5M€2017) lower than in 2019 mostly due to the postponement of some investments throughout RP3.

- The cost of capital decrease of -16.0% (or -0.3M€2017) between 2024 and 2019 is driven by the application of a reduced WACC (5.31% for the 2021-2024 period compared to 6.03% in 2019).

- No exceptional items are planned for the period 2021-2024. Exceptional costs of 0.1M€2017 are reported for 2020.

NSA costs are planned to increase by +8.3% (or +0.2M€2017) in 2024 compared to 2019 because of new recruitments and organisational changes, whereas MET costs in 2024 are -4.3% (or -0.2M€2017) lower than in 2019.

En route service units are not forecast to reach 2019 levels in RP3 reaching only -2% in 2024 according to the selected traffic forecast, although according to the STATFOR October base forecast, 2019 levels would be reached in 2024. On the other hand, en route costs are planned to reach the 2019 actual/baseline level in 2022.

4.3.4 PRB Key Points



- There are no adjustments to the cost baselines.
- Between 2019 and 2024, the total costs for Slovenia Control are planned to slightly increase by +1.4% (or +0.4M€2017).
- Slovenia presented significant decreases in costs for 2020 and 2021 following cost saving efforts in response to the pandemic.

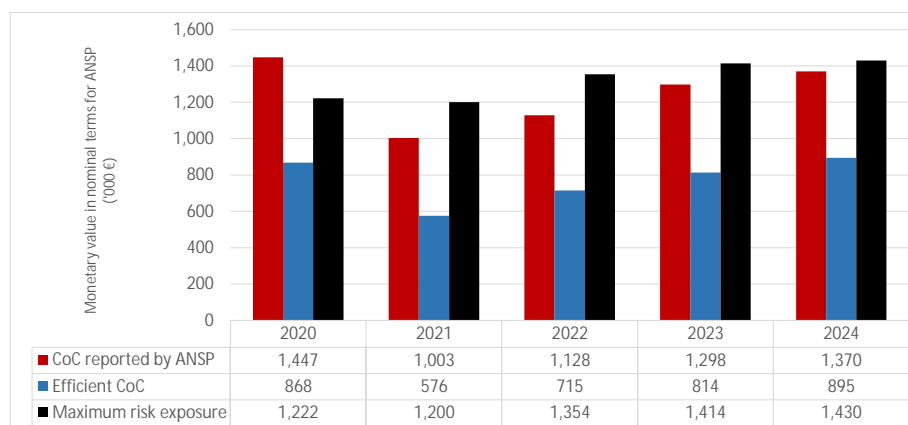
4.3.A Cost of capital

Slovenia Control, Ltd - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	27,777	27,284	30,768	32,138	32,500
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



Total 2020-2024	2,377
-----------------	-------

Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	579	427	412	484	475

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	10.4%	4.2%	10.4%	4.7%	10.4%	5.5%	10.4%	5.4%	10.4%	5.8%
Interest on debts	3.4%	3.4%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
Capital structure (% debt)	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
WACC	6.2%	3.7%	5.3%	3.0%	5.3%	3.4%	5.3%	3.3%	5.3%	3.5%

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

- The cost of debt has been estimated by adding a risk free rate to the average bond yields of comparable companies. 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 are duly justified and in line with competitive market practices.

- Slovenia Control has reported notional WACC parameters in the performance plan instead of the real WACC parameters. The efficient WACC has been calculated based on option 3.

- Over RP3, the reported cost of capital is 2.4M€ above the efficient cost of capital. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provided notional parameters for the WACC.

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	25,244	24,216	25,108	27,103	27,307
Net current assets	-1,940	-5,332	-3,870	-2,663	-1,508
Adjustments total assets	0	0	0	0	0
Total asset base	23,304	18,884	21,238	24,440	25,798

- The fixed asset base is planned to increase over RP3 in line with the investments described in section 3.5 of this document.

- The net current assets do not seem to present major issues.

- The RAB does not include adjustments to the total asset base.

- The total asset base is planned to decrease in 2021 due to net current assets. It will slightly increase as of 2022 until the end of RP3, mainly driven by the increase in the fixed asset base.

4.3.A.5 PRB Key Points

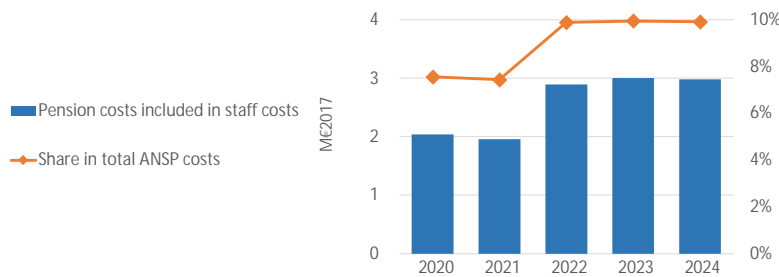
- Slovenia Control reported notional WACC parameters instead of the real WACC parameters.

- Over RP3, the reported cost of capital is 2.4M€ above the efficient cost of capital. It is not possible to evaluate the monetary value of the return on equity given that the ANSP provided notional parameters for the WACC.

4.3.B Pensions

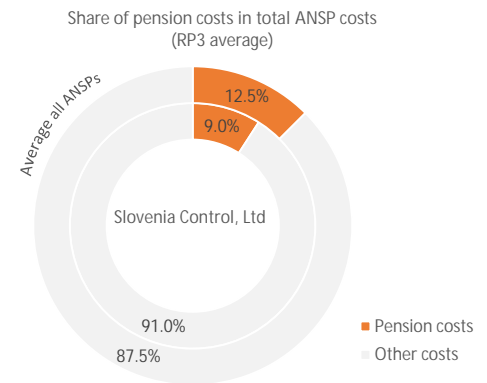
Slovenia Control, Ltd - En route

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	2.0	2.0	2.9	3.0	3.0
Year on year variation	% change		-4.1%	+47.8%	+3.7%	-0.7%
Share in total ANSP costs	%	7.6%	7.4%	9.9%	9.9%	9.9%
Year on year variation	p.p.		-0.1p.p.	2.4p.p.	0.1p.p.	0.0p.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 Union-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'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?	Yes
--	-----

There are two defined contribution schemes in Slovenia Control, one for ATCOs and one for all staff (including ATCOs), the latter being voluntary.

- For the ATCOs' scheme, the employer's contribution is 8.2% for 2020 and 9.25% for the remaining years of RP3.

- For the voluntary scheme the contribution is 235€ or 5.844% of gross salary per employee, whichever is lower. However due to the COVID-19 pandemic, the payment for this contribution was suspended from June 2020 until December 2021 resulting in the lower pension costs observed in the previous section for these two years. Payments to this scheme are planned to be re-instated as of 2022.

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

No risk mitigation measures are reported in the performance plan, however as mentioned in the previous section, payments to the voluntary pension scheme were suspended from June 2020 until December 2021 due to COVID-19 pandemic.

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C Methodology for cost allocation between ER and TRM

Slovenia

4.3.C.1 Cost allocation overview

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

- Slovenia did not mention changing 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: 1) based on the share of the number of IFR en route/IFR airport flights, 2) based on the share of time used for specific activity, 3) 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

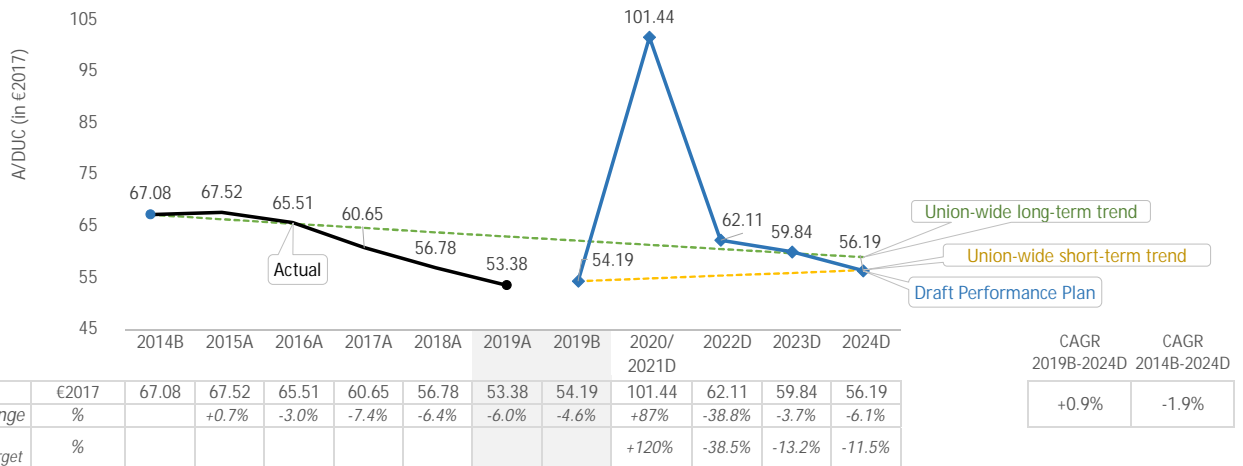


- Slovenia did not mention changing the cost allocation methodology with respect to RP2.
- No major issues identified.

4.4 Determined unit costs (DUC)

Slovenia - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency ✔

	Trend (CAGR 2019B-2024)	Performance Plan	Union-wide	Difference
✔ DUC consistency with the Union-wide RP3 DUC trend		+0.9%	+1.0%	-0.1p.p.
✔ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	-1.9%	-1.3%	-0.6p.p.

	2019 baseline	Performance Plan	Average comparator group	Difference
✘ DUC level consistency		54.19	37.32	+45.2%

- The DUC is planned to increase on average by +0.9% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease by -1.9% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +45.2% higher than the average of the comparator 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 ✔

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

4.5 Terminal (not applicable)

Slovenia has not established any terminal charging zone for RP3.

PRB Assessment

SPAIN

Draft Performance Plan

1. Safety 

Safety PP 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 consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how ENAIRES will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.

2. Environment 


Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	3.23%	3.08%	3.08%	3.08%	3.08%

PRB assessment

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

- Spain's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Spain did not achieve the 2021 target of 3.08% in its performance plan. For this reason and due to missing measures to achieve the RP3 targets, Spain has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3. Capacity 

Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.47	0.12	0.25	0.21	0.19
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.91	0.44	0.66	0.57	0.57

PRB assessment

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

- The PRB appreciates the commitment from Spain to contribute positively to the resolution of the network impact generated by the transition projects in France during 2022-2023.
- The incentive schemes defined in the performance plan do not have a material impact on the revenues at risk.
- Spain included investments related to ATM-UTM and drone operations with regard to the ATM interface under other investments.
- Capacity plans indicate that Spain may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast, and the impact generated by the transition projects in France is higher than expected. For this reason, Spain has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

4. Cost-efficiency 

Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route (Continental)	107.71	53.64	51.69	48.19	-1.9%	-4.0%
Target for determined unit cost (DUC) (€2017) - En route (Canarias)	104.97	66.92	58.97	53.93	+0.7%	-2.9%
Target for determined unit cost (DUC) (€2017) - Terminal	230.44	118.36	112.71	106.28	n/a	-1.5%

PRB assessment

The PRB concludes that the cost-efficiency targets proposed for Spain Continental should be approved.

- Spain Continental is consistent with the RP3 DUC trend in terms of average reduction.
- Spain Continental is consistent with the long-term Union-wide DUC trend.
- Spain Continental is consistent with the average DUC baseline of the comparator group.

The PRB concludes that the cost-efficiency targets proposed for Spain Canarias should be approved.

- Spain Canarias is consistent with the RP3 DUC trend in terms of average reduction.
- Spain Canarias is consistent with the long-term Union-wide DUC trend.
- Spain Canarias is consistent with the average DUC baseline of the comparator group.

5. PRB recommendations

SAFETY

- Spain should provide the specific measures to improve the safety risk management area for FERRONATS.

ENVIRONMENT

- Spain should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

CAPACITY

- Spain should revise the incentive schemes so that they have a material impact on the revenues.

SPAIN

Safety KPA

1.1 Summary of safety key data and assessment results

Spain

1.1.1 Target for EoS_M for ANSPs

The EoS_M targets have been defined for each year of RP3. The EoS_M targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained at the end of RP3. ENAIRE has already met or exceeded safety targets, whereas FERRONATS has achieved the safety targets levels in four out of five management objectives.

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 ENAIRE. 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

The changes applied to the ATM functional system are addressed by standard safety assessment process in accordance with Commission Implementing Regulation (EU) 2017/373. Additionally, the NSA oversight closely the implementation process.

1.1.4 Change Management

The change management procedures, minimising any negative impact on the network performance, set in compliance with Commission Implementing Regulation (EU) 2017/373 are provided.

1.1.5 PRB conclusions

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

- The EoS_M safety targets are consistent with the Union-wide performance targets.
- The measures are sufficiently described to demonstrate how ENAIRE will maintain maturity levels over RP3.
- The formalised approach applied by the ANSP and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices ensure that any negative impact on network performance is reduced.
- Spain should provide the specific measures to improve the Safety Risk Management area for FERRONATS.

1.2 Targets for EoSM for ANSPs and Measures

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
ENAIRES	Safety policy and objectives	D	C	C	C	C	C	✓	
	Safety risk management	D	C	C	C	C	D	✓	
	Safety assurance	D	C	C	C	C	C	✓	
	Safety promotion	D	C	C	C	C	C	✓	
	Safety culture	D	C	C	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. ENAIRES has already met or exceeded the safety targets levels.

Enaire developed a safety roadmap with multiple measures to further improve its safety levels. The measures consist of:

- integration of human factor in safety
- periodic reviews of the safety policy
- further developments in Just Culture policy
- promotion of safety awareness by implementation of Normal Operations Monitoring

Additionally specific safety monitoring indicators in compliance with the Performance and Charging Regulation (EU) 2019/317 are collected and reported. The measures listed are considered relevant and sufficient.

		2020A	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) 2021/891 of 2 June 2021.
		Actual	Target	Target	Target	Target	Target		
FERRONATS	Safety policy and objectives	C	C	C	C	C	C	✓	
	Safety risk management	C	C	C	C	C	D	✓	
	Safety assurance	C	C	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	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. FERRONATS has already achieved the safety targets levels in four out of five management objectives. Only safety risk management requires improvements from level C to level D.

The 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 Interdependencies and Change management practices

1.3.1 Interdependencies and Trade-offs

Both ANSPs declare prioritisation of safety over any other criteria and allocate all required resources to achieve this goal. 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 with EU legislation and under oversight of NSA.

1.3.2 Change Management Practices

The performance plan stipulates that the change management procedures are ensured through the implementation and oversight of provisions set in Commission Implementing Regulation (EU) 2017/373. Major changes potentially affecting the network are coordinated with the Network Manager in advance to entry into service, and therefore minimising any negative impact on the network performance.

SPAIN

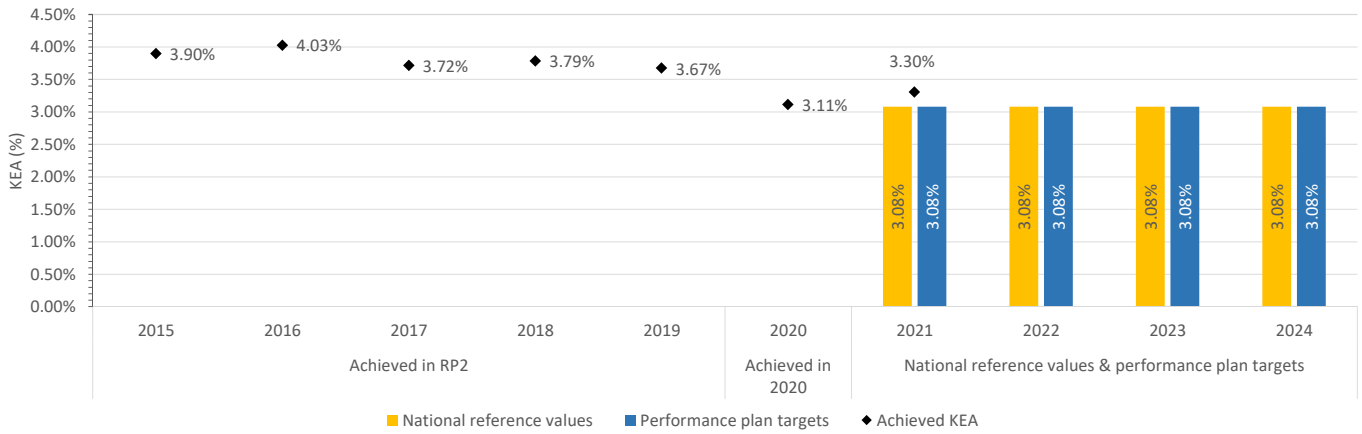
Environment KPA

2.1 Summary of 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
National reference values	3.23%	3.08%	3.08%	3.08%	3.08%
Performance plan targets	3.23%	3.08%	3.08%	3.08%	3.08%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Spain's horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- The 2021 performance shows that Spain did not achieve the 2021 target of 3.08% in its performance plan. For this reason and due to missing measures to achieve the RP3 targets, Spain has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.
- Spain should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?		✓	Reference in PP	Reference in LSSIP
The Madrid flight information region (FIR) sectors of Santiago and Asturias (FRASAI project) already offer free route airspace (FRA). The overall project, that covers all phases is planned to be implemented by the end 2022 according to the LSSIP.			n/a	Page 93
Major ERNIP Recommended Measures:		16	Reference in PP	Reference in ERNIP
Measure included within performance plan?				
PBN transition plan		✓	Chapter 4	Page 75
Free route airspace Spain – HISPAFRA Phase 1		✓	Chapter 4	Page 145
Free route airspace Spain – HISPAFRA Phase 2		✓	Chapter 4	Page 149
Lisboa / Casablanca / Canarias axis phase 1c and 1d		✗	n/a	Page 154, 168
ATS route network improvements		✓	Chapter 4	Page 168, 191, 198
Canarias ACC sector split		✓	Chapter 4	Page 195
Free route airspace Morocco (MORFRA) Phase 2		✓	Chapter 4	Page 185
Madrid TMA – phase 2		✓	Chapter 4	Page 197
Free route airspace Morocco (MORFRA) Phase 3		✓	Chapter 4	Page 200
Palma TMA reorganisation – phase 2		✓	Chapter 4	Page 207
BAS sector split – Barcelona ACC		✓	Chapter 4	Page 209
Canarias TMA Phase 2a		✓	Chapter 4	Page 210
LUMAS, Phase 2b Marseille FIR – Barcelona FIR		✗	n/a	Page 210
Interface re-sectorisation		✗	n/a	Page 222
Lisboa / Casablanca / Canarias Axis phase 2		✗	n/a	Page 222
CB FRA operations		✓	Chapter 4	Page 223
FUA Implementation according to latest LSSIP		Implementation		
1		✓		
2		✓		
3		✓		

The chart in section 2.1.1 shows that Spain achieved a KEA of 3.11% in 2020. In 2021, Spain reached a KEA of 3.30% which means it did not achieve the 2021 target of 3.08% in its performance plan.

The Madrid flight information region (FIR) sectors of Santiago and Asturias (FRASAI project) already offer free route airspace (FRA). Spain has initiated several FRA projects including Spain FRA - HISPAFRA phase 1 (24 hour FRA within Canarias UIR FL305-FL660), HISPAFRA phase 2 (24 hour FRA within Madrid upper information regions (UIR) and Barcelona UIR FL245-FL660), and cross-border FRA with Morocco (MOFRA) and Portugal.

Spain conducted analysis, which identified the following factors affecting KEA:

- Prohibited, restricted and danger areas and other reserved airspace;
- Lack of direct routes (DCTs);
- Unclear European guidelines in the use of tactical DCTs;
- Route availability document (RAD) restrictions;
- Terminal manoeuvring area (TMA) holding;
- Airspace users' decision on their preferable route.

Spain has introduced several initiatives to improve the horizontal flight efficiency. These include FRA, the flexible use of airspace (FUA) implementation, enhancement of civil-military coordination and terminal manoeuvring area (TMA) reorganisations.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Spain plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

SPAIN

Capacity KPA

3.1 Summary of capacity key data and assessment results

3.1.1 En route ATFM delay

National capacity targets are set equal to the national reference values. The target value is equal to the scenario 1 delay forecast in 2022 and falls within the range of the delay forecast in 2023 and 2024.

Capacity plans indicate minor capacity gaps in 2024 for all ACCs in RP3 except in Madrid ACC.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Spain included seven airports in the performance plan, two of which are new compared to RP2 (Alicante and Ibiza). The national targets are set considerably lower than in RP2 and the targets represent a significant improvement compared to average past performance.

The main contributors to airport arrival ATFM delay are Barcelona, Madrid-Barajas and Palma de Mallorca as these three airports generate the majority of delays.

Alicante, Málaga and Madrid-Barajas are expected to perform better than the group of similar airports, whereas all other airports are expected to perform worse than their respective groups of similar airports.

The performance plan contains a detailed set of capacity enhancement measures targeting airport capacity, which are expected to greatly improve the arrival ATFM delay performance.

3.1.3 Incentives

En route:

Spain has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation is the national target value, which is higher than the reference value. Maximum penalty is set at 0.5%, the scheme is penalty only.

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:

Spain has chosen to modulate the pivot values for CRSTMP-only delays. The modulation is based on the national targets and proprietary Attributable Delay Factor devised by the NSA, the validation of which is not possible.

Maximum penalty is set at 0.5%, the scheme is penalty only.

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.

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

Spain included investments related to ATM-UTM and drone operations with regards to the ATM interface under other (non-major) investments.

There are minor capacity shortfalls at some ACCs in Spain during RP3.

There are capacity enhancing investments planned for RP3 and beyond related to all six PCP/CP1 ATM Functionalities, but their deployment timeline is not defined in detail.

