

# PRB Monitoring Report 2019

## Annex II – Member States’ detailed analysis for experts

The 2019 monitoring consists of five reports:

- PRB Monitoring Report 2019
- Annex I – Union-wide detailed analysis for experts
- **Annex II – Member States’ detailed analysis for experts**
- Annex III – Safety Report
- Annex IV – CAPEX Report

October 2020



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## 1 Introduction

This report complements the Annex I report and presents some more detailed information per State or FAB. This information is structured into three main parts:

- an en-route capacity part;
- an airport capacity part; and,
- a cost-efficiency part.

The information contained in the first two parts is self-explanatory. However, the PRB considered that the cost-efficiency part deserved a reader's guide to assist stakeholders in the reading and the understanding of PRB's analysis.

This reader's guide is presented in the following section.

## 2 Cost-efficiency monitoring at State level: Reader's Guide

### 2.1 Introduction

- 2.1.1 The objective of this section is to facilitate the understanding of the analysis made in the cost-efficiency monitoring reports at State level.
- 2.1.2 The source of the data used for on the cost-efficiency monitoring are the June 2020 En-route and Terminal Reporting Tables provided by the States for each charging zone (CZ).
- 2.1.3 The analysis is structured into three main parts: en-route, terminal and gate-to-gate ANS cost-efficiency monitoring. Common templates and analytical frameworks are used for both en-route and terminal ANS, and for the States having several en-route (Spain) or terminal (Belgium, Italy, France and Poland) charging zones, the framework is replicated for each charging zone.
- 2.1.4 Graphs, tables and comments are displayed into "boxes", with each box focusing on a particular aspect of the monitoring analysis. Section