Other investments contribute to resilience, scalability and flexibility and digitalisation of the ATM ecosystem is progressing in line with the European ATM evolution.

3.1.5 PRB conclusions

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

- The PRB appreciates the commitment from Spain to contribute positively to the resolution of the network impact generated by the transition projects in France during 2022-2023.

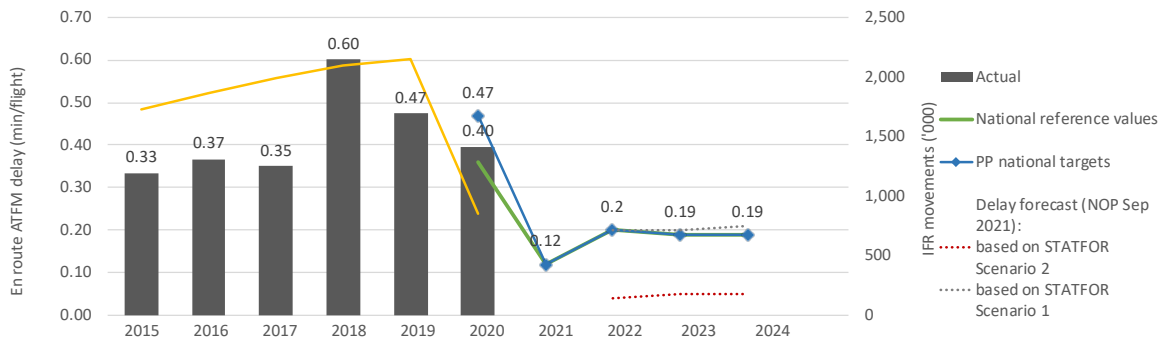
- The incentive schemes defined in the performance plan do not have a material impact on the revenues at risk.

- Spain included investments related to ATM-UTM and drone operations with regard to the ATM interface under other investments.

- Capacity plans indicate that Spain may not be able to achieve the national capacity targets if traffic recovery follows the high scenario of the STATFOR October 2021 forecast, and the impact generated by the transition projects in France is higher than expected. For this reason, Spain has been added to the PRB's watchlist for further scrutiny during the annual monitoring process.

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+3%	+7.8%	+6.5%	+5.4%	+2.5%	-60.3%				
Actual delay/flight	0.33	0.37	0.35	0.60	0.47	0.40				
National reference values						0.36	0.12	0.20	0.19	0.19
PP national targets						0.47	0.12	0.20	0.19	0.19
Based on STATFOR Scenario 1							-	0.20	0.2	0.21
Based on STATFOR Scenario 2							-	0.04	0.05	0.05

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	✓	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

There are five ACCs in Spain. During RP2, Spain experienced capacity constraints related mostly to ATM capacity and in some cases to weather.

The performance plan contains the main capacity enhancement measures, which are in line with information provided by the NOP. All the measures have been introduced and described well in detail by the 'En route capacity plan' contained in the 5.2.1.1 section of the main document (4510_ESPP3). The plan has been developed with NM Operational Excellence Programme. The measures include the following groups of initiatives:

- Modernisation of the ATM System (SACTA – iTEC) - Data-Link Departure Clearance (D-DCL), Wake Vortex Re-categorisation (RECAT), Time Based Separation (TBS), extended Arrival Manager (AMAN), OSF, Medium Term Conflict Detection (MTCD), integration of Mode S, Complexity Manager,
- Adverse Meteorology - coordination and new tools,
- Capacity and Quality of Service – increase of sector capacities, the optimisation of arrivals, the improvements of the operations mode, flow management measures, interfaces,
- Efficiency measures - optimisation of human resources management,
- Increase of controllers - recruitment process to compensate the staff reduction,
- Collective agreement - increase of efficiency in the rostering process.

The ATCO numbers are planned to reduce in Madrid, Palma and Sevilla, in Barcelona and Canarias will remain effectively the same. Spain experienced staffing issues only marginally in some years and ACCs only. The measures are estimated to support the established national capacity targets.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P
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	339	323	341	350	350	338
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	425	415	434	407	386	398
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	130	137	128	120	118	121
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	140	131	137	132	129	133
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	151	161	164	164	162
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	1190	1157	1201	1173	1147	1152

2024 (end) - 2020 (beg.)

-1

-27

-9

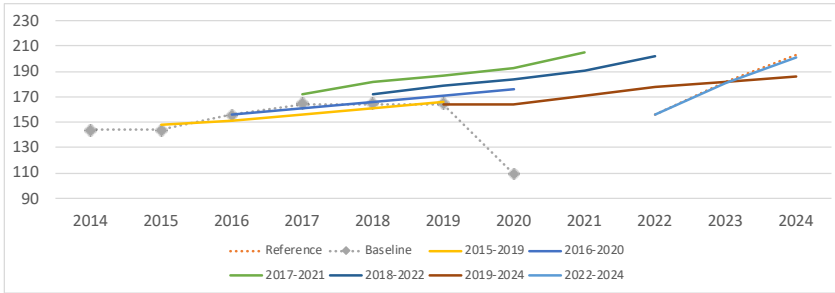
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-38

3.2.3 Review of previous and existing capacity profile plans per ACC

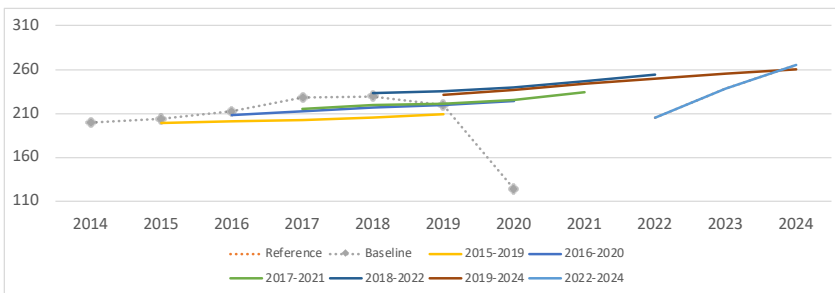
Barcelona ACC (LECB)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									156	182	203
Baseline	144	144	156	164	164	164	109				
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
2022-2024									156	181	201
Latest vs Reference									0%	-1%	-1%

- Historical data shows that capacity plans were below baseline values. Barcelona ACC contributed significantly to the deterioration of capacity performance in 2018 in Spain.
- The latest planned capacity profiles grow by 13.5% on average annually following the trend of the reference values trend but they are slightly below the reference profiles in 2023 and 2024.
- There may be an inconsistency between capacity profile plans, the planned number of ATCO FTEs, capacity enhancement measures and the proposed national targets.

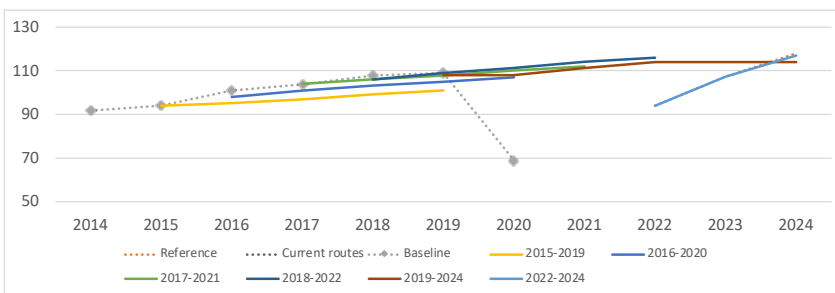
Madrid ACC (LECM)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									205	238	265
Baseline	199	204	213	228	229	219	124				
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
2022-2024									205	238	265
Latest vs Reference									0%	0%	0%

- Historical data shows that capacity plans were below baseline values. Madrid ACC contributed significantly to the deterioration of capacity performance in 2018 in Spain.
- The latest planned capacity profiles grow by 13.7% on average annually following the trend of the reference values. Madrid ACC is not expected to have a capacity gap in RP3 according to the planned profiles.
- The significant reduction of ATCO FTEs does not seem to affect the capacity profiles negatively.

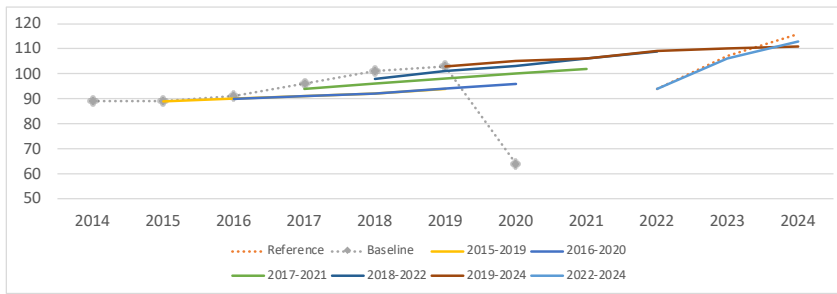
Palma ACC (LECP)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									94	107	118
Baseline	92	94	101	104	108	109	69				
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
2022-2024									94	107	117
Latest vs Reference									0%	0%	-1%

- 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 grow by 11.6% on average annually following the reference profile. Palma ACC is expected to have a 1% capacity gap in 2024.
- There may be an inconsistency between capacity profile plans, the planned number of ATCO FTEs, capacity enhancement measures and the proposed national targets.

Sevilla ACC (LECS)



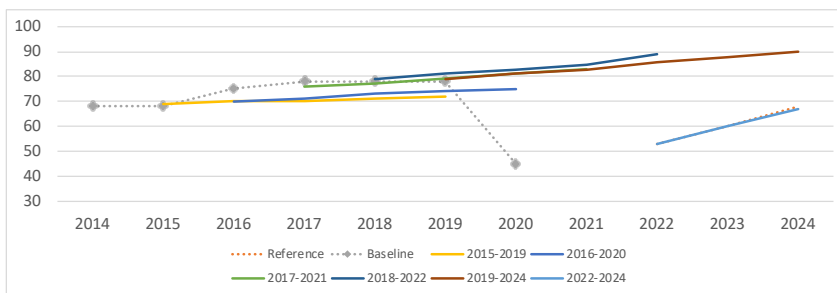
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference											
Baseline	89	89	91	96	101	103	64		94	107	116
2015-2019		89	90	91	92	94					
2016-2020			90	91	92	94	96				
2017-2021				94	96	98	100	102			
2018-2022					98	101	103	106	109		
2019-2024						103	105	106	109	110	111
2022-2024									94	106	113
Latest vs Reference									0%	-1%	-3%

- Historical data shows a steady increase in capacity profiles. The planned capacity was below the reference profiles during 2016-2018. Sevilla ACC has not been a main contributor to the deteriorating national capacity performance.

- Latest planned capacity profiles grow by 9.7% on average annually. This increase results in a minor capacity gap of -1% in 2023 and -3% in 2024.

- There may be an inconsistency between capacity profile plans, the planned number of ATCO FTEs, capacity enhancement measures and the proposed national targets.

Canarias ACC (GCCC)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									53	60	68
Baseline	68	68	75	78	78	78	45				
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
2022-2024									53	60	67
Latest vs Reference									0%	0%	-1%

- Historical data shows that capacity plans were mostly below baseline values, and baseline values were flat in 2017-2019.

- Latest planned capacity profiles show an average annual growth of 12.4%, and follow the trends of reference profiles. A minor capacity gap of -1% is expected in 2024.

- 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	Review of capacity enhancement measures related to mitigating higher delays due to significant / special events	n/a
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3.2.5	Review of the measures to increase capacity and address capacity gaps	
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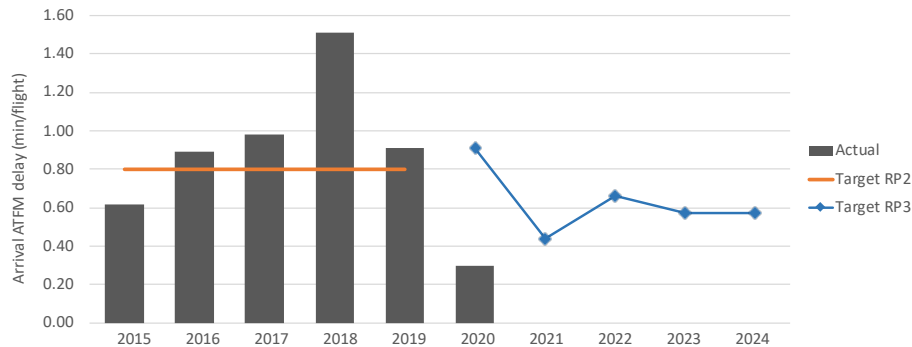
- | | | |
|----|---|--|
| a) | Performance plan contains additional measures compared to the NOP in order to close the capacity gap?
The performance plan contains a comprehensive set of capacity enhancement measures, which are aimed at addressing the gap closure. These measures are fully in line with the measures contained in the NOP. | |
| b) | Measures proposed by the NM to enhance capacity are planned and described in the performance plan?
Measures are fully in line with NM proposals. | |
| c) | The performance plan provides rationale if only a subset of the measures proposed by NM is planned and described?
Measures are fully in line with NM proposals. | |
| d) | The NSA proposed additional measures for the operational stakeholders in order to close the capacity gap?
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. The data indicates an overall decrease of about 3% over the reference period impacting various ACC differently. Most ACCs are expected to experience minor capacity gaps in RP3, hence the decrease in the number of ATCO FTEs are not sufficiently justified. | |
| f) | The performance plan describes how the flexible use of operational staff is improved in order to enhance capacity?
The performance plan contains reference to a new collective agreement with ATCO personnel to allow for a more efficient rostering system. | |
| g) | The performance plan provides information on how the limitations of ATM systems and infrastructure negatively affecting capacity are overcome?
The performance plan contains measures regarding the continuous improvement of ATM systems in order to introduce advanced functionality and to overcome current limitations. Although these limitations are not directly specified. | |

3.2.6	PRB Key Points	
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- National capacity targets are set equal to the national reference values. The target value is equal to the scenario 1 delay forecast in 2022 and falls within the range of the delay forecast in 2023 and 2024.
- Capacity plans indicate minor capacity gaps in 2024 for all ACCs in RP3 except in Madrid ACC.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
National level	0.80	0.80	0.80	0.80	0.80	0.91	0.44	0.66	0.57	0.57
Target (RP2/RP3)	0.80	0.80	0.80	0.80	0.80	0.91	0.44	0.66	0.57	0.57
Actual	0.62	0.89	0.98	1.51	0.91	0.30	-	-	-	-
Gran Canaria (GCLP)	0.17	0.58	0.55	0.31	0.14	0.97	0.18	0.22	0.22	0.22
Alicante (LEAL)*	0.00	0.00	0.00	0.00	0.05	0.02	0.06	0.06	0.06	0.06
Barcelona (LEBL)	0.68	1.62	1.72	2.94	1.33	0.12	0.84	1.40	1.20	1.20
Madrid/ Barajas (LEMD)	0.34	0.51	0.62	0.80	1.29	0.49	0.32	0.40	0.30	0.30
Málaga (LEMG)	0.04	0.01	0.15	0.26	0.13	0.01	0.06	0.10	0.09	0.08
Palma de Mallorca (LEPA)	1.69	1.20	1.26	2.12	1.08	0.05	0.66	1.00	0.90	0.90
Ibiza (LEIB)*	0.64	0.24	0.86	0.48	0.27	0.00	0.28	0.30	0.30	0.30

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 October 2021 base forecast.

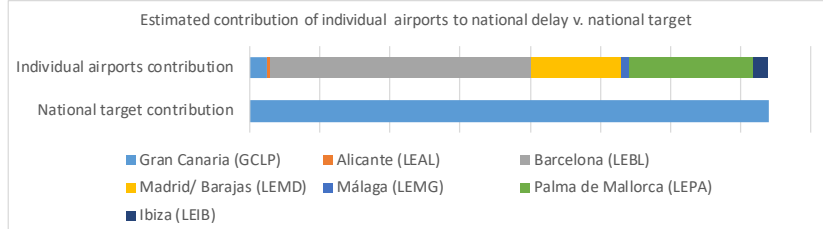
The proposed targets for RP3 are based on historical experience and projects planned within the ENAIRE capacity plan, very detailed in the performance plan. This capacity plan includes measures to improve the arrival capacity at Madrid, Barcelona, Palma, Málaga and Gran Canaria, mainly implementation of RECAT, TBS, AMAN 2.0, stripless TWR and TMA. It also foresees the implementation of processes to better manage the impact of adverse weather.

The resulting targets start at 0.44 minutes per arrival in 2021 considering lower than usual traffic levels, the target for 2022 reflects a relative recovery in traffic combined with ongoing improvement measures and an improvement in the last two years of the reference period.

These targets represent an improvement with respect to RP2 targets and significantly lower delays than observed during the past reference period. They are adequate and in line with the planned capacity measures.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Gran Canaria (GCLP)	0.21
Alicante (LEAL)	0.06
Barcelona (LEBL)	1.16
Madrid/ Barajas (LEMD)	0.33
Málaga (LEMG)	0.08
Palma de Mallorca (LEPA)	0.87
Ibiza (LEIB)	0.30
National Target	0.56



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. Assuming all airports would perform according to their target, the national performance would be equal to the national target.

3.3.4 Comparison of performance with other similar airports

Airport	Group*	Median airport group 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Gran Canaria (GCLP)	GROUP III	0.12	0.35	+0.24	0.21	+0.19
Alicante (LEAL)	GROUP II	0.23	0.01	-0.22	0.06	-0.17
Barcelona (LEBL)	GROUP I	0.65	1.69	+1.04	1.16	+0.51
Madrid/ Barajas (LEMD)	GROUP I	0.65	0.73	+0.07	0.33	-0.32
Málaga (LEMG)	GROUP II	0.23	0.12	-0.10	0.08	-0.15
Palma de Mallorca (LEPA)	GROUP II	0.23	1.47	+1.24	0.87	+0.64
Ibiza (LEIB)	GROUP IV	0.00	0.50	+0.49	0.30	+0.29

* 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

Four of the seven Spanish airports included in RP3 (including Barcelona and Palma) performed worse than similar airports during RP2. The proposed targets for these airports, while an improvement with respect to past performance still represent worse delays than those observed in the past at similar airports. On the other hand, Madrid, Málaga and Alicante were very much in line with the median delay of similar airports during RP2 and the proposed targets represent an improvement, especially in Madrid.

3.3.5 PRB Key Points

- Spain included seven airports in the performance plan, two of which are new compared to RP2 (Alicante and Ibiza). The national targets are set considerably lower than in RP2, and the targets represent a significant improvement compared to average past performance.
- The main contributors to airport arrival ATFM delay are Barcelona, Madrid-Barajas and Palma de Mallorca as these three airports generate the majority of delays.
- Alicante, Málaga and Madrid-Barajas are expected to perform better than the group of similar airports, whereas all other airports are expected to perform worse than their respective groups of similar airports.
- The performance plan contains a detailed set of capacity enhancement measures targeting airport capacity, which are expected to greatly improve the arrival ATFM delay performance.

3.4 Capacity Incentive schemes

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			0.20	0.19	0.19
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.20	0.19	0.19
Pivot values for RP3			0.15	0.15	0.15

Threshold and pivot value review

The pivot value is not based on the reference value from the NOP, but on a modulation of the national targets (which are greater in 2022 and 2023). There is a dead band of +0.01 minutes before penalties are applicable. Maximum penalty is applied if performance > +0.05 minutes of the pivot value.

Modulation review

The incentive scheme is modulated according to the historic ratio for attribution of ATRM codes C,R,S,T,M & P. The value is fixed at 77% for 2022 and will be updated annually. As with all incentive schemes based on CRSTMP-only delays: inconsistencies or errors, by the ANSP, in the attribution of cause of delay could affect financial incentives.

Review of financial advantages/disadvantages

Spain is applying an incentive scheme which does not permit bonuses. The maximum penalty is fixed at 0.5% of determined costs.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.02 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
Bonus/penalty range Δ (in fraction of min)			±0.096	±0.083	±0.083
Performance Plan targets			0.66	0.57	0.57
Pivot values for RP3			0.19	0.17	0.17

Threshold and pivot value review

The terminal incentive scheme includes a dead band of ±0.02 min (±10.5%) of the CRSTMP pivot value (dead band: 0.172- 0.212 minutes per arrival). The pivot values, modulated to cover only CRSTMP causes are indicative and shall be updated annually. The indicative values are slightly higher past reported CRSTMP delay (average 0.15 minutes per arrival in RP2)

Modulation review

Spain has chosen to modulate the pivot values according to CRSTMP causes. The pivot value for 2022 has been built based on an ADF (attributable delay factor) of 29.59%, as a result of the evaluation of the data for the period 2017-2020 and not taking into consideration the Other-Covid minutes considered as exceptional. This ADF that cannot be verified, as in 2018 there was a revision of the assignment of the arrival ATRM delay causes, affecting the causes C-ATC Capacity and G-Aerodrome Capacity that changed the distribution of the attributable delays.

The pivot values in the performance plan are only indicative as they will be updated annually on the basis of the ADF applicable and notified to the European Commission prior to the start of the year, in which the incentive applies. The ADF is generally calculated on the basis of the performance registered in the previous four full years but if AESA considers it necessary, this four-year period may be modified throughout RP3.

On the other hand, the ATC service at Alicante and Ibiza airports is provided by FerroNATS, which is 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

Spanish performance plan considers no bonus and maximum penalties of 0.5%.

3.4.3 Additional capacity incentive schemes

n/a

3.4.4 PRB Key Points

En route:

- Spain has chosen to modulate the pivot values for CRSTMP-only delays. The basis for the modulation is the national target value, which is higher than the reference value.
- Maximum penalty is set at 0.5%, the scheme is penalty only.
- 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:

- Spain has chosen to modulate the pivot values for CRSTMP-only delays. The modulation is based on the national targets and proprietary Attributable Delay Factor devised by the NSA, the validation of which is not possible.
- Maximum penalty is set at 0.5%, the scheme is penalty only.
- 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.

- 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.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	97.6	101.8	108.2	119.8	123.4	550.9
	En route	89.6	93.5	99.5	110.3	113.7	506.6
	Terminal	8.0	8.3	8.7	9.5	9.7	44.3

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	TRM
1	Safety Reinforcement Action Plan ("REINFORCE")	Continuous operational safety improvement aligned with the Operational Safety Action Plan (aka PARSO), this initiative includes 10 action lines: <ul style="list-style-type: none"> •Adherence to the Operation Mode •Reducing Fatigue and Stress •Reinforcement of ENAIRE's Safety Culture. Just Culture Policy •Improving Air Traffic Controller Training •Reinforcement of the Management Team in the Room •Use of Mobile Devices in Room •Technological Modernization •Flow Management •Improved management in cases of adverse weather •Adherence to Procedures 	10.5	Yes	No	4.1	0.3
2	Security & Cybersecurity systems evolution plan ("PROTECT")	Evolution of means and systems for the protection of people and infrastructure as well as cybersecurity, which is fundamental in a context of increasing information sharing and seeking for new services detached from physical location. More details can be found in section 2.1 of the performance plan.	17.7	Yes	No	3.6	0.3
3	Digital Airspace	Digital Airspace is ENAIRE's airspace modernisation programme, aimed to ensure enough capacity during traffic recovery and to pave the way towards Airspace Architecture Study Transition Plan challenges. The programme includes a lot of actions linked to TMA ATC services, airspace structure, free route and new tools development such as Dynamic ATFM And Flow tools. More details can be found in section 2.1 of the performance plan.	78.6	Yes	Yes	25.3	1.9
4	Digital Tech	Digital Tech is ENAIRE's programme for the digital transformation of systems, infrastructure, and CNS/ATM and maintenance services. Future technologies will contribute to capacity and better efficiency in many business dimensions, including sustainability. More details can be found in section 2.1 of the performance plan.	475.1	Yes	Yes	83.1	4.4
5	Digital Network	This initiative is one of the main digital transformation and innovation projects at national network level. The initiative includes previous new major investment identified as "SYSRED (National network data integration)" which includes hosting the monitoring and analysis (EYWA) system in an integrated H24 supervision room. More details can be found in section 2.1 of the performance plan.	145.0	No	No	29.2	1.9
6	Digital AIM	Digital AIM is ENAIRE's programme for the digitalisation of aeronautical information an migration to AIM concept. It will improve digitalisation and integration of data, ensuring quality and accesibility, improving the scope of AIS/AIM. More details can be found in section 2.1 of the performance plan.	18.2	Yes	No	2.4	0.2
7	Civil-Military Coordination	This initiative aims to foster the implementation of FUA in the context of a national framework of coordination between civil and military authorities. There are two main lines of action <ul style="list-style-type: none"> -Strategic: Improvement of coordination mechanisms promoting civil-military coordination both at national and European level, fostering FUA coordination and helping to a smooth transition to free route operations. - Civil-military coordination improvement at all levels (strategic, pre-tactical and tactical). Processes improvement. ASM1, ASM2, ASM 3. Improved synchronisation ASM/ATFM, AirSpace Management Cell (AMC) and use of the LARA/Prismil tool. This Plan is also aligned with the Operational Excellence Programme (OEP), Eurocontrol This investment also contains a regularization action regarding properties previously owned by the military authorities but hosting CNS infrastructures, which, in compliance with Regulation EU 2017/373 ATS.OR.100 will, from now on, be owned by ENAIRE.	6.1	Yes	Yes	0.8	0.0
8	Eco-ENAIRE /Green Sky	Use on renewable energy solutions and better management of residues in order to reduce ENAIRE's carbon footprint and contribute to environmental sustainability in a wide scope. <ul style="list-style-type: none"> - Monitoring, controlling and reducing energy consumption, with positive impact on billing. - Deployment of systems to exploit alternative energy sources (photovoltaic panels) or more energetically efficient solutions (LED lighting, fostering the use of electric cars...) - Reducing paper consumption and managing residues. - Promoting a sustainable culture among employees. This project imports the previous new major investment relative to "Environmental sustainability".	11.9	No	No	2.7	0.1

9	Technical COMM evolution (&basis for future concepts such as ADSP)	<i>Development of new technology solution allowing the evolution of communication infrastructure and systems, which, furthermore, will ease the implementation of new future concepts, such as .ATM Data Services, based on the concept of digital evolution of current ATM system. This project, as part of ENAIRE's strategic plan, is linked to future concepts aligned with EC's SES2+ proposals, as also anticipated by the AAS. More details can be found in section 2.1 of the performance plan.</i>	88.7	Yes	No	24.3	0.8
10	CRIDA as engine of ENAIRE innovation	<i>Innovation is key for evolving the ENAIRE ATM system to achieve the SES goals. Apart from deployment of new solutions, the involvement in SESAR JU activities and promoting internal R&D is a must to promote and validate new concepts leading to the improvement of the provided services. More details can be found in section 2.1 of the performance plan.</i>	9.7	No	No	3.6	0.3
11	ENAIRE's Digital Transformation	<i>Digital transformation of the organisation, processes and mindset: - Optimisation, automatization and digitalisation of key processes. - Development of a data strategy. Big data operational and corporate. - Digitalization of systems and applications. Although a significant part of the investment is not ATM-related, there are some applications related to ATCO rostering and electronic briefings. More details can be found in section 2.1 of the performance plan.</i>	105.0	No	No	38.7	3.4
Total:						217.8	13.4

Airspace user feedback regarding major investments

The airspace users commented on several aspects of the investments plan:

- Requested more details about the investments, noting the increase in the cost base,
- Expressed their concern about the early adoption of the ADSP concept, which is considered premature and with uncertain benefits,
- Requested detailed CBAs about the investments.

Spain provided the requested information in the new submission of the performance plan. Regarding the early adoption of the ADSP concept, Spain noted that the investment is only related to communication infrastructure that is also necessary for traditional communication services and is considered an enabler for any data and information sharing.

Review of investments

New major investments represent 42% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 5% higher than the planned and the amount overspent was 17.7M€. Despite overspending on investments, in terms of depreciation and cost of capital, the actual costs related to investments were 54.5M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Digital Network	Local, Non-performance	Safety, Environment, Capacity, Cost-efficiency	Significant improvements in safety, capacity and cost-efficiency.
2	Eco-ENAIRE /Green Sky	Network, Local, Non-performance	Environment, Cost-efficiency	This project shows that ENAIRE is committed to preserve the environment beyond the KPI retained in current performance and charging regulation.
3	CRIDA as engine of ENAIRE innovation	Network, Local, Non-performance	Safety, Environment, Capacity, Cost-efficiency	Significant improvements in all KPAs.
4	ENAIRE's Digital Transformation	Local, Non-performance	Capacity, Cost-efficiency	The scope of the investment goes beyond processes optimisation and considers as well some TIC infrastructure and licenses assets.

Additional information

More details can be found in section 2.1 of the performance plan.

CRIDA as engine of ENAIRE innovation: Overhaul of ATM system. This investment is used in the development of tools to exploit operational data and develop predictive models in support of the improvement of current systems and modes of operation in areas such as: environmental sustainability, safety, capacity, airspace design, traffic complexity, etc. All these activities impact transversally ATM MP changes. A substantial part of the activities are driven to implementation of improvements linked to the AF4.-Network Collaborative Management.

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 RP3 (M€)
Other new investments	23.2	17.7	0.1	0.3	1.0	2.0	2.5	5.8
Existing investments			96.1	88.6	75.7	65.0	49.9	375.3

Details of the main other new investments

Nr	Name of the major investment	Total value of the asset (M€)	Value of the assets allocated to ANS	2020	2021	2022	2023	2024	Total RP3 (M€)	Description
1	Predictive SMS: Safety II- "ANTICIPATE"	1.8	1.2	0.0	0.0	0.1	0.2	0.2	0.5	Predictive SMS implementation: Introduction of Big Data for safety information processing and predictive analysis; Observing operation surveys through NOM - Normal Operations Monitoring); Safety Observatory; System Thinking - and Safety II approach.
2	Human Factors in ATM ("FACILITATE")	1.3	1.0	0.0	0.0	0.1	0.1	0.2	0.3	Human Factors Programme: Launching of FSRMS for Fatigue and stress management; Application of HHFF to change management; emotional wellness programme; CANSO HPSoE application
3	Fly Clean / Green Sky	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	Promotion of initiatives to reduce flight emissions through: monitoring, developing new KPIs, calculating the carbon footprint, etc; promoting the use of CCO/CDO, free route, KEA, etc; promoting alliances with other environmental sustainability sponsors
4	Fly Quiet / Green Sky	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Programme for the reduction of acoustic impact of operations through: improving the monitoring; evaluating and mitigating the impact of future projects.
5	Flying with General Aviation	0.7	0.7	0.0	0.0	0.0	0.1	0.1	0.2	FIS VFR service implementationaeronautical information adaptation to VFR users needs; improved tools and processes; potential adaptation to certain airspaces.
6	Digital tower	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	Development of a digital tower solution in order to prepare for future tower service provision model
7	ADS-B	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.1	Terrestrial ADS-B stations
8	SES Digital Backbone (SDB)	1.5	0.8	0.0	0.0	0.0	0.0	0.1	0.2	The goal is to adapt current digital ATM/ANS infrastructure to meet the requirements of future SES Digital Backbone (SDB). More details can be found in section 2.1 of the performance plan.
9	U-space (only ATM changes for ATM/UTM interface)	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	Note that this project includes only ATM system changes to allow ATM-UTM interface.
10	Drone-based services (only navais verification)	0.6	0.4	0.0	0.0	0.0	0.1	0.1	0.2	Evaluation of internal-use drone application (e.g navais flight verification), with the aim to reduce costs in verification flights
11	"Trust" (HHRR programme)	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	HHRR initiative to promote equality and diversity as well as improving conciliation
12	"Feel" (HHRR programme)	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	HHRR programme for the improvement of the "employee journey" and improvement of their emotional wellness
13	Campus as excellence training center	1.9	0.6	0.1	0.1	0.3	0.3	0.3	1.1	Focus on better training.
14	ATCO Training	1.6	1.2	0.0	0.0	0.1	0.2	0.2	0.5	Focus on training on specific new products and methodologies
15	Innovation Programme	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.1	Innovation management and establishment of an innovation observatory, focusing on the deployment of innovative ideas and solutions.
16	Corporate Communication systems	1.4	0.9	0.0	0.0	0.1	0.1	0.2	0.4	Improvement of corporate communication (intranet)
17	Other (miscellaneous)	1.8	1.8	0.0	0.0	0.0	0.1	0.1	0.2	Other related to changes in some systems that are not included in other classifications
18	Other (aeronautical studies)	4.3	3.6	0.0	0.0	0.1	0.2	0.4	0.8	Other technical studies related to radioelectric impact, definition of protection areas, obstacle limitations, etc
19	Other (maintenance and sustainability of the system)	4.3	4.0	0.0	0.0	0.2	0.5	0.5	1.1	Other activities non- strategic but necessary for the activity, such as buildings maintenance services and furniture purchases, etc...

3.5.3 Review of investments contribution to capacity

- a) Investments contribute to the rectification of identified capacity shortfalls? ⓘ
- Barcelona and Sevilla ACCs are expected to have a slight capacity gap during 2023 and 2024 (-1% for both years in Barcelona, -1% and -3% in Sevilla), Palma and Canarias ACCs are expected to have a capacity gap of -1% in 2024. Madrid ACC is not expected to have a capacity gap/surplus throughout RP3.
- There are eleven major investments planned for RP3, which all have target operational deployment dates defined as 2021-2028, i.e. no interim milestones. Seven of these investments are linked to PCP/CP1 ATM Functionalities providing coverage of all six AFs. Three investments, namely Digital Airspace, Digital Tech, Civil-Military Coordination investments contribute to enroute capacity. Additional major investments contribute to resilience, scalability and flexibility. Specific investments are defined for digitalisation and virtualisation of services in line with the overall European ATM evolution.
- Other (non-major) investments are defined targeting safety, human performance, environmental sustainability, digitalisation and training. ATM-UTM and drone operations with regard to the ATM interface and surveillance infrastructure upgrades through ADS-B implementation are also included in other investments. The other (non-major) investments contribute to scalability and flexibility.
- b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP? ✔
- The Digital Airspace investment is expected to improve enroute capacity through five specific initiatives: capacity plan, airspace restructuring plan, free route implementation (including associated ATM system modifications), ATFM 5.0 plan and adverse meteorology management plan. The Digital Tech investment includes ATM Digitalisation – the development of future 4D trajectory management tools and functionalities, advanced tools for flight management and conflict detection and resolution, stripless operations, etc. The Civil-Military Coordination investment introduces civil-military coordination improvements at all levels, including process improvements, improved synchronisation ASM/ATFM, AMC and LARA/Prismil tool.
- c) Capacity related capital expenditure takes due account of the time needed to get the planned systems implemented? ⓘ
- Due to the generic operational deployment definition in the investment planning (all 11 investment projects to be implemented 2021-2028) it is difficult to assess when and where the capacity enhancing capabilities are deployed over the course of RP3. However, most Spanish ACCs will be experiencing slight capacity gaps during 2023-2024 indicating that either the timing or scope of the capacity enhancing investments is not optimised. Investment deployment will continue to RP4 but some of those ACCs experiencing capacity shortfalls already during RP3 are doing so on a downward trajectory and this may escalate during RP4 if no corrective measures in the deployment of these capabilities are made. The investments are generally applicable to all ACCs and not targeted to specific ACCs experiencing capacity shortfalls.

3.5.4 PRB Key Points

- The actual CAPEX for RP2 was 5% higher than the planned and the amount overspent was 17.7M€. Despite overspending on investments, the actual costs related to investments were 54.5M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.
- Spain included investments related to ATM-UTM and drone operations with regard to the ATM interface under other (non-major) investments.
- There are minor capacity shortfalls at some ACCs in Spain during RP3.
- There are capacity enhancing investments planned for RP3 and beyond related to all six PCP/CP1 ATM Functionalities, but their deployment timeline is not defined in detail.
- Other investments contribute to resilience, scalability and flexibility and digitalisation of the ATM ecosystem is progressing in line with the European ATM evolution.

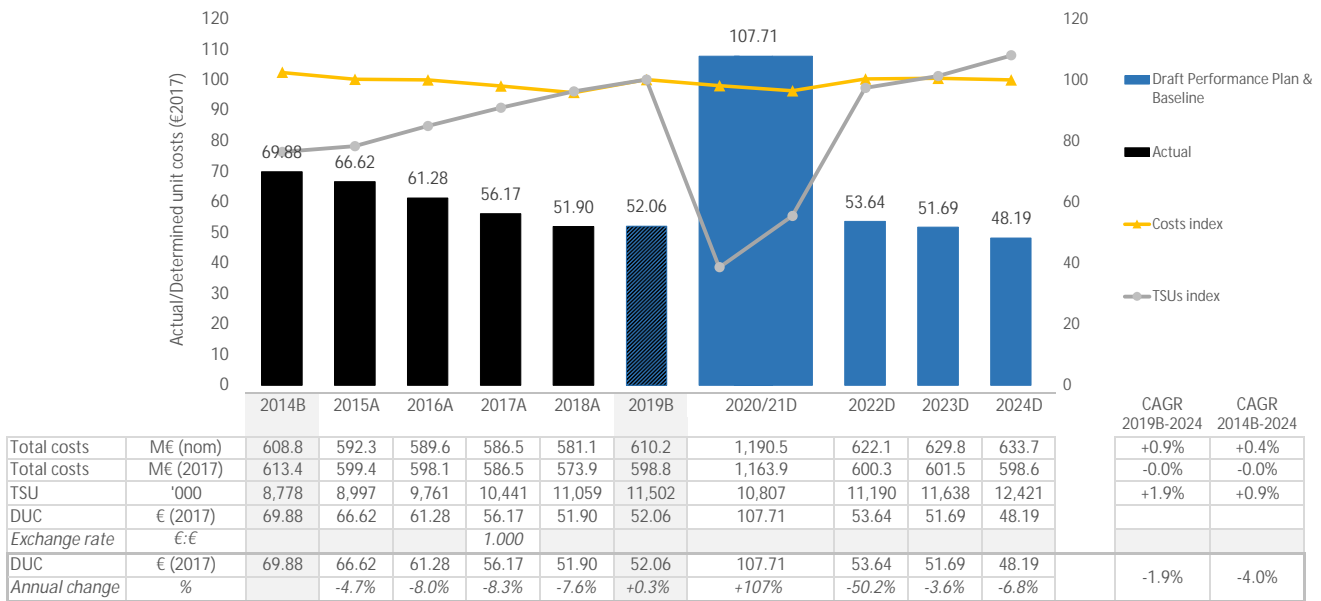
SPAIN

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Spain Continental - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 52.06 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? -1.9% ✓

The DUC is planned to decrease on average by -1.9% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).

b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -4.0% ✓

The DUC is planned to decrease on average by -4.0% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).

c) DUC level (2019 baseline) lower than the average of comparator group (A) average (62.97 €2017)? -17.2% ✓

The 2019 DUC level is -17.2% lower 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 ✓

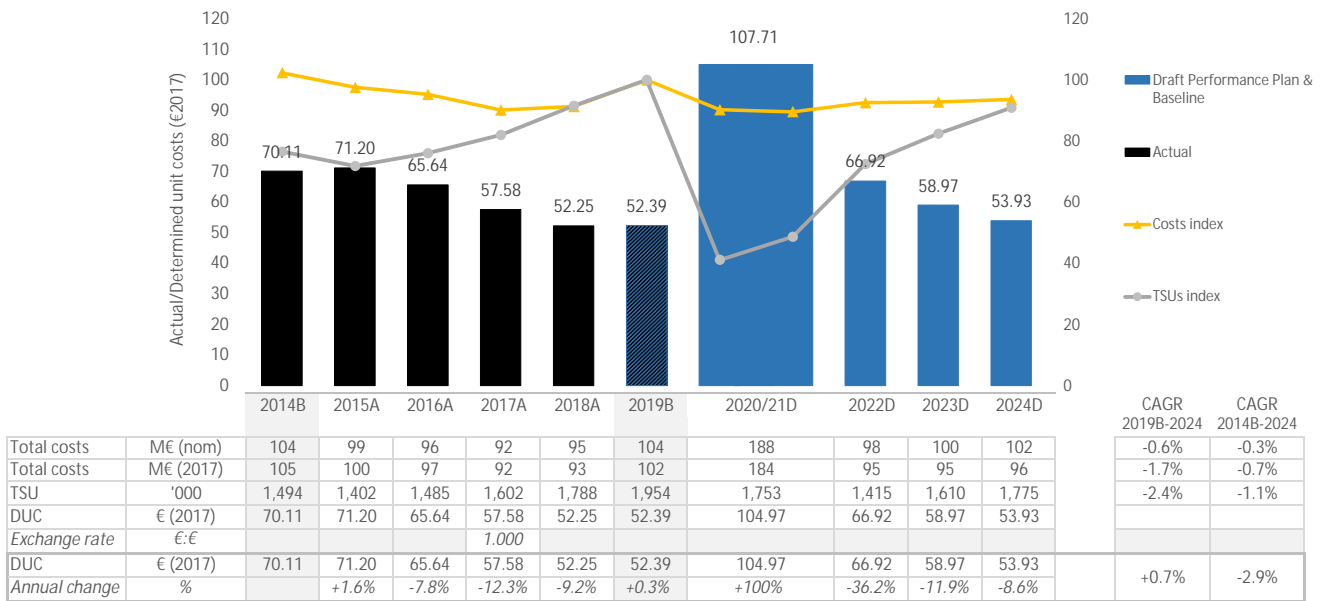
The PRB concludes that the cost-efficiency targets proposed for Spain Continental should be approved.

- Spain Continental is consistent with the RP3 DUC trend in terms of average reduction.
- Spain Continental is consistent with the long-term Union-wide DUC trend.
- Spain Continental is consistent with the average DUC baseline of the comparator group.

4.1 Summary of cost-efficiency key data and assessment results

Spain Canarias - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with actual unit costs or deviation adequately justified? 52.39 €2017 ✓

No major issues identified.

4.1.3 Summary of cost-efficiency assessment results

- a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend? +0.7% ✓
The DUC is planned to increase on average by +0.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend? -2.9% ✓
The DUC is planned to decrease on average by -2.9% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- c) DUC level (2019 baseline) lower than the average of comparator group (A) average (62.97 €2017)? -17.2% ✓
The 2019 DUC level is -17.2% lower 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 ✓

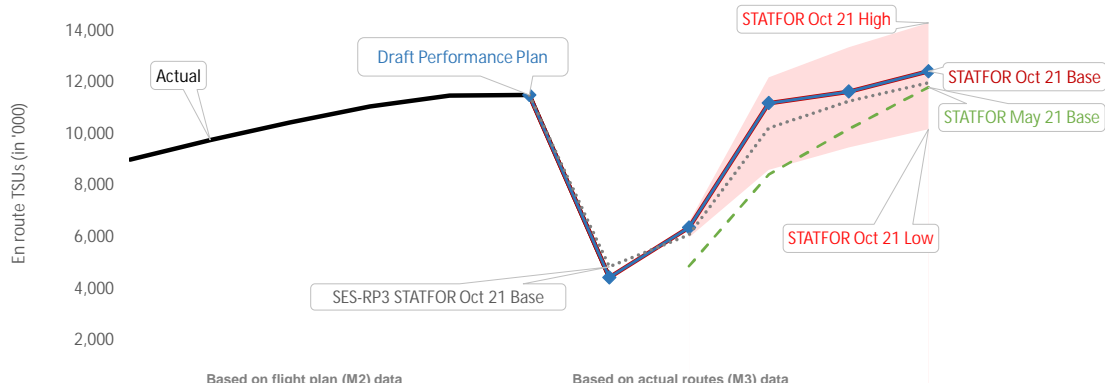
The PRB concludes that the cost-efficiency targets proposed for Spain Canarias should be approved.

- Spain Canarias is consistent with the RP3 DUC trend in terms of average reduction.
- Spain Canarias is consistent with the long-term Union-wide DUC trend.
- Spain Canarias is consistent with the average DUC baseline of the comparator group.

4.2 Review traffic forecasts and baseline

Spain Continental - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	8,997	9,761	10,441	11,059	11,488	11,502	4,437					
Annual change	%		+8.5%	+7.0%	+5.9%	+3.9%	+4.0%	-61.4%					
STATFOR Oct 21 Base	'000 TSUs								6,370	11,190	11,638	12,421	+8.0%
Annual change	%								+43.6%	+75.7%	+4.0%	+6.7%	
STATFOR May 21 Base	'000 TSUs								4,872	8,415	10,187	11,803	+2.6%
Annual change	%								+9.8%	+72.7%	+21.1%	+15.9%	
Performance Plan	'000 TSUs						11,502	4,437	6,370	11,190	11,638	12,421	+8.0%
Annual change	%						+4.0%	-61.4%	+43.6%	+75.7%	+4.0%	+6.7%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	11,502		2014B (PP baseline)	8,778	
2019A (as in the Reporting tables, M2)	11,488		2014A (as in the Reporting tables, M2)	8,768	
2019B/ 2019A	0.12%	+0.12%	2014B/ 2014A	0.12%	+0.12%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (+0.12%).

Review of 2014 and 2019 traffic baseline
 The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (+0.12%). The coefficient slightly increases the number of 2014 and 2019 traffic baselines while decreasing the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
 n/a

Review of the PP traffic forecast
 The en route traffic forecast presented in the performance plan of Spain Continental is in line with the STATFOR October 2021 base scenario.

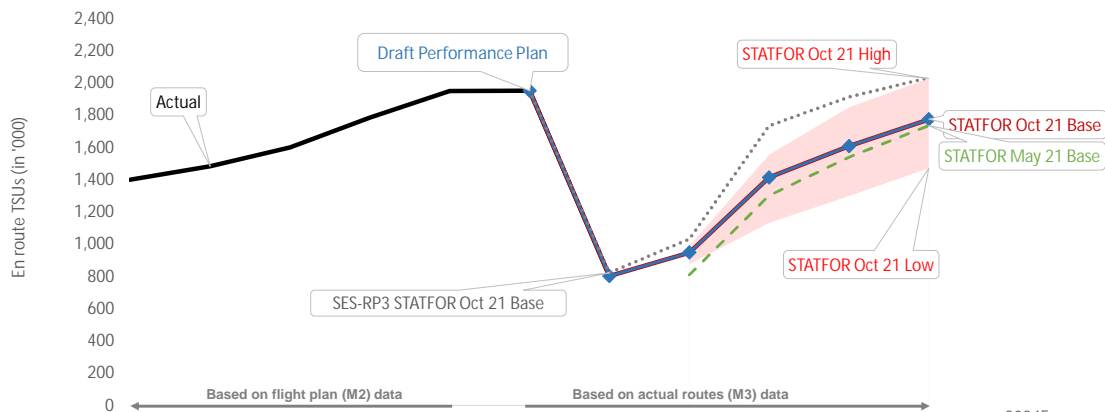
4.2.4 PRB Key Points

- En route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.2 Review traffic forecasts and baseline

Spain Canarias - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	1,402	1,485	1,602	1,788	1,951	1,954	803					
Annual change	%		+5.9%	+7.9%	+11.6%	+9.1%	+9.3%	-58.9%					
STATFOR Oct 21 Base	'000 TSUs								950	1,415	1,610	1,775	-9.1%
Annual change	%								+18.3%	+49.0%	+13.8%	+10.3%	
STATFOR May 21 Base	'000 TSUs								810	1,302	1,542	1,737	-11.1%
Annual change	%								+0.9%	+60.7%	+18.4%	+12.7%	
Performance Plan	'000 TSUs						1,954	803	950	1,415	1,610	1,775	-9.1%
Annual change	%						+9.3%	-58.9%	+18.3%	+49.0%	+13.8%	+10.3%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	1,954	
2019A (as in the Reporting tables, M2)	1,951	
2019B/ 2019A	0.13%	+0.13%

2014	'000 TSUs	CRCO 12-month coefficient
2014B (PP baseline)	1,494	
2014A (as in the Reporting tables, M2)	1,492	
2014B/ 2014A	0.13%	+0.13%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (+0.13%).

Review of 2014 and 2019 traffic baseline

The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (+0.13%). The coefficient slightly increases the number of 2014 and 2019 traffic baselines while decreasing the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

The en route traffic forecast presented in the performance plan of Spain Canarias is in line with the STATFOR October 2021 base scenario.

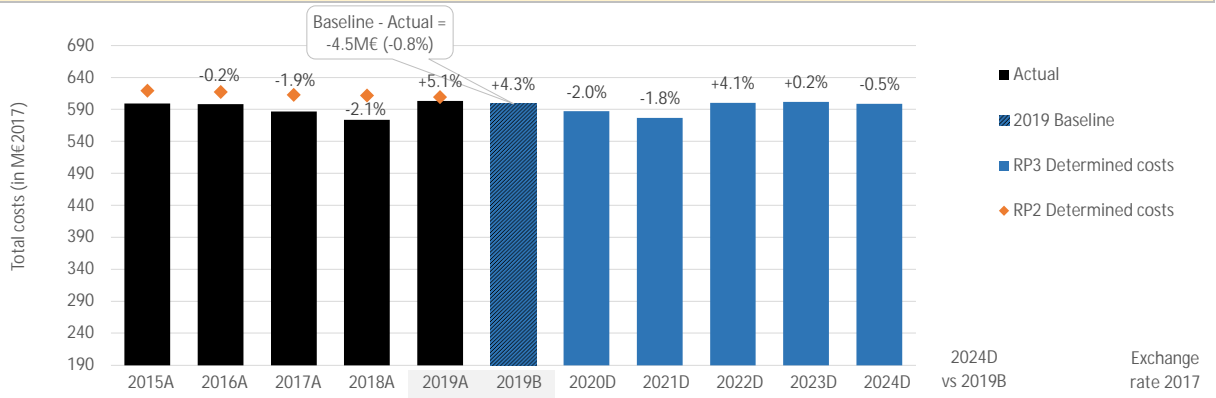
4.2.4 PRB Key Points

- En route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Spain Continental - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B
Total costs	M€ (nom)	592	590	586	581	615	610	598	592	622	630	634	+3.9%
Annual change	%		-0.4%	-0.5%	-0.9%	+5.8%	+5.0%	-1.9%	-1.0%	+5.1%	+7.2%	+0.6%	
Inflation index	2017 = 100	98.3	98.0	100.0	101.7	102.5	102.5	102.5	103.6	104.9	106.5	108.2	+5.5%
Total costs	M€ (2017)	599	598	586	574	603	599	587	577	600	602	599	-0.04%
Annual change	%		-0.2%	-1.9%	-2.1%	+5.1%	+4.3%	-2.0%	-1.8%	+4.1%	+0.2%	-0.5%	
Total costs	M€ (2017)	599	598	586	574	603	599	587	577	600	602	599	-0.04%

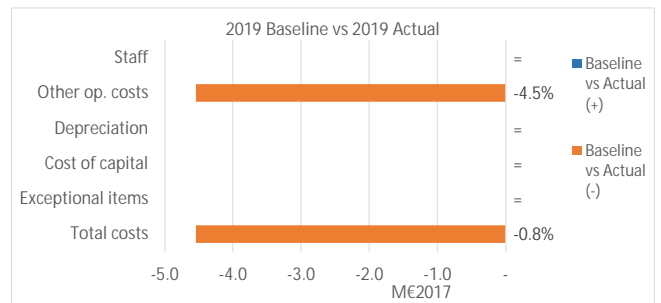
Exchange rate 2017
€:€
1.00000

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? **No**

The inflation index is in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	-4.542	-0.8%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Distribution of ECTL costs in en-route CZ	NSA/EUROCONTROL	Other ops.	-4.5

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The 2019 cost baseline is adjusted and justified by a change in the cost-allocation methodology. The cost allocation methodology for Eurocontrol costs attributable to Spain Continental and Canarias is proposed to be changed for RP3 (cost allocated based on IFR traffic weighting for each of Spain Continental and Spain Canarias en route charging zones) vs RP2 (fixed percentage).

2014/2019 baseline analysis

- The 2019 cost baseline is adjusted to reflect the new cost allocation methodology (-4.5M€2017 for Spain Continental and +4.5M€2017 for Spain Canarias).
- No adjustment reported by Spain Continental for the 2014 cost baseline.

4.3.3 Review of the RP3 determined costs and incentives



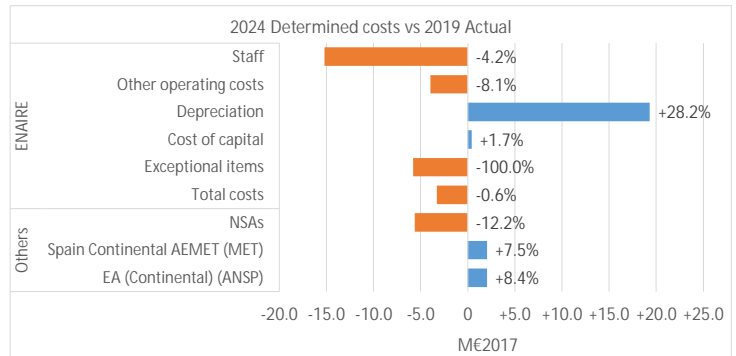
Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0

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



The total 2024 determined costs of Spain Continental are planned to be lower than 2019 actuals (-0.8%, or -4.8M€2017).

For ENAIRE, the main ANSP, total costs are planned to decrease slightly by -0.6% (or -3.3M€2017). This covers wider variations between lower staff costs (-4.2%, or -15.2M€2017) and other operating costs (-8.1%, or -4.0M€2017), and significantly higher depreciation costs (+28.2%, or +19.3M€2017 in 2024 vs 2019 and a sustained high level of depreciation costs over 2022-2024). For the latter, the explanation provided in the additional information of the performance plan (I.1.f) is: "Corresponding to the total fixed assets used for the purpose of air navigation services (pursuant to art 22.4 Regulation 2019/317). The estimates reflect the planned fixed assets evolution and Investment Plans". See section 3.5 of this document for more details.

When looking at the other entities, EA plans to have higher costs (+8.4%, or +2.1M€2017), and AEMET as well (+7.5%, or +2.1M€2017). While for the NSA, the total costs are planned to decrease when comparing 2024 to 2019 actuals (-12.2%, or -5.6M€2017). The change in Eurocontrol cost allocation methodology impacts the NSA' operating costs.

Total en route service units are forecasted to reach the 2019 level in 2022, while en route costs are planned to remain below the 2019 actual level over RP3 (and to reach the 2019 baseline value in 2022).

4.3.4 PRB Key Points

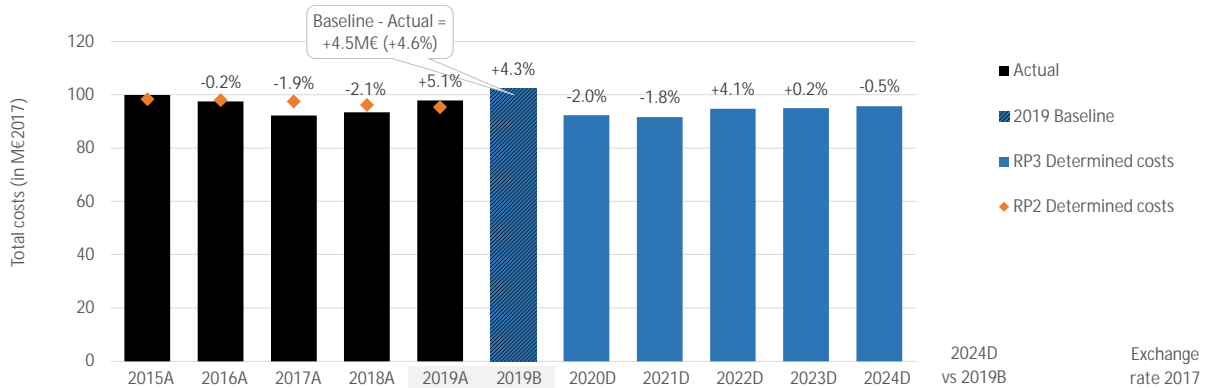


- The adjustments to the cost baseline reflect a change in the cost allocation methodology between Spain Continental and Canarias of Eurocontrol costs.
- Between 2019 and 2024, the costs for ENAIRE are planned to remain almost stable (-0.6%, or -3.3M€2017).
- Depreciation costs of ENAIRE are increasing over the period following the increases in fixed assets.

4.3 Review of determined costs and baseline

Spain Canarias - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3



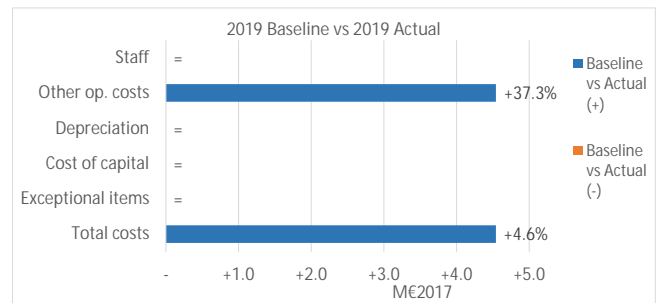
	M€ (nom)	2015A	2016A	2017A	2018A	2019A	2019B	2020D	2021D	2022D	2023D	2024D	2024D vs 2019B	Exchange rate 2017
Total costs	M€ (nom)	99	96	92	95	100	104	94	94	98	100	102	-2.6%	€:€
Annual change	%		-2.6%	-4.0%	+2.6%	+5.3%	+10.1%	-9.8%	+0.1%	+4.3%	+7.4%	+2.0%	+5.5%	1.00000
Inflation index	2017 = 100	98.3	98.0	100.0	101.7	102.5	102.5	102.5	103.6	104.9	106.5	108.2	+5.5%	
Total costs	M€ (2017)	100	97	92	93	98	102	92	92	95	95	96	-6.4%	
Annual change	%		-2.4%	-5.4%	+1.3%	+4.7%	+9.5%	-9.8%	-0.7%	+3.3%	+0.3%	+0.8%	-6.4%	
Total costs	M€ (2017)	100	97	92	93	98	102	92	92	95	95	96	-6.4%	

- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? **Yes**
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? **No**

The inflation rates used in the performance plan are in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	4.542	+4.6%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - Distribution of ECTL costs in en-route CZ	NSA/EUROCONTROL	Other ops.	+4.5

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

The cost allocation methodology for Eurocontrol costs attributable to Spain Continental and Canarias is proposed to be changed for RP3 (cost allocated based on IFR traffic weighting for each of Spain Continental and Spain Canarias en route charging zones) vs RP2 (fixed percentage).

2014/2019 baseline analysis

- The 2019 cost baseline is adjusted to reflect the new cost allocation methodology (+4.5M€2017 for Spain Canarias and -4.5M€2017 for Spain Continental).
- No adjustment reported by Spain Canarias for the 2014 cost baseline.

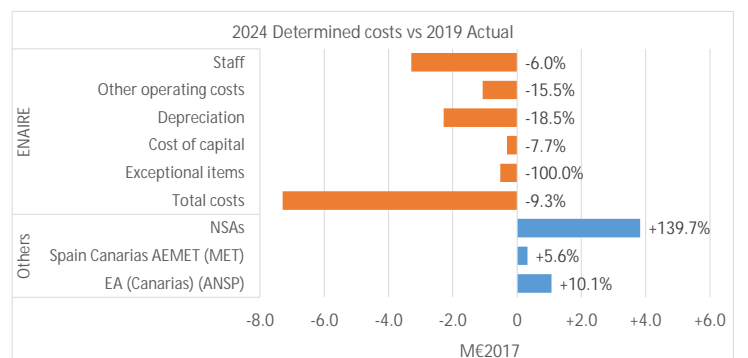
4.3.3 Review of the RP3 determined costs and incentives

Review of 2020 determined costs	M€2017	%
2020 determined vs actual	+0.0	+0.0%

- 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



The total 2024 determined costs of Spain Canarias are planned to be lower than 2019 actuals (-2.1%, or -2.1M€2017).

For ENAIRE, the main ANSP, total costs are planned to decrease in 2024 when compared to 2019 actuals (-9.3%, or -7.1M€2017): 2024 staff costs (-6.0% or -3.3M€2017 vs 2019 actual), other operating costs (-15.5%, or -1.1M€2017), and depreciation costs (-18.5%, or -2.3M€2017). For detailed information on the ANSP costs evolution over RP3, reference is made to other plans such as the investment plans and limited information is presented (ref. additional information I.1.f. of the performance plan). See also section 3.5 of this document for more details.

For all other entities, the costs in 2024 are higher than in 2019, although for the NSAs costs (+139.7%, or +3.8M€2017) this is almost entirely driven by the change in cost allocation methodology for Eurocontrol costs.

Neither the total en route service units nor en route costs (including baseline level) are foreseen to reach the 2019 levels over RP3.

4.3.4 PRB Key Points



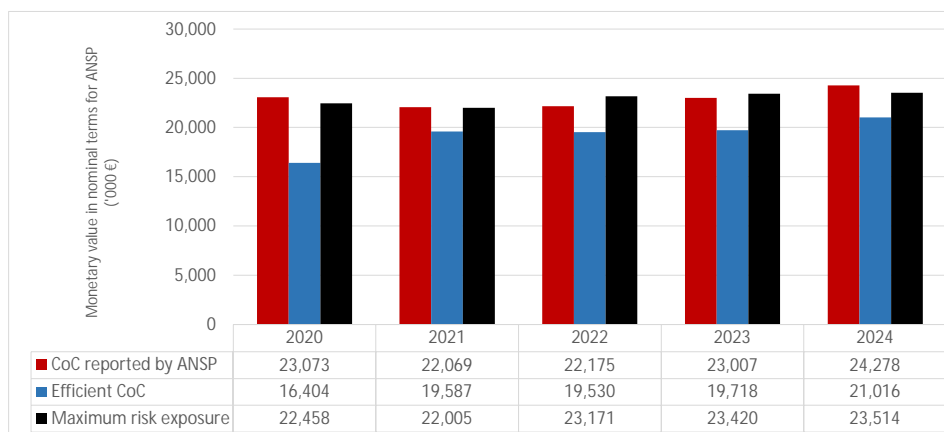
- The adjustments to the cost baseline reflect a change in the cost allocation methodology between Spain Continental and Canarias of Eurocontrol costs.
- Between 2019 and 2024, the costs for ENAIRE are planned to decrease by -9.3% (or -7.1M€2017).
- All cost categories of ENAIRE are planned to decrease in 2024 compared to 2019 levels.

4.3.A Cost of capital

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	510,411	500,112	526,613	532,271	534,414
Monetary value of Return on Equity	22,366	21,666	21,072	20,804	21,508
Ratio RoE/DC (%)	4.4%	4.3%	4.0%	3.9%	4.0%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	6,669	2,482	2,645	3,289	3,262

Total 2020-2024	18,348
-----------------	--------

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	6.7%	4.7%	6.7%	5.7%	7.2%	5.9%	8.2%	6.1%	8.6%	6.3%
Interest on debts	0.6%	0.6%	0.3%	1.1%	0.6%	1.3%	0.8%	1.6%	0.9%	1.7%
Capital structure (% debt)	26.7%	26.7%	28.1%	28.1%	38.8%	38.8%	52.2%	52.2%	56.4%	56.4%
WACC	5.0%	3.6%	4.9%	4.4%	4.7%	4.1%	4.3%	3.7%	4.3%	3.7%

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

- ENAIRE does not plan to have loans for RP3.
- According to the performance plan, the interest on debts is "mainly related to active reserve of control staff" for 2020 and 2021, and "the estimation of external funding needs" for 2022-2024. 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 are duly justified and in line with competitive market practices.
- The WACC reported in the performance plan has been calculated based on the CAPM. However, the WACC is slightly higher than the efficient WACC over RP3. The efficient WACC has been calculated based on option 3.
- Over RP3, the reported cost of capital is 18.3M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 3.9% and 4.4%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	454,670	483,939	535,811	581,629	609,994
Net current assets	2,468	-35,935	-60,586	-51,863	-39,317
Adjustments total assets	0	0	0	0	0
Total asset base	457,138	448,005	475,226	529,766	570,677

- The fixed asset base is planned to increase over RP3. This is in line with the investments described in section 3.5 of this document.
- The net current assets decrease until 2022 and turn negative as of 2021. No explanation has been provided. However, they do not seem to present major issues.
- The regulated asset base does not include adjustments to the total asset base.
- The total asset base will increase over RP3, driven by the increase in the fixed asset base.

4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is 18.3M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 3.9% and 4.4%).

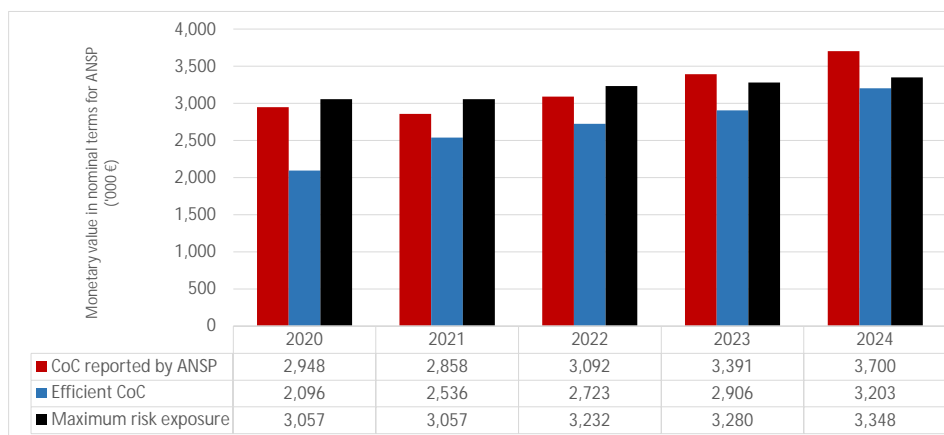
4.3.A Cost of capital

ENAIRE Spain Canarias - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	69,474	69,471	73,461	74,535	76,099
Monetary value of Return on Equity	2,858	2,806	2,938	3,066	3,278
Ratio RoE/DC (%)	4.1%	4.0%	4.0%	4.1%	4.3%

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



Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	913	520	342	32	-194

Total 2020-2024
1,611

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	6.7%	4.7%	6.7%	5.7%	7.2%	5.9%	8.2%	6.1%	8.6%	6.3%
Interest on debts	0.6%	0.6%	0.3%	1.1%	0.6%	1.3%	0.8%	1.6%	0.9%	1.7%
Capital structure (% debt)	26.7%	26.7%	28.1%	28.1%	38.8%	38.8%	52.2%	52.2%	56.4%	56.4%
WACC	5.0%	3.6%	4.9%	4.4%	4.7%	4.1%	4.3%	3.7%	4.3%	3.7%

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

- ENAIRE does not plan to have loans for RP3.
- According to the performance plan, the interest on debts is "mainly related to active reserve of control staff" for 2020 and 2021, and "the estimation of external funding needs" for 2022-2024. 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 are duly justified and in line with competitive market practices.
- The WACC reported in the performance plan has been calculated based on the CAPM. However, the WACC is slightly higher than the efficient WACC over RP3. The efficient WACC has been calculated based on option 3.
- Over RP3, the reported cost of capital is 1.6M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 4.0% and 4.3%).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	58,090	62,669	74,703	85,721	92,964
Net current assets	315	-4,653	-8,447	-7,644	-5,992
Adjustments total assets	0	0	0	0	0
Total asset base	58,405	58,016	66,256	78,077	86,972

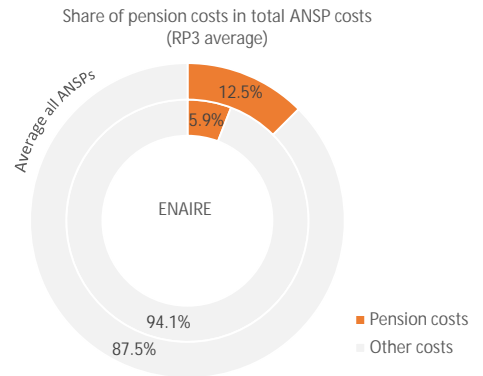
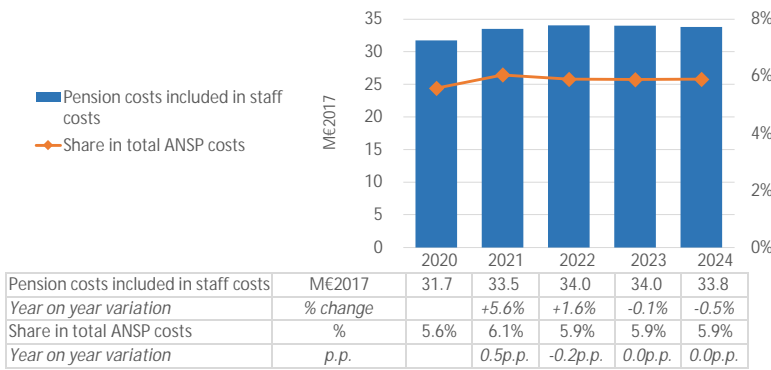
- The fixed asset base is planned to increase over RP3. This not fully in line with the investments described in section 3.5 of this document which are planned to increase at a lower rate.
- The net current assets decrease until 2022 and turn negative as of 2021. No explanation has been provided. However, they do not seem to present major issues.
- The regulated asset base does not include adjustments to the total asset base.
- The total asset base will increase over RP3, driven by the increase in the fixed asset base.

4.3.A.5 PRB Key Points

- Over RP3, the reported cost of capital is 1.6M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (ranging between 4% and 4.3%).

4.3.B Pensions

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? **Slight increase**

Is the ANSP RP3 average share of pension costs higher or lower than the Union-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
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?	n/a

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

In the performance plan of Spain, it is reported that this is not applicable. "It is a national scheme and depend on national regulations: Royal Decree-Law 28/2018 (December 28th), Royal Decree-Law 1/2020 (January 14th) and Royal Decree 46/2021 (January 26th), for the revaluation of public pensions. "Pay-as-you-go": The ANSP makes a contribution to the State for each employee. In return, the State takes on the obligation to provide a pension to that employee in respect of his or her service with the ANSP (All ENAIRE staff).".

4.3.B.4 PRB Key Points

- No major issues identified.



4.3.C Methodology for cost allocation between ER and TRM

Spain

4.3.C.1 Cost allocation overview

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

- Spain reports that ENAIRE uses the activity based costing (ABC) methodology.
- Under the ABC methodology, each resource or cost is first assigned to a cost centre and activity (costs by nature) and then to services (such as en route, approach and aerodrome). The service costs are allocated to en route and terminal charges as follows:
 - (i) The costs of area control service are entirely allocated to en route.
 - (ii) The costs of tower aerodrome service are entirely allocated to terminal, and may be reduced by the income earned from service agreements with the airport operator.
 - (iii) The costs of the final approach phase are allocated to en route based on statistical criteria related to the distance around the airport (about 90% in recent years).
 - (iv) The cost accounting model of the Spanish Air Force charges all the costs to en route.

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

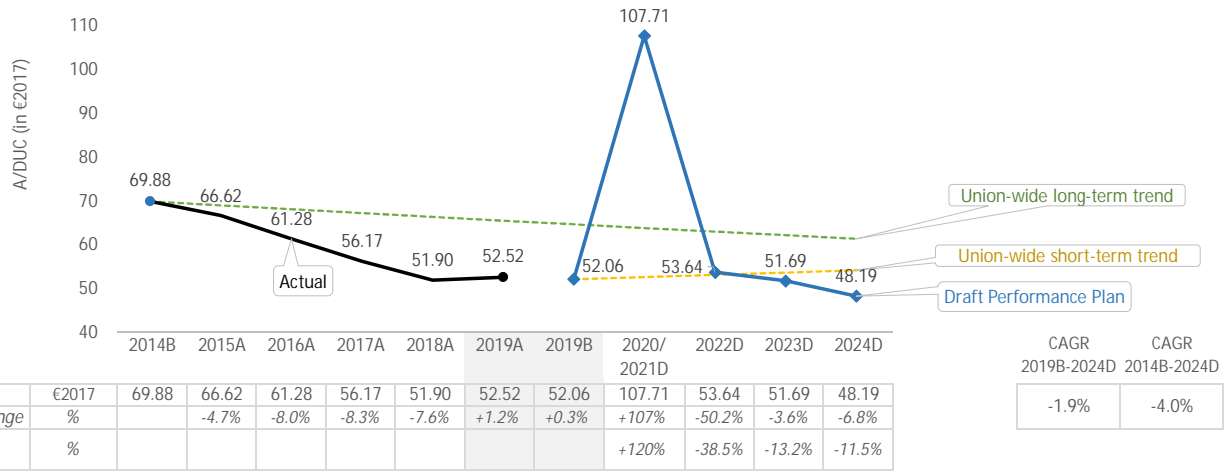


- No major issues identified.

4.4 Determined unit costs (DUC)

Spain Continental - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	-1.9%	+1.0%	-2.9p.p.
Trend (CAGR 2014B-2024)	-4.0%	-1.3%	-2.7p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline*	52.11	62.97	-17.2%

**For this check a weighted average of the DUC for Spain Continental and Spain Canarias is used.*

- The DUC is planned to decrease on average by -1.9% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease on average by -4.0% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -17.2% lower than the average of the comparator 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

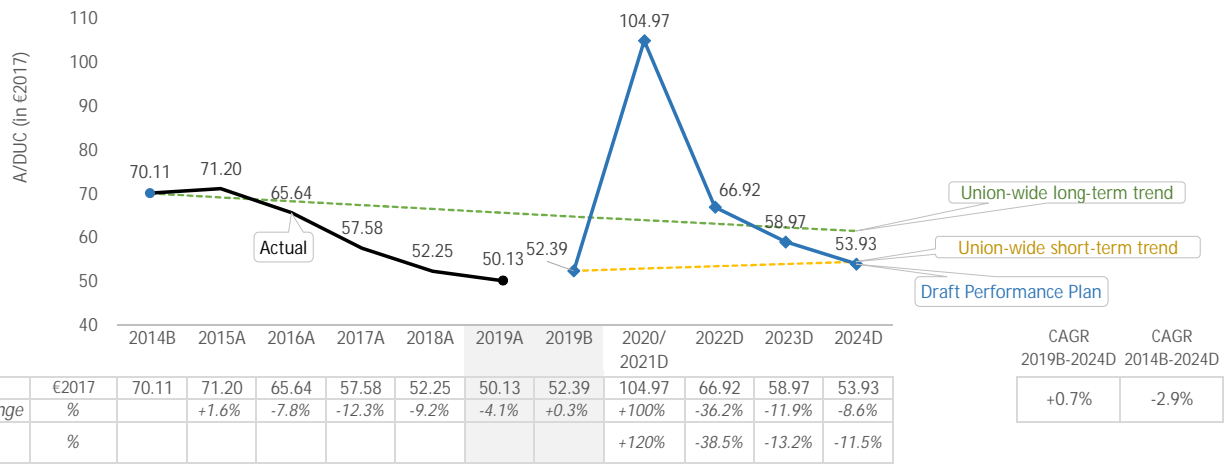
✓

- Spain Continental is consistent with the RP3 DUC trend in terms of average reduction.
- Spain Continental is consistent with the DUC long-term Union-wide trend.
- Spain Continental is consistent with the average DUC baseline of the comparator group.

4.4 Determined unit costs (DUC)

Spain Canarias - En route CZ

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

	Performance Plan	Union-wide	Difference
Trend (CAGR 2019B-2024)	+0.7%	+1.0%	-0.3p.p.
Trend (CAGR 2014B-2024)	-2.9%	-1.3%	-1.6p.p.

	Performance Plan	Average comparator group	Difference
2019 baseline*	52.11	62.97	-17.2%

**For this check a weighted average of the DUC for Spain Continental and Spain Canarias is used.*

- The DUC is planned to increase on average by +0.7% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to decrease by -2.9% between 2014 and 2024, which is better than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is -17.2% lower than the average of the comparator 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

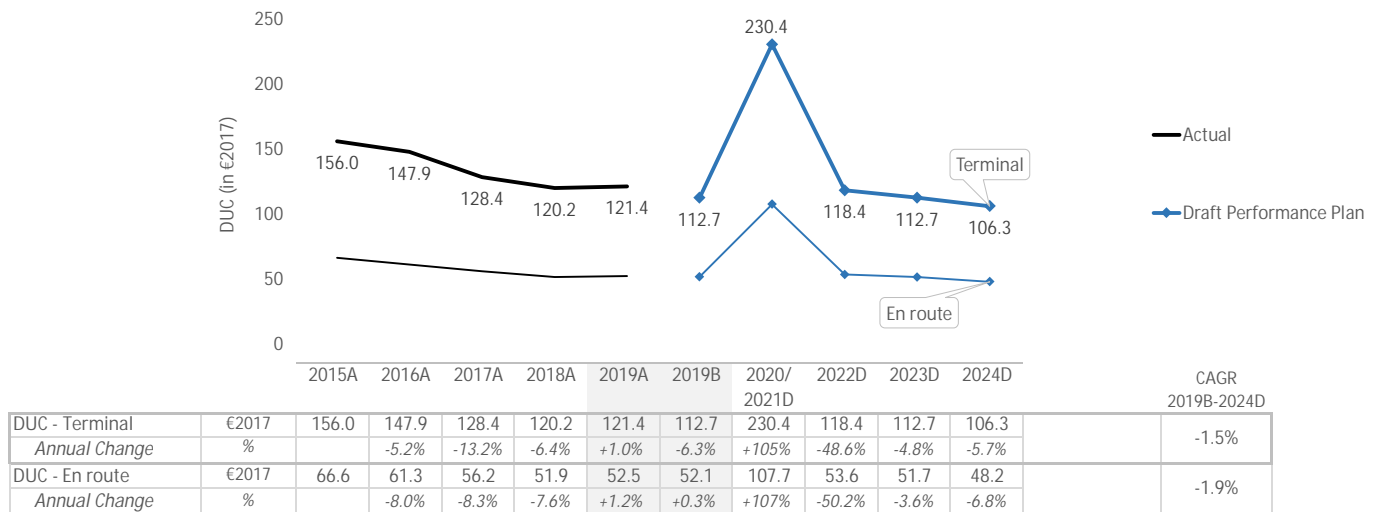
4.4.5 PRB Key Points

✓

- Spain Canarias is consistent with the RP3 DUC trend in terms of average reduction.
- Spain Canarias is consistent with the DUC long-term Union-wide trend.
- Spain Canarias is consistent with the average DUC baseline of the comparator group.

4.5 Terminal

4.5.1 Overview and trends of the terminal DUC



4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Alicante (LEAL)	GROUP II	168.6	40.6	-73.9%	191.3	53.1	-74.2%
Barcelona (LEBL)	GROUP I	137.7	117.8	-14.5%	177.4	124.8	-29.7%
Ibiza (LEIB)	GROUP IV	680.0	58.8	-91.4%	994.4	67.2	-93.2%
Madrid/ Barajas (LEMD)	GROUP I	137.7	132.3	-3.9%	177.4	145.8	-17.8%
Málaga (LEMG)	GROUP II	168.6	174.7	+3.6%	191.3	190.4	-0.4%
Palma de Mallorca (LEPA)	GROUP II	168.6	130.8	-22.5%	191.3	135.8	-29.0%
Gran Canaria (GCLP)	GROUP III	166.6	166.6	+0.0%	234.2	183.0	-21.9%

* 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 the airports composing Spain terminal charging zone have average DUCs planned to be below the median DUCs of their respective comparator groups over RP3.

4.5.3 Elements subject to review

Baseline review (terminal)

Traffic

Traffic Baseline analysis	Δ '000 TSUs	%
2019B vs 2019A	TCZ1 102.3	+12.1%

2019 Traffic Baseline Adjustments	TCZ1	Yes

Airports within the TNC charging zone

During RP2 the airports subject to the scope of the regulation were: Madrid-Barajas, Barcelona, Palma de Mallorca, Gran Canaria and Málaga. From the application of Articles 1.3 and 2.10 of R.2019/317, with regard to the threshold of 80,000 IFR movements per year, the airport of Alicante-Elche overpassed it and Ibiza airport was expected to do so during the third reference period, so the latter was also included within the TNC charging zone.

Costs

Cost Baseline analysis	Δ ME2017	%
2019B vs 2019A	TCZ1 4.1	+4.0%

2019 Cost Baseline Adj.	TCZ	Entity Type	Nature	ME2017
#1 - Airports within the TNC charging zone	TCZ1	ANSP	Staff	+2.9
#2 - Airports within the TNC charging zone	TCZ1	ANSP	Depreciation	+0.3
#3 - Airports within the TNC charging zone	TCZ1	MET	Staff	+0.5
#4 - Airports within the TNC charging zone	TCZ1	MET	Depreciation	+0.3
#5	TCZ1	NSA/EUROCONTROL	Staff	+0.0
#6	TCZ1	NSA/EUROCONTROL	Staff	+0.1

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

From RP3, two airports are added to Spain terminal charging zone (now seven airports from 2020) subject to regulation (EC) N°2019/317: Alicante (LEAL), who reached the threshold of 80,000 IFR movements per year, and Ibiza (LEIB), who is expected to reach it during RP3. As those airports TANS related to aerodrome were declared subject to market conditions, the related Alicante and Ibiza aerodrome services costs are excluded from the TANS cost base for RP3. However the costs related to approach services for those airports are accounted for. Therefore the adjustment of the 2019 baseline for both airports in terms of TNSUs and (APP) costs ensure a consistent comparison between 2019 baseline and 2024.

2019 baseline analysis

The 2019 baseline is reported to be adjusted to take account of the change in scope in Spain terminal charging zone (+2 additional airports Alicante and Ibiza airports bringing additional approach costs and TNSUs): total costs adjustment: +4.1M€2017; TNSUs adjustment: +102,265. Note: the two airports added to the terminal charging zone are declared to be subject to market conditions for their aerodrome services (part of terminal Air Navigation Services).

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan is in line with the STATFOR October 2021 base scenario.

Determined costs (terminal)

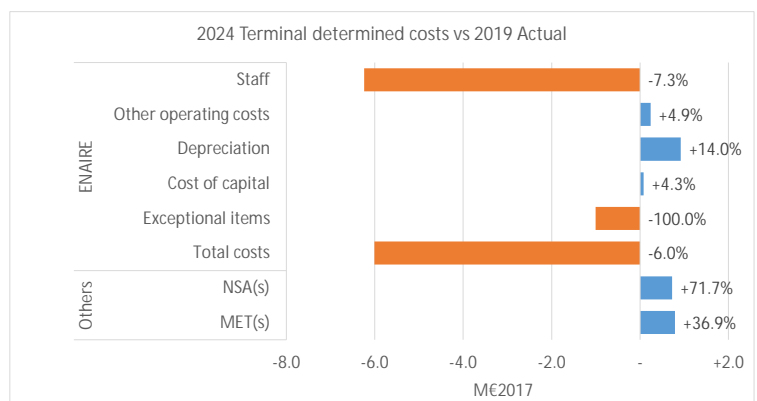
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

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	4.40%
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 (8%) is lower than the share of terminal total costs (16%).
- Terminal WACC and its parameters are equal to the ones for en route.
- The share of terminal pension costs in total pensions costs (16.6%) is close to the share of terminal costs in total determined costs (15.9%).
- Total costs in 2024 are planned to be (-8.1%, or -8.6M€2017) below the 2019 level. For ENAIRE, the bulk of cost differences between 2019 and 2024 is related to lower staff costs (-7.3%, or -6.2M€2017). As for en route, depreciation costs are higher in 2024 than in 2019 (+14.0%). A detailed analysis of investments is provided in section 3.5 of this document.
- Terminal navigation service units are forecasted to reach 2019 actual levels in 2024 (not during RP3 when looking at the 2019 baseline), while terminal costs are planned to not reach the 2019 actual level during RP3 (not even when considering the 2019 baseline value).

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 -1.9%.
- The terminal RP3 DUC trend is -1.5%, which is worse than the terminal RP2 DUC trend of -6.1%.
- Barcelona and Madrid, the main airports, had a DUC -14.5% lower and -3.9% lower, respectively, than the median of their coparator group over RP2. The differences are expected to be -29.7% and -17.8%, respectively, over RP3. The other airports included in the performance plan range from a DUC -91.4% lower to +3.6% higher over RP2. All the airports are expected to have DUCs lower than the average of their comparator group over RP3.
- Spain used the STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs decrease over the period, mainly due to staff costs.

PRB Assessment

SWEDEN

Draft Performance Plan

Context and scope

Sweden

Performance Plan (PP): Updated draft performance plan (Art. 3 of IR 2020/1627 and Art. 13(2) of IR 2019/317) Dated: 01/10/2021 Updated: 03/02/2021
 Documents no: F4609, F5081, F4495, F4496, F4497, F4498, F4499, F4500

Relative weight compared to the SES area (2019):
 % Flight-hours vs SES 3.4%
 % Serv. Units vs SES 3.0%
 % Costs vs SES 3.3%

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
 Transportstyrelsen, Swedish Transport Agency

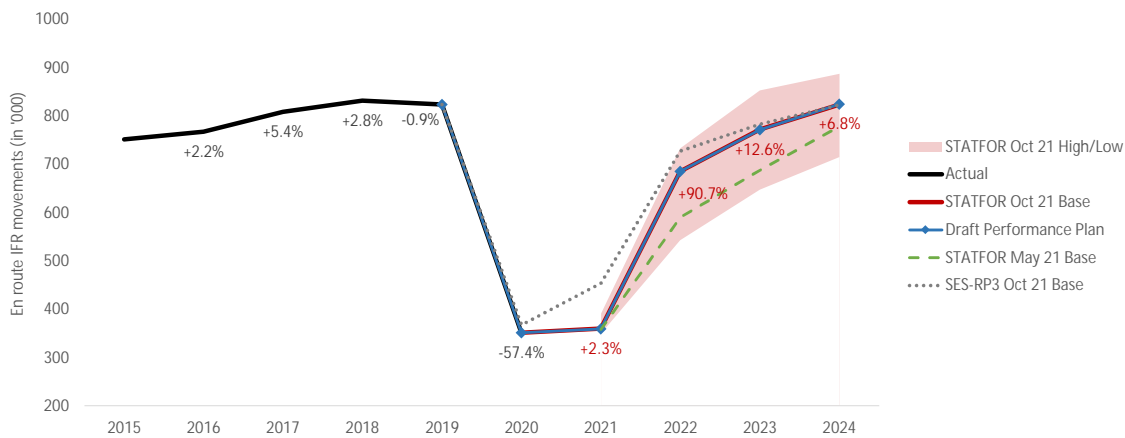
Search and Rescue
 Competent authority

Charging zones	CZ Name	# of airports	Market conditions	Simplified charging sch.	Modulation of charges	RP3 cost ratio ER/TRM in PP
En route (ER)	Sweden	n/a	No	No	No	
Terminal (TRM)	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

Actual and forecast traffic (en route IFR movements) between 2015 and 2024



1. Safety



Safety PP targets

ANSP	Safety management objective	2020	2021	2022	2023	2024
LFV NUAC	Safety policy and objectives	C	C	C	C	C
	Safety risk management	D	D	D	D	D
	Safety assurance	B	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C
ACR	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
SDATS	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
AFAB	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 EoS safety targets are consistent with the Union-wide performance targets.
- The measures are not sufficiently described to demonstrate how the ANSPs will improve maturity levels over RP3.
- The formalised approach applied by the ANSPs and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices (provided for LFV NUAC only) ensure that any negative impact on network performance is reduced.

2. Environment



Environment PP targets

	2020	2021	2022	2023	2024
National target for horizontal en route flight efficiency (KEA) (%)	1.26%	1.05%	1.05%	1.05%	1.05%

PRB assessment

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

- Swedish horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.

3. Capacity



Capacity PP targets

	2020	2021	2022	2023	2024
National target for <u>en route</u> ATFM delay per flight (min)	0.12	0.05	0.07	0.08	0.08
National target for <u>terminal</u> and airport ANS ATFM arrival delay per flight (min)	0.35	0.05	0.15	0.15	0.15

PRB assessment

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

4. Cost-efficiency



Cost-efficiency PP targets

	2020/2021	2022	2023	2024	CAGR 2014B-2024	CAGR 2019B-2024
Target for determined unit cost (DUC) (€2017) - En route	141.38	70.20	62.86	59.26	+0.2%	+1.0%
Target for determined unit cost (DUC) (€2017) - Terminal	411.99	155.41	140.55	131.83	n/a	+0.9%

PRB assessment

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

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

5. PRB recommendations

SAFETY

- Sweden should define explicit measures to improve maturity levels for safety assurance over RP3 for LFV NUAC.
- Sweden should ensure change management practices adopted by ACR, SDATS and AFAB comply with Commission Implementing Regulation (EU) 2017/373.
- Sweden should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

ENVIRONMENT

- Sweden should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

COST-EFFICIENCY

- Sweden should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
- Sweden should consider in the RP3 cost base the 4.4M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- Sweden should detail the criteria for cost allocation.
- Sweden should detail the return on equity charged by LFV.
- Sweden should ensure that pension costs are correctly reported in the reporting tables and should detail how pension costs are included in cost of capital.
- 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 Summary of safety key data and assessment results

Sweden

1.1.1 Target for EoSM for ANSPs

LFV NUAC, ACR, SDATS and AFAB have their EoSM targets defined for each year of RP3. The EoSM target levels, set in accordance with the Union-wide safety targets, are planned to be attained at the beginning of RP3.

1.1.2 Measures planned to reach the target (if applicable)

The performance plan does not provide any specific measures for LFV NUAC. Considering that the LFV NUAC has to improve from level B to level C in safety assurance, specific measures should be provided. Additionally, the NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373 should be provided.

1.1.3 Interdependencies and Trade-offs

Safety is an integral part of the management system and is monitored by standard implementation procedures. 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.
- The measures are not sufficiently described to demonstrate how the ANSPs will improve maturity levels over RP3.
- The formalised approach applied by the ANSPs and NSA ensures that safety has the highest priority and that developments in other key performance areas will not compromise safety.
- The change management practices (provided for LFV NUAC only) ensure that any negative impact on network performance is reduced.
- Sweden should define explicit measures to improve maturity levels for safety assurance over RP3 for LFV NUAC.
- Sweden should ensure that change management practices adopted by ACR, SDATS and AFAB comply with Commission Implementing Regulation (EU) 2017/373.
- Sweden should include additional NSA derived measures to ensure compliance with Commission Implementing Regulation (EU) 2017/373.

1.2 Targets for EoSM for ANSPs and Measures

Sweden

1.2.1 Target for EoSM for ANSPs and associated measures

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
LFV NUAC	Safety policy and objectives	C	C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	Safety risk management	D	D	D	D	D	D	✓	
	Safety assurance	B	B	C	C	C	C	✓	
	Safety promotion	C	C	C	C	C	C	✓	
	Safety culture	C	C	C	C	C	C	✓	

The EoSM targets have been defined for each year of RP3. The EoSM targets levels are set in accordance with the RP3 Union-wide safety targets. LFV NUAC has attained the target levels for four out of five safety management objectives. Safety assurance area requires improvement from level B to C.

The performance plan does not provide any specific measures. It describes that Sweden assures appropriate level of staff and funds for technical maintenance and developments to achieve the declared safety target levels. Additionally, continuous oversight activities are assured. Specific measures in safety assurance should be provided.

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
ACR	Safety policy and objectives		C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	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 of RP3. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained already at the beginning of RP3.

The ANSP plans to achieve the RP3 targets already in 2020 and hence no specific measure have been included to be implemented over RP3.

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
SDATS	Safety policy and objectives		C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	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 of RP3. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained already at the beginning of RP3.

The ANSP plans to achieve the RP3 targets already in 2020 and hence no specific measure have been included to be implemented over RP3.

		2020A	2020	2021	2022	2023	2024	RP3 Union-wide targets consistent	
		Actual	Target	Target	Target	Target	Target		
AFAB (Arvidsjaur)	Safety policy and objectives		C	C	C	C	C	✓	The targets for 2024 have been set in accordance with the Commission Implementing Decision (EU) 2021/891 of 2 June 2021.
	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 of RP3. The EoSM targets levels, set in accordance with the RP3 Union-wide safety targets, are planned to be attained already at the beginning of RP3.

The ANSP plans to achieve the RP3 targets already in 2020 and hence no specific measure have been included to be implemented over RP3.

1.3 Interdependencies and Change management practices

Sweden

1.3.1 Interdependencies and Trade-offs

An impact on safety to the changes of 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 major airspace changes and design are accompanied by the change management procedure established by the Swedish Transport Agency. Considering ATM system changes and improvements, these are assessed in accordance with the standard change process. The safety assessment conducted by the LfV NUAC is provided to the authority, which will decide on actions based on internal procedures (TSG 2016-3268). The level of details provided gives confidence that the procedure minimises any negative impact on the network performance. The change management procedures for the other ANSPs were not provided.

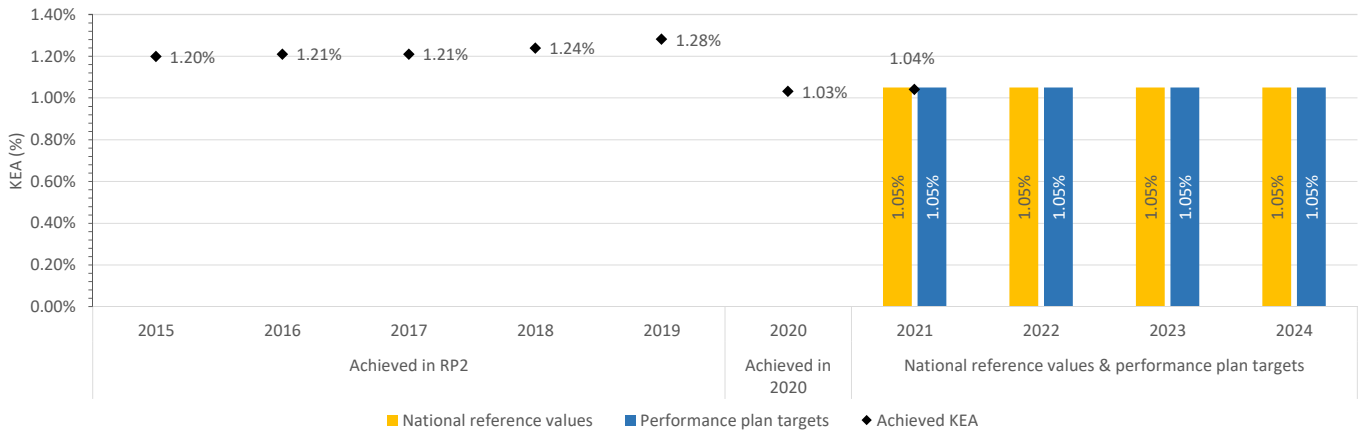
SWEDEN

Environment KPA

2.1 Summary of Key Data and Assessment Results

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

	2020	2021	2022	2023	2024
National reference values	1.26%	1.05%	1.05%	1.05%	1.05%
Performance plan targets	1.26%	1.05%	1.05%	1.05%	1.05%
Comparison of draft performance targets with reference values	n/a	▲ 0.00%	▲ 0.00%	▲ 0.00%	▲ 0.00%
Consistency with reference values	n/a	✓	✓	✓	✓



2.1.2 PRB Conclusions



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

- Swedish horizontal flight efficiency targets are consistent with its reference values published in the June 2021 ERNIP.
- Sweden should ensure it implements all relevant projects outlined in the June 2021 ERNIP.

2.2 Measures of Achievement

Sweden

2.2.1 Annex IV 2.1 (a): Measures of Achievement

Commitment to FRA by 2022?	✓	Reference in PP	Reference in LSSIP
Free route airspace (FRA) was implemented in 2013 and is operated above FL285.		3.2.1(c)	Page 55
Major ERNIP Recommended Measures:	7	Reference in PP	Reference in ERNIP
Measure included within performance plan?		n/a	Page 76
PBN transition plan	✗	n/a	Page 118
ESGG RNAV STAR	✗	n/a	Page 125, 126
Polaris FIR – ATS-route removal	✗	n/a	Page 146
TAS route dismantling in ESAA FRA	✗	3.2.1(c)	Page 203
FAB DK-SE – Baltic FAB cross-border FRA	✓	n/a	Page 218
SWEA (Swedish Airspace Project) phase 1	✗	n/a	Page 221
FRA vertical limits improvements	✗		
FUA Implementation according to latest LSSIP	Implementation		
1	✓		
2	✓		
3	✓		

The chart in section 2.1.1 shows that Sweden achieved a KEA of 1.03% in 2020. In 2021, Sweden reached a KEA of 1.04% which means it achieved the 2021 target of 1.05% in its performance plan.

In terms of the measures recommended by the network manager (NM), Sweden plans to implement 24 hour cross-border free route airspace (CB FRA) with Baltic FAB, but it did not commit to performance based navigation (PBN) implementation, the Swedish terminal manoeuvring area redesign project (SWEA TMA) nor FRA vertical limit improvements from FL095 to FL285. As part of the continuous review of its route network during RP3, it is important that these projects are implemented as recommended in the ERNIP.

Sweden estimated that average extension to be considered by airspace users affected by temporary reserved areas (TRAs) is up to ten nautical miles per affected flight, reaching 20 nautical miles in rare cases. Improving civil-military co-ordination may further help Sweden improve environmental performance.

2.2.2 Annex IV 2.1(f): Incentive Scheme

Does Sweden plan for an environmental incentive scheme?	✗
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The PRB notes the decision to not implement an incentive scheme or other regulatory measures available to support the achievement of the targets.

SWEDEN

Capacity KPA

3.1 Summary of capacity key data and assessment results

Sweden

3.1.1 En route ATFM delay

The proposed national capacity targets are equal to the national reference values, and are higher than the range of the delay forecast in 2022 and 2023. In 2024, the target is equal to the scenario 1 delay forecast.

Sweden is expected to have sufficient capacity to meet traffic demand in RP3.

	2020	2021	2022	2023	2024
1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.1.2 Arrival ATFM Delay

Stockholm Arlanda is the only airport included in the performance plan. National targets are set significantly lower than in RP2, and represent an improvement compared to average past performance as well.

Performance at Stockholm Arlanda is expected to be significantly better than that of the group of similar airports, even improving compared to RP2.

3.1.3 Incentives

En route:

Sweden has chosen not to modulate the pivot values which are set equal to the national reference values.

Maximum bonus is set at 1% and maximum penalty is set at 2%.

Terminal:

Sweden has chosen not to modulate the pivot values which are set equal to national performance targets.

Maximum bonus is set at 1% and maximum penalty is set at 2%.

3.1.4 Investments

Sweden expects a capacity surplus in the beginning of RP3, but this is reducing to 0-1% by the end of RP3.

One major investment (linked to all six PCP/CP1 ATM Functionalities), which will possibly contribute to enroute capacity is defined. However, the investment description and planned entry into operations are somewhat contradictory and the capacity benefit during or beyond RP3 cannot be estimated.

Other development investment contributes to the virtualisation and automation of services.

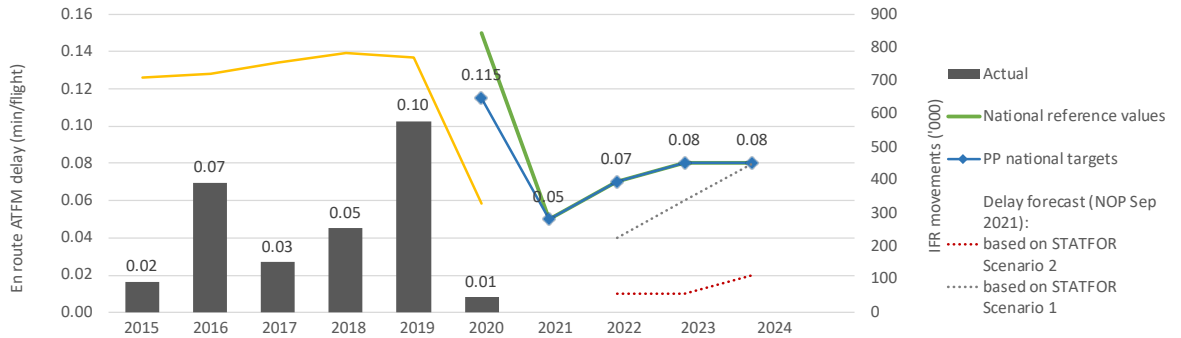
3.1.5 PRB conclusions



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

3.2 En route ATFM delay per flight

3.2.1 Overview of en route ATFM delay per flight ✓



Traffic variation	+1%	+1.9%	+4.8%	+3.7%	-1.6%	-57.4%				
Actual delay/flight	0.02	0.07	0.03	0.05	0.10	0.01				
National reference values						0.15	0.05	0.07	0.08	0.08
PP national targets						0.12	0.05	0.07	0.08	0.08
Based on STATFOR Scenario 1							-	0.04	0.06	0.08
Based on STATFOR Scenario 2							-	0.01	0.01	0.02

* NOP September 2021 based on STATFOR Forecast scenarios May 2021

1. PP capacity target is consistent with the reference value	n/a	✓	✓	✓	✓
<i>Deviation target vs reference value</i>	n/a	+0%	+0%	+0%	+0%
2. NOP delay forecast is lower or equal to the PP capacity target	n/a	n/a	✓	✓	✓

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 2024? **Yes**

3.2.2 Review of planned capacity enhancement measures ✓

Assessment of capacity enhancement measures and review against NOP

During RP2, Sweden experienced capacity constraints mostly related to weather and equipment issues. Sweden managed to achieve targets in all years between 2015-2020 except for 2019 when it experienced a significant increase of ATM capacity issues.

Apart from the ATCO optimisation, the performance plan provides additionally the following measures, which could be identified in NOP:

- airspace project SWEA, and
- COOPANS build implementation (not explicitly indicated as a capacity enhancement measure).

The NOP additionally refers the following:

- Cross-border FRA H24 with EPWW,
- Optimising the use of FRA when military areas are active,
- Improved ATFCM techniques,
- Continuous improvements on the ATS route network and FRA sectorisation,
- Minor updates of ATM system (this may refer to the COOPANS build implementation),
- Sector configurations adapted to traffic demand.

Due to low level of details in the performance plan, it is difficult to explicitly establish links between capacity measures listed in both documents.

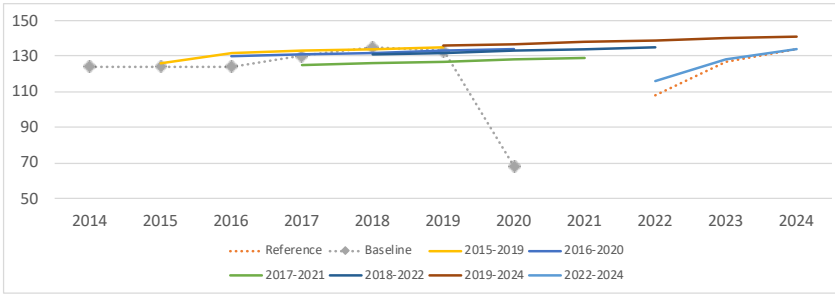
Planned number of ATCO FTEs show an increase of 28 ATCO FTEs, equally distributed between the two ACCs, a 10% increase compared to 2019.

ATCO Planning (FTEs)

		2018A	2019A	2020A	2021P	2022P	2023P	2024P	2024 (end) - 2020 (beg.)
Malmo ACC (ESMM)	Additional ATCOs in OPS to start working in the OPS room	7	4	5	7	8.25	8.75	12	
	ATCOs in OPS to stop working in the OPS room	6	14	6	6	0	6	9	
	ATCOs in OPS to be operational at year-end	140.14	130.14	129.14	130.14	138.39	141.14	144.14	+14
Stockholm ACC (ESOS)	Additional ATCOs in OPS to start working in the OPS room	5	1	5	8	7	7	11	
	ATCOs in OPS to stop working in the OPS room	10	12	7	3	1	4	9	
	ATCOs in OPS to be operational at year-end	144.73	133.73	131.73	136.73	142.73	145.73	147.73	+14
Total - LFV (en route)	Additional ATCOs in OPS to start working in the OPS room	12	5	10	15	15.25	15.75	23	
	ATCOs in OPS to stop working in the OPS room	16	26	13	9	1	10	18	
	ATCOs in OPS to be operational at year-end	284.87	263.87	260.87	266.87	281.12	286.87	291.87	+28

3.2.3 Review of previous and existing capacity profile plans per ACC ✔

Malmö ACC (ESMM)

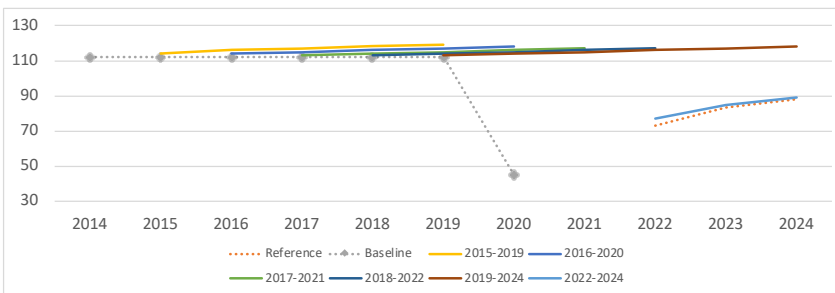


- Historical data shows a 1.4% average annual growth, which mostly took place in 2017 and 2018, followed by a minor decrease in 2019. Planned values were varying around the baseline values in during the same period.

- Latest planned capacity profiles show an average annual growth of 7.5% resulting in values, which are slightly higher than in 2019. Planned values are above the reference profile in 2022 and 2023, and match the reference profile in 2024. Malmö ACC is expected to have a capacity surplus of 7% in 2022, which is reduced to 1% in 2023, before diminishing in 2024.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									108	127	134
Baseline	124	124	124	130	135	133	68				
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
2022-2024									116	128	134
Latest vs Reference									7%	1%	0%

Stockholm ACC (ESOS)



- Historical data shows that baseline values remained stable during RP2. The planned capacity profiles were slightly higher than the actual baseline.

- Latest planned capacity profile shows an average annual growth of 7.5% resulting in significantly lower values than in 2019. The planned values are however above the reference values in each year, amounting to a capacity surplus of 5%, 2% and 1% in 2022, 2023 and 2024 respectively.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reference									73	83	88
Baseline	112	112	112	112	112	112	45				
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
2022-2024									77	85	89
Latest vs Reference									5%	2%	1%

3.2.4 Review of capacity enhancement measures related to mitigating higher delays due to significant / special events n/a

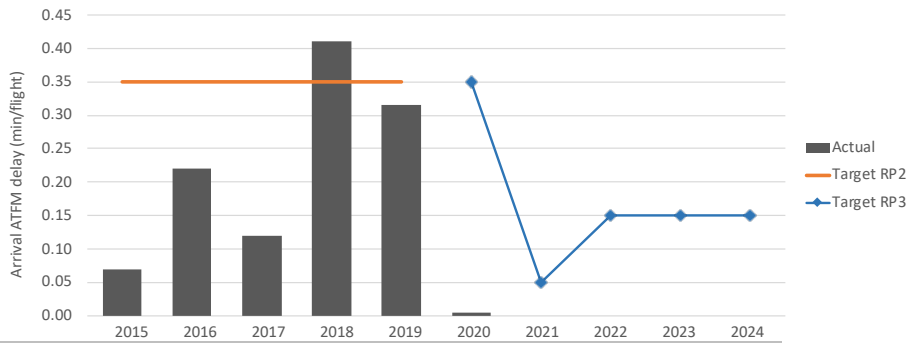
3.2.5 Review of the measures to increase capacity and address capacity gaps n/a

3.2.6 PRB Key Points ✔

- The proposed national capacity targets are equal to the national reference values, and are higher than the range of the delay forecast in 2022 and 2023. In 2024, the target is equal to the scenario 1 delay forecast.
- Sweden is expected to have sufficient capacity to meet traffic demand in RP3.

3.3. Arrival ATFM delay per flight

3.3.1 Overview of arrival ATFM delay per flight



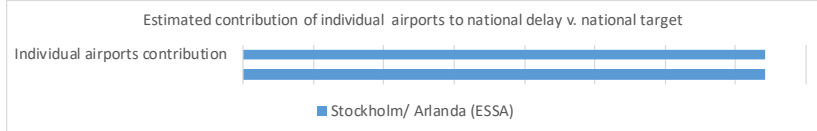
National level	Target (RP2/RP3)		Actual									
	RP2	RP3	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	0.35	0.35	0.07	0.22	0.12	0.41	0.32	0.00	-	-	-	-
Stockholm/ Arlanda (ESSA)	0.07	0.22	0.07	0.22	0.12	0.41	0.32	0.00	0.05	0.15	0.15	0.15

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 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 2022-2024 is constant and represents a significant improvement with respect to RP2 target and observed performance. According to the performance plan, the proposed constant target comes from taking historical levels and delay causes into account and aims at setting an appropriate level from the traffic level. This proposed target takes into account that a zero, or close to zero target, is too expensive.

3.3.3 Contribution of individual airports to the national target

Airport	Average RP3 (2021-2024) target (min/flight)
Stockholm/ Arlanda (ESSA)	0.13
National Target	0.13



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 2015-2019 delay/flight	RP2 performance		RP3 target	
			Average delay/flight 2015-2019	Difference vs Median	RP3 average target (2021-2024)	Difference vs Median
Stockholm/ Arlanda (ESSA)	GROUP I	0.65	0.23	-0.42	0.13	-0.53

* 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

ANS performance at Stockholm during RP2 was remarkably better than the median of similar airports. The target for RP3 represents a further improvement with respect to the comparison group.

3.3.5 PRB Key Points

- Stockholm Arlanda is the only airport included in the performance plan. National targets are set significantly lower than in RP2, and represent an improvement compared to average past performance as well.
- Performance at Stockholm Arlanda is expected to be significantly better than that of the group of similar airports, even improving compared to RP2.

3.4 Capacity Incentive schemes

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	1.000%	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			0.07	0.08	0.08
Alert threshold (Δ Ref. value in fraction of min)			±0.050	±0.050	±0.050
Performance Plan targets			0.07	0.08	0.08
Pivot values for RP3			0.07	0.08	0.08

Threshold and pivot value review

The pivot value is fixed at the national target which is equal to the NOP reference value for each year of the reference period. There is a dead band of +/-0.05 minutes before penalties or bonuses apply. The maximum penalty / bonus applies when the dead band is exceeded.

Modulation review

No modulation is applied.

Review of financial advantages/disadvantages

A maximum bonus of 1% of determined costs is countered by a maximum penalty of 2%.

3.4.2 Terminal capacity incentive scheme

Parameters of the terminal capacity incentive scheme

Dead band	Max bonus	Max penalty
±0.075 min	1.000%	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
Bonus/penalty range Δ (in fraction of min)			±0.075	±0.075	±0.075
Performance Plan targets			0.15	0.15	0.15
Pivot values for RP3			0.15	0.15	0.15

Threshold and pivot value review

The terminal incentive scheme includes a dead band of +/-0.075 min (+/-50%) of the pivot value to not lead to adjustments on small variations. The pivot value is not modulated and represents an improvement with respect to past performance.

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 1% while maximum penalties of 2%. 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:

- Sweden has chosen not to modulate the pivot values which are set equal to the national reference values.
- Maximum bonus is set at 1% and maximum penalty is set at 2%.

Terminal:

- Sweden has chosen not to modulate the pivot values which are set equal to national performance targets.
- Maximum bonus is set at 1% and maximum penalty is set at 2%.

3.5 Investments

3.5.1 Determined costs of investments over RP3

		2020	2021	2022	2023	2024	Total
Total determined costs of investments*	M€ (nominal)	15.2	17.2	18.3	19.2	19.2	89.1
	En route	15.1	17.1	18.2	19.1	19.1	88.7
	Terminal	0.1	0.1	0.1	0.1	0.1	0.4

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 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	TRM
1	COOPANS	COOPANS TopSky ATM systems operated in Stockholm and Malmö ATCC with connected ATS units. Please observe that in table 2.1.1 = total value for the RP3 period	0.8	Yes	Yes	0.2	0.0
2	Expansion RTS	Implementation of a new RTC central in Stockholm with four connected airports (Kiruna, Umeå, Östersund, Malmö) for remote tower services (RTS).	1.7	No	No	6.8	2.3
3	Other development	Other investments are aimed at supporting the intentions of the ATM Master Plan/SRIA and other SES principles and may include areas that are not mandated as part of common projects (e.g. PCP/CP1). This concerns primarily investments in infrastructure and services supporting improved digitalization and architecture of service provision. More details can be found in section 2.1 of the performance plan.	0.7	No	No	0.2	0.0
Total:						7.2	2.3

Airspace user feedback regarding major investments

The airspace users made several comments with regards to investments:

- Regarding COOPANS, the users inquired about the inclusion of the determined costs in the cost base. Sweden noted the investment will enter into operation from 2027-2028 and it will start depreciating accordingly.
- The users noted that investments lack sufficient information and that CBAs are required. The NSA noted that investments have been audited and are eligible by regulation requirements, while also adding that investments may be subject to yearly audit, as per article 28 of Commission Implementing Regulation (EU) 2019/317.

Review of investments

Sweden did not provide the value of the assets allocated to ANS in the scope of the performance plan.

New major investments represent 11% of the total determined costs of investments over RP3. The actual CAPEX for RP2 was 80% higher than the planned and the amount overspent was 45M€. Despite much higher CAPEX, in terms of depreciation and cost of capital, the actual costs related to investments were 4.4M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.

3.5.2.2 Justifications for major investments (i.e. above 5M€), 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	Expansion RTS	Local	Cost-efficiency	Long term efficiency gains in provision of ATS and infrastructure costs for airports.
2	Other development	None	None	n/a

Additional information

Expansion RTS: New ATM system, Remote Tower system, linked to the ATM Master Plan. Supports digitalization, improved robustness, flexibility, and redundancy.

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 RP3 (M€)
Other new investments	8.6	0.0	1.2	4.6	6.0	7.0	7.9	26.7
Existing investments			12.5	9.2	8.9	8.2	6.5	45.3

3.5.3 Review of investments contribution to capacity

a) Investments contribute to the rectification of identified capacity shortfalls?



Both Swedish ACCs are expected to have a capacity surplus in 2022 but this is expected to be reduced to zero in Malmö ACC and to 1% in Stockholm ACC in 2024.

The one major investment planned in Sweden during RP3 possibly contributing to en route capacity is the COOPANS investment, which is linked with PCP/CP1 ATM Functionalities AF1, AF2, AF3, AF4, AF5 and AF6. The investment does not have a single operational deployment date but is rolled out in accordance with the COOPANS annual update roadmap. However, the investment description includes a statement concerning the renewal of FDP and HMI which would imply a larger system upgrade than annual rolling updates based on a product roadmap, but this is not elaborated further making the capacity impact assessment difficult.

Annual updates may contribute to resilience, flexibility and scalability but not enough information is provided to assess this.

Other major investments concern the development of a remote tower centre, which contributes to scalability and flexibility in the airport domain but does not contribute to enroute capacity and an investment described on high-level as 'Other development' which contains virtualisation and automation initiatives expected to contribute to scalability and flexibility.

Other (non-major) investments concern infrastructure and communication and navigation equipment. Fall-back ATM-system is defined under other investments which would contribute to resilience. SWIM implementation related investments contribute to scalability and flexibility in line with the European ATM evolution.

b) Justification on investment plans' contribution to capacity (timing and quantified improvement) is provided in the PP?



The COOPANS investment contents are not clearly defined and there is a lack of clarity regarding the scope and content of the investment (annual software updates versus FDP/HMI upgrades). Therefore, conclusive statements regarding how the investment may contribute to enroute capacity cannot be made.

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



The capacity surplus in Sweden is decreasing during RP3 and the investment planning lacks details concerning how this reduction is planned to be mitigated during and beyond RP3. The investment is planned to be rolled out incrementally during RP3, yet the investment description describes a decade long planning process to achieve capacity benefits. Additional clarity is required in the investment planning to ensure enroute capacity availability beyond RP3.

3.5.4 PRB Key Points



- The actual CAPEX for RP2 was 80% higher than the planned and the amount overspent was 45M€. Despite much higher CAPEX, the actual costs related to investments were 4.4M€ lower than planned. It is unknown if this amount will be reimbursed to the airspace users.
- Sweden expects a capacity surplus in the beginning of RP3, but this is reducing to 0-1% by the end of RP3.
- One major investment (linked to all six PCP/CP1 ATM Functionalities), which will possibly contribute to en route capacity is defined. However, the investment description and planned entry into operations are somewhat contradictory and the capacity benefit during or beyond RP3 cannot be estimated.
- Other development investment contributes to the virtualisation and automation of services.

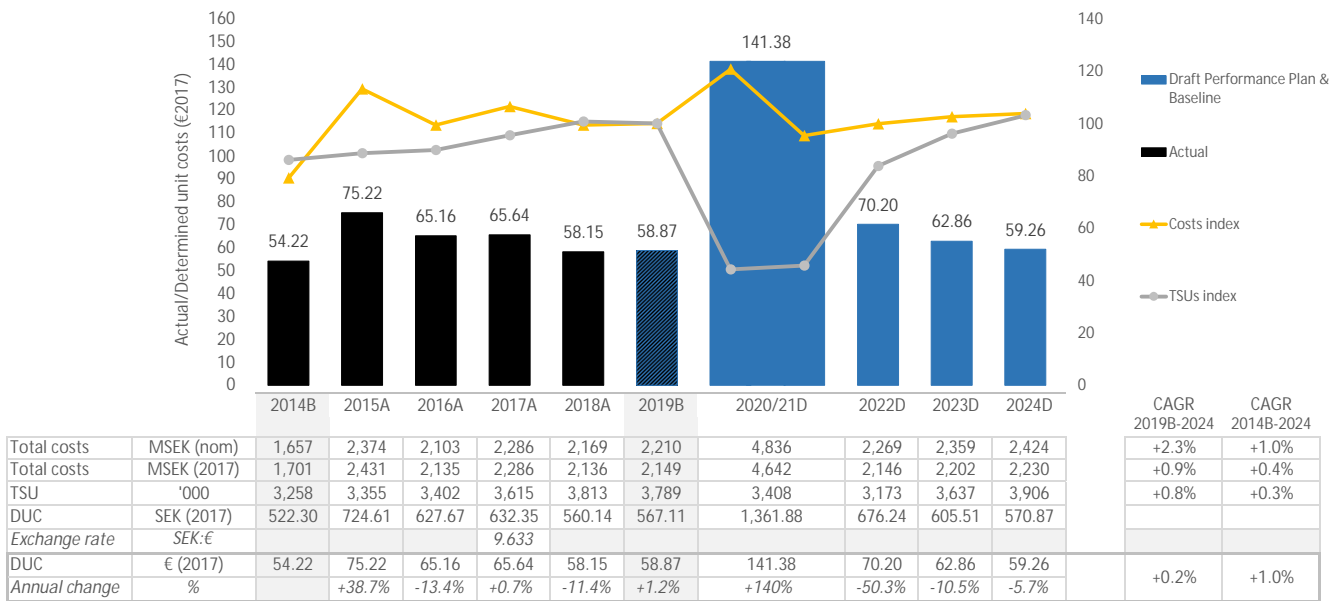
SWEDEN

Cost-efficiency KPA

4.1 Summary of cost-efficiency key data and assessment results

Sweden - En route CZ

4.1.1 Key data underlying en route cost-efficiency targets



4.1.2 Summary of baseline review

DUC 2019 baseline consistent with <u>actual unit costs</u> or deviation adequately justified?	58.87 €2017	✓
Sweden planned to adjust the 2019 cost baseline due to changes in the reporting of EU fundings for LFV and the introduction of new airports in the system of en route charges. The adjustments seem reasonable.		

4.1.3 Summary of cost-efficiency assessment results

a) DUC trend 2019-2024 (RP3) consistent with Union-wide trend?	+0.2%	✓
The DUC is planned to increase on average by +0.2% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).		
b) DUC trend 2014-2024 (RP2+RP3) consistent with Union-wide trend?	+1.0%	✗
The DUC is planned to increase on average by +1.0% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).		
c) DUC level (2019 baseline) lower than the average of comparator group (B) average (44.74 €2017)?	+31.6%	✗
The 2019 DUC level is +31.6% 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

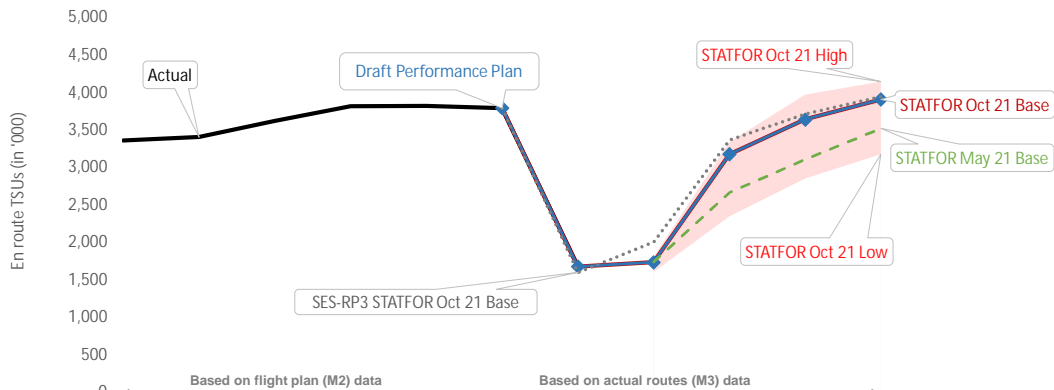
The PRB concludes that the cost-efficiency targets as proposed by Sweden should not be approved.

- Sweden is consistent with the RP3 DUC trend in terms of average reduction.
- Sweden is not consistent with the long-term Union-wide DUC trend.
- Sweden is not consistent with the average DUC baseline of the comparator group.
- Sweden should decrease the RP3 costs in order to meet the cost-efficiency criteria with the aim of balancing cost, capacity, and traffic.
- Sweden should consider in the RP3 cost base the 4.4M€ that airspace users have financed in RP2 in terms of depreciation and cost of capital for investments that have not been materialised.
- Sweden should detail the criteria for cost allocation.
- Sweden should detail the return on equity charged by LFV.
- Sweden should ensure that pension costs are correctly reported in the reporting tables and should detail how pension costs are included in cost of capital.
- 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.

4.2 Review traffic forecasts and baseline

Sweden - En route CZ

4.2.1 Overview of service units forecasts for RP3



		2015A	2016A	2017A	2018A	2019A(M2)	2019B(M3)	2020A	2021F	2022F	2023F	2024F	2024F vs 2019B
Actual	'000 TSUs	3,355	3,402	3,615	3,813	3,820	3,789	1,676					
	Annual change %		+1.4%	+6.3%	+5.5%	+0.2%	-0.6%	-55.8%					
STATFOR Oct 21 Base	'000 TSUs								1,732	3,173	3,637	3,906	+3.1%
	Annual change %								+3.3%	+83.2%	+14.6%	+7.4%	
STATFOR May 21 Base	'000 TSUs								1,737	2,664	3,107	3,519	-7.1%
	Annual change %								+3.6%	+53.4%	+16.6%	+13.3%	
Performance Plan	'000 TSUs						3,789	1,676	1,732	3,173	3,637	3,906	+3.1%
	Annual change %						-0.6%	-55.8%	+3.3%	+83.2%	+14.6%	+7.4%	

4.2.2 Traffic baseline review

2019	'000 TSUs	CRCO 12-month coefficient	2014	'000 TSUs	CRCO 12-month coefficient
2019B (PP baseline, M3)	3,789		2014B (PP baseline)	3,258	
2019A (as in the Reporting tables, M2)	3,820		2014A (as in the Reporting tables, M2)	3,285	
2019B/ 2019A	-0.83%	-0.83%	2014B/ 2014A	-0.83%	-0.83%

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP
 The 2019 and 2014 traffic baselines were adjusted by the CRCO 12-month M2/M3 coefficient (-0.83%).

Review of 2014 and 2019 traffic baseline
 The traffic baselines are calculated on the basis of 2014 and 2019 actual traffic, and adjusted by the M2/M3 CRCO 12-month coefficient (-0.83%). The coefficient slightly decreases the number of 2014 and 2019 traffic baselines while rising the DUC baselines.

4.2.3 Review of the PP traffic forecast

Is the forecast for en route TSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024? Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast
 n/a

Review of the PP traffic forecast
 The en route traffic forecast presented in the performance plan of Sweden is in line with the STATFOR October 2021 base forecast.

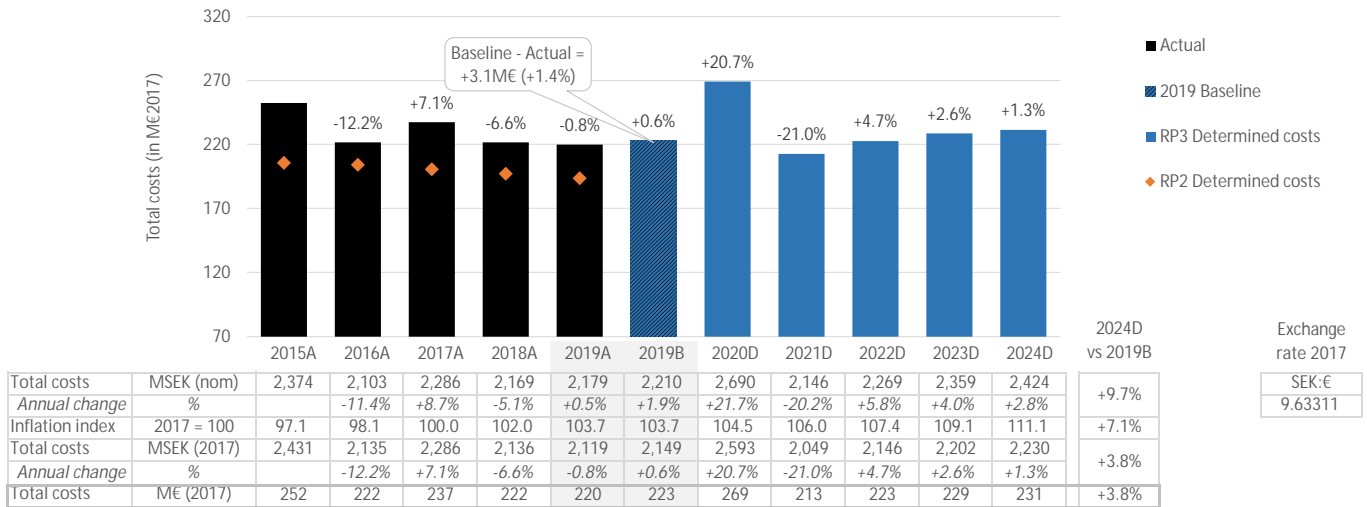
4.2.4 PRB Key Points

- Sweden en route traffic forecast is in line with STATFOR October 2021.
- No major issues identified.

4.3 Review of determined costs and baseline

Sweden - En route CZ

4.3.1 Overview of en route costs in RP2 and RP3

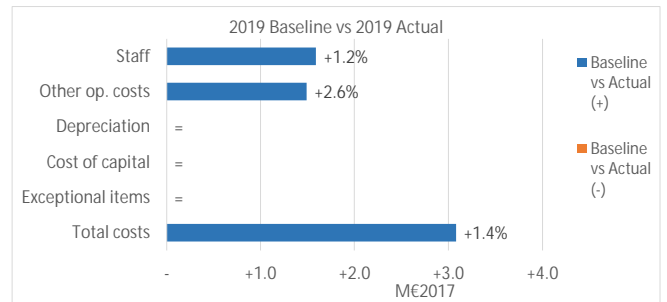


- ✓ Is inflation in PP in line with IMF (April 2021 forecast)? Yes
- ✗ Is inflation in PP in line with IMF (October 2021 forecast)? No

The inflation index is in line with the IMF April 2021 forecast.

4.3.2 Baseline review

Baseline analysis	Δ M€2017	%
2014B vs 2014A	0.0	+0%
2019B vs 2019A	3.1	+1.4%



2019 Baseline Adjustments	Entity Type	Nature	M€2017
#1 - EU-funding	ANSP	Staff	+1.6
#2 - New airports in the system	ANSP	Other ops.	+1.5

Summary of description of adjustments to the 2014 and/or 2019 baseline provided in the PP

- The adjustments to the 2019 costs baseline relate to the change in the reporting of EU funding applied by LFV and the introduction of new airports in the system of en route charges as of 2020.

2014/2019 baseline analysis

- The adjustments to the 2019 cost baseline increase only slightly the actual costs reported for 2019 (+1.4%, or +3.1M€2017).
- The first adjustment relates to the fact that LFV applied net-accounting for INEA-funds until 2019, while gross-accounting is applied from 2020 onwards. This adjustment seems justified.
- The second adjustment relates to the inclusion of three new airports (Scandinavian Mountain Airport, Skövde, and Eskilstuna) in the system of en route charges as of 2020. Based on the information provided in the performance plan, this change is linked with the service provision in the newly established airspace blocks (TMAs) and it does not result in a transfer of responsibility (and costs) between Swedish ANSPs that participated in the en route cost base in RP2. The majority of this adjustment relates to Scandinavian Mountain Airport where SDATS provides ATC services from RTC Sundsvall. Considering the fact that the three new airports were not part of the system in 2019 (or actual 2019 en route costs), this adjustment seems justified for purposes of consistency and trend analysis provided that the inclusion of approach costs incurred by the airport ATC providers into the en route cost base is eligible and in line with principles of the performance and charging regulation.

4.3.3 Review of the RP3 determined costs and incentives

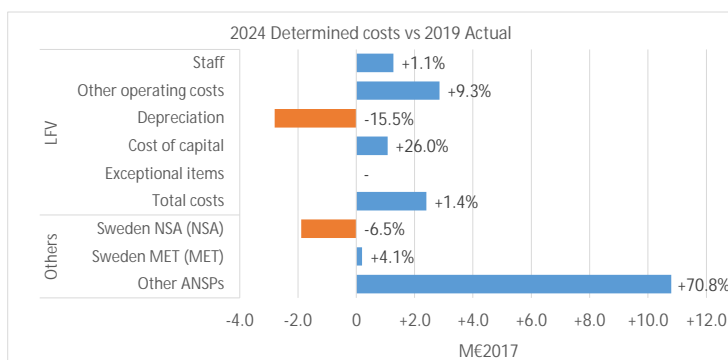
Review of 2020 determined costs	ME2017	%
2020 determined vs actual	+0.0	+0.0%

Review of cost elements

- ① Investments (see details in 3.5)
- ✗ Cost of capital (see details in 4.3.1)
- ✗ Pension costs (see details in 4.3.2)
- ① 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)	2.00%
Additional incentives?	No



The total 2024 determined costs for Sweden are planned to be +5.2% higher (or +11.5ME2017) than 2019 actual costs mainly due to increases in costs of other ANSPs (ACR, SDATS and ARV).

The 2024 determined costs for LfV are planned to be +1.4% higher (or +2.4ME2017) than 2019 actual costs mainly due to increases in staff costs (+1.1%, or +1.3ME2017) and other operating costs (+9.3%, or +2.9ME2017).

- Annex A to the performance plan explains that these increases are mainly due to staff numbers and ATCOs training to prepare for upcoming retirements.
- The significant increase in the cost of capital (+26.0%) is explained by the inclusion of outstanding receivables relating to pensions in the asset base over RP3.
- Between 2019 and 2020, the en route costs for Sweden rose strongly (+22.4% or +49.2ME2017) reflecting mainly a significant increase in pension costs of LfV. This increase is linked with the defined benefit pension scheme and corresponds to the effect of actuarial revaluation of pension liability following the decision of the SPV (National Government Employee Pensions Board) to decrease the discount rate (from -0.7% in 2019 to -1.4% in 2020).

The NSA costs are planned to decrease by -6.5% (or -1.9ME2017) between 2019 and 2024 reflecting a combination of lower costs for Eurocontrol and higher costs for Swedish Maritime Administration (in relation to search and rescue costs).

All three other ANSPs show significant increases in staff costs, while depreciation costs are the main driver for SDATS reflecting mainly investment to assets relating to ATC services provided to the new airport (Scandinavian Mountains Airport). ACR and SDATS are certified ATS providers contracted by a number of Swedish airports to provide aerodrome and approach ATC services. Similarly to LfV, their total costs also include the costs of CNS infrastructure owned by airports and used to provide ATS in airspace/approach areas around these airports.

En route service units are forecasted to reach 2019 levels in 2024, while en route costs are planned to reach the 2019 actual level already in 2022 (in 2023 when considering the 2019 baseline value).

4.3.4 PRB Key Points

- Sweden planned to adjust the 2019 cost baseline due to changes in the reporting of EU funding for LfV and the introduction of new airports in the system of en route charges. The adjustments seem reasonable.
- The 2024 determined costs for Sweden are planned to be +5.2% higher (or +11.5ME2017) than 2019 actual costs mainly due to increases in costs of other ANSPs (ACR, SDATS, and ARV).
- Sweden significantly increased costs during 2020, mainly due to pension costs.
- In RP2, in terms of depreciation and cost of capital, airspace users have financed 4.4ME for investments that have not been materialised. It is unknown if this amount will be reimbursed to the airspace users.

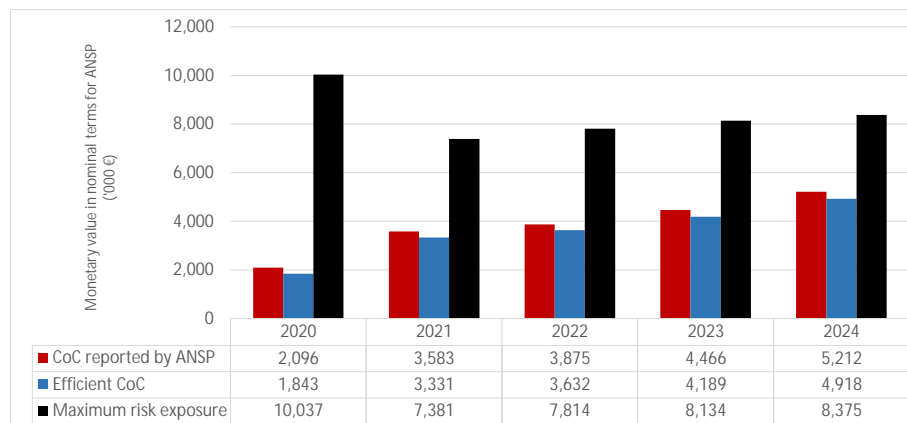
4.3.A Cost of capital

LFV - En route

4.3.A.1 Determined Costs vs Return on Equity

Nominal values ('000 €)	2020	2021	2022	2023	2024
Determined costs	228,114	167,758	177,585	184,865	190,336
Monetary value of Return on Equity	253	252	243	277	294
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



Total 2020-2024	1,320
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Difference CoC reported by ANSP vs Efficient ('000 €)	2020	2021	2022	2023	2024
	253	252	243	277	294

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	0.5%	0.0%	0.5%	0.0%	0.7%	0.0%	1.1%	0.0%	1.9%	0.0%
Interest on debts	0.7%	0.7%	1.2%	1.2%	1.3%	1.3%	1.5%	1.5%	1.7%	1.7%
Capital structure (% debt)	82.4%	82.4%	84.4%	84.4%	89.2%	89.2%	92.0%	92.0%	94.8%	94.8%
WACC	0.7%	0.6%	1.1%	1.0%	1.2%	1.2%	1.5%	1.4%	1.7%	1.6%

Is the interest on debts in line with the market?	Yes
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- LFV currently has no external loans. However, the long term debt mainly consists of pension debt, with the interest rate set equal to the inflation development. Considering this, the interest rate is in line with competitive market practices.
- The WACC reported in the performance plan has been calculated based on the CAPM. The efficient WACC has been calculated based on option 2.
- According to the additional information, the Swedish government impedes the application of a return on equity during RP3. Despite this, a return on equity is reported ranging between 0.5% and 1.9%, explained by the inclusion of the return on equity of Swedavia and other airports in LFV. However, it is unclear why costs of other airports are included in LFVs cost base.
- Over RP3, the reported cost of capital is 1.3M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (0% in all years of RP3).

4.3.A.4 Regulated Asset Base review

Nominal values ('000 €)	2020	2021	2022	2023	2024
Fixed asset base	182,873	203,155	202,633	208,381	225,071
Net current assets	33	101	89	81	75
Adjustments total assets	132,771	125,395	110,643	95,890	81,138
Total asset base	315,677	328,652	313,365	304,352	306,284

- The fixed asset base is planned to increase over RP3. This is in line with the investments described in section 3.5 of this document.
- The net current assets do not present major issues, as they seem appropriate compared to the expected cash flows.
- The adjustments to the RAB consist of unforeseeable changes in pension regulations arisen from RP2.
- The total asset base will decrease over RP3, driven by the decrease in adjustments to the RAB.

4.3.A.5 PRB Key Points

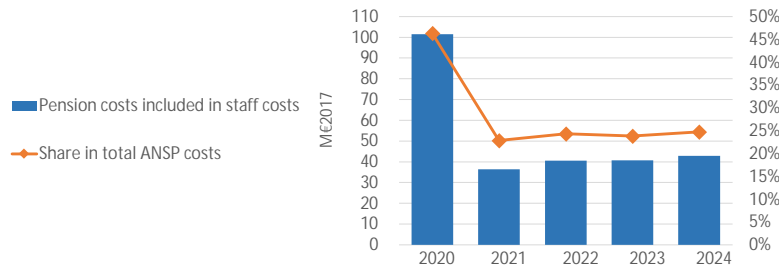


- The Swedish government impedes the application of a return on equity during RP3. Despite this, a return on equity is reported ranging between 0.5% and 1.9%, explained by the inclusion of the return on equity of Swedavia and other airports in LFV. However, it is unclear why costs of other airports are included in LFVs cost base.
- Long term debt consists of pension debt.
- Over RP3, the reported cost of capital is 1.3M€ above the efficient cost of capital. Despite this, the monetary value of the return on equity is commensurate to the total determined costs over RP3 (0% in all years of RP3).

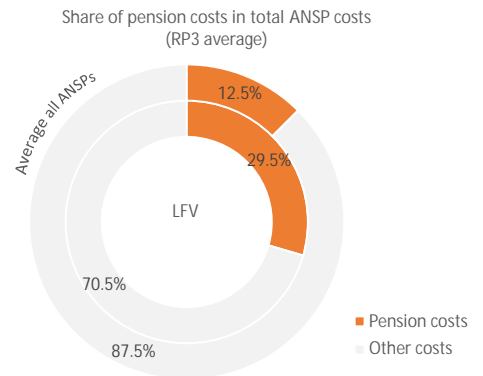
4.3.B Pensions

LFV - En route

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		101.4	36.4	40.5	40.8	42.9
Year on year variation	% change		-64.1%	+11.4%	+0.6%	+5.1%
Share in total ANSP costs	%	46.3%	22.9%	24.3%	23.8%	24.7%
Year on year variation	p.p.		-23.5p.p.	1.5p.p.	-0.5p.p.	0.9p.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 Union-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**

Based on the information provided in the performance plan for RP3 (see tab 3.4.3 Pensions), all defined benefit pension costs are allocated to the staff costs in the reporting tables, even though one part of these costs is accounted as interest expenses in the income statement of LFV in accordance with Swedish accounting principles.

However, the LFV pension costs presented in the performance plan and the reporting tables do not include costs relating to pensions that are recorded in the cost of capital with respect to outstanding receivables included in the asset base and relating to pensions from previous reference periods.

The LFV pension costs presented in the performance plan and the reporting tables also do not include the costs relating to LFV's contributions to the public pensions, which are however included in the staff costs through the social security costs.

Therefore, the pension costs presented on the graph above relate only to the defined contribution and defined benefit schemes which are part of the pension system for government employees (called "PA16").

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

Sweden indicates that, at present, the pension part of the social security costs is equal to 10.21% of the salaries. No expected changes in the rate have been reported in the performance plan.

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

Based on the information provided in the performance plan for RP3, the same contribution rates have been used to compute the pension costs with respect to the defined contribution scheme between 2020 and 2024.

It is understood that the contribution rate presented in the tab 3.4.3.3 of the performance plan (in percent of gross salaries), represents an average contribution rate for different categories of employees (including the LFV's special contribution) and is computed based on the actual outcome of 2020.

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

The pension costs forecast for LFV with respect to the defined benefit scheme is made by SPV (National Government Employee Pensions Board). The forecast is based on the current discount rate -1.4% for the entire period 2020-2024. According to the information provided by Sweden, the discount rate for the coming years is currently unknown and not possible to determine. It is set annually based on the market interest rates for the long-term government bonds.

It is noted that most of the other actuarial assumptions are missing in the performance plan for RP3.

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

Considering the fact that the defined benefit scheme and associated pension costs are regulated by the "PA16" agreement, the Swedish GAAP, and assumptions decided by SPV based on the market development of interest and inflation rates, LFV does not seem to be in a position to take any actions to mitigate the cost-risk associated with pensions.

However, it is noted that in 2016, in order to reduce the risk associated with pensions, a defined contribution scheme was introduced for State employees and that all employees born in or after 1988 had been transferred from the defined benefit to the defined contribution scheme.

4.3.B.4 PRB Key Points



- LFV's average share of pension costs over RP3 is significantly higher than the Union-wide average.
- The pension costs identified separately in the reporting tables do not include the contributions associated with the public pension scheme. These contributions are included in the staff costs through the social security costs. In addition, costs relating to pensions are also recorded in the cost of capital since outstanding receivables relating to pension costs from previous reference periods are included in the asset base.
- The lack of transparency in the defined benefit scheme assumptions could be an issue for RP3 cost exempt verification.

4.3.C Methodology for cost allocation between ER and TRM

Sweden

4.3.C.1 Cost allocation overview

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

- 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.
- MET costs are fully allocated to en route.

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 not detailed.

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

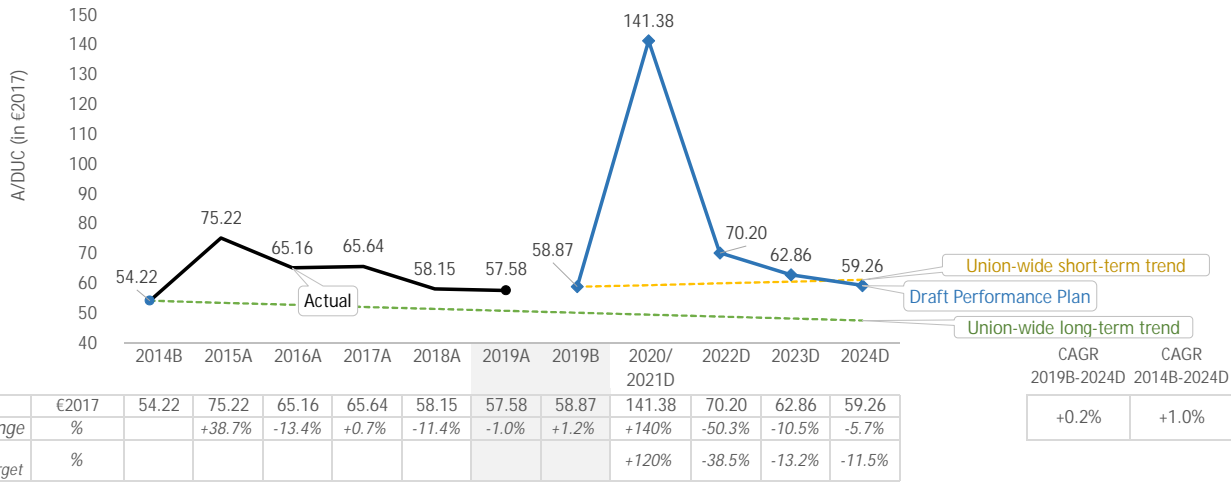
4.3.C.3 PRB Key Points 1

- Sweden did not change the cost allocation methodology with respect to RP2.
- The criteria for cost allocation are not detailed.

4.4 Determined unit costs (DUC)

Sweden - En route CZ

4.4.1 Overview and trends of the DUC



4.4.2 DUC consistency ✘

✔ DUC consistency with the Union-wide RP3 DUC trend	Trend (CAGR 2019B-2024)	Performance Plan	Union-wide	Difference
✘ DUC consistency with the Union-wide long-term DUC trend	Trend (CAGR 2014B-2024)	+0.2%	+1.0%	-0.8p.p.
✘ DUC level consistency	2019 baseline	+1.0%	-1.3%	+2.3p.p.
		Performance Plan	Average comparator group	Difference
		58.87	44.74	+31.6%

- The DUC is planned to increase on average by +0.2% between 2019 and 2024, which is better than the RP3 Union-wide trend (+1.0%).
- The DUC is planned to increase on average by +1.0% between 2014 and 2024, which is worse than the long-term Union-wide trend (-1.3%).
- The 2019 DUC level is +31.6% higher than the average of the comparator 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

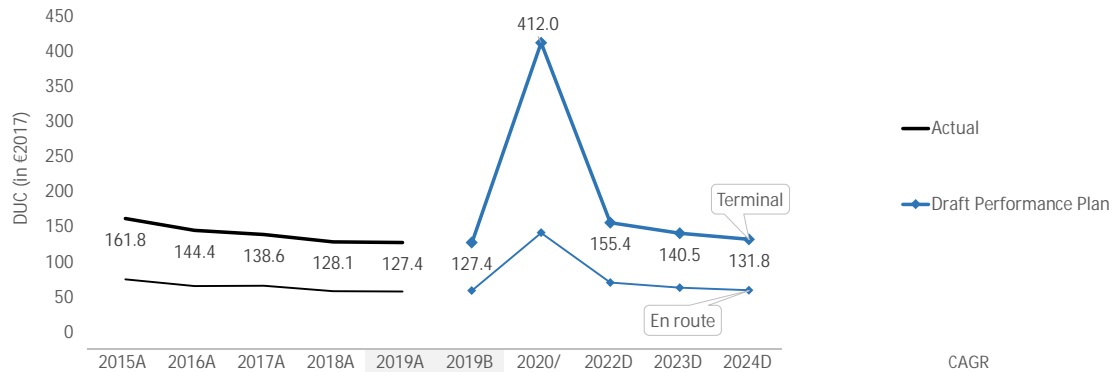
4.4.5 PRB Key Points ✘

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

4.5 Terminal

Sweden

4.5.1 Overview and trends of the terminal DUC



	€2017	2015A	2016A	2017A	2018A	2019A	2019B	2020/2021D	2022D	2023D	2024D	CAGR 2019B-2024D
DUC - Terminal	161.8	161.8	144.4	138.6	128.1	127.4	127.4	412.0	155.4	140.5	131.8	+0.9%
Annual Change	%		-10.8%	-4.0%	-7.6%	-0.5%	-0.5%	+223%	-62.3%	-9.6%	-6.2%	
DUC - En route	75.2	75.2	65.2	65.6	58.1	57.6	58.9	141.4	70.2	62.9	59.3	+0.2%
Annual Change	%		-13.4%	+0.7%	-11.4%	-1.0%	+1.2%	+140%	-50.3%	-10.5%	-5.7%	

4.5.2 Comparison of performance with similar airports

Airport	Group*	RP2 performance (2015-2019)			RP3 Plan (2021-2024)		
		Group median - airport unit cost	Average airport unit cost	Difference vs Median	Group median - airport DUC	Average airport DUC	Difference vs Median
Stockholm/ Arlanda (ESSA)	GROUP I	135.0	140.1	+3.8%	179.8	195.5	+8.8%

* 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 average unit cost of Stockholm/Arlanda airport was slightly higher (+3.8%) than the comparator group average over RP2. The difference is expected to increase to +8.8% over RP3.

4.5.3 Elements subject to review

Summary of description of adjustments to the 2019 baseline (traffic and/or cost) provided in the PP

n/a

2019 baseline analysis

The 2019 traffic and cost baselines are in line with the actual values as presented in the terminal reporting tables.

Traffic forecasts (terminal)

Is the forecast for terminal TNSUs in line with STATFOR October 2021 Base forecast, for every year 2021-2024?

Yes

Summary of justifications provided in the PP in case of deviation from the STATFOR October 2021 Base forecast

n/a

Review of the PP traffic forecast

As for en route, the terminal traffic forecast presented in the performance plan of Sweden is in line with the STATFOR October 2021 base forecast.

Determined costs (terminal)

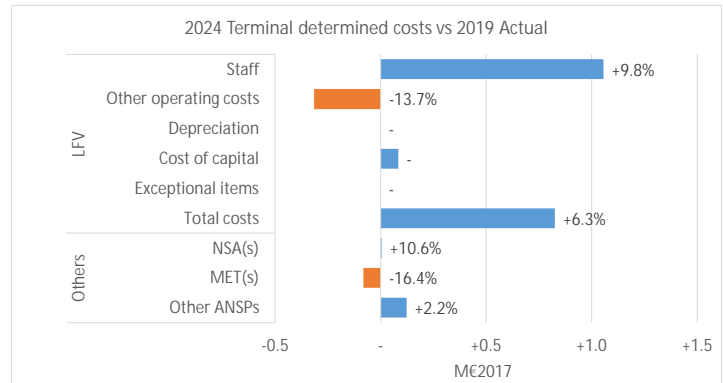
✓ Is inflation in PP in line with IMF (April 2021 forecast)?	Yes
✗ Is inflation in PP in line with IMF (October 2021 forecast)?	No

Cost elements - LFV (terminal)

- ① Investments (see details in 3.5)
- ① 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)	2.00%
Additional incentives?	No



- The share of terminal investment costs (0%) is lower than the share of terminal total costs (8%).
- The parameters of the WACC, the RoE and the share of financing through equity of terminal are not in line with the ones in en route. For the RoE, the reported values in the reporting table are 0% as the Swedish government impedes the application of a return on equity during RP3.
- The total terminal costs are planned to increase by +4.6% (or +0.9M€2017), between 2019 and 2024. The planned increase mainly relates to LFV staff costs (+9.8% or +1.1M€2017), which is partially offset by a decrease in other operating costs (-13.7% or -0.3M€2017). LFV does not charge any depreciation costs since CNS infrastructure is owned by the airport operator (Swedavia, see also section 4.3 of this document). Finally, only minor amounts of cost of capital relating to pensions are included in terminal determined costs as of 2020 (see section 4.3.B of this document).
- Terminal service units are forecasted to reach 2019 levels only in 2024, while terminal costs are planned to reach the 2019 actual level already in 2022.

4.5.4 PRB Key Points



- The terminal RP3 DUC trend is +0.9%, which is worse than the en route RP3 DUC trend of +0.2%.
- The terminal RP3 DUC trend is +0.9%, which is worse than the terminal RP2 DUC trend of -5.8%.
- Stockholm Arlanda, the only airport included in the performance plan, had a DUC +3.8% higher than the median of its comparator group over RP2. The difference is expected to become +8.8% over RP3.
- Sweden applies STATFOR October 2021 base forecast for terminal traffic.
- Terminal costs increase over the period, mainly due to staff costs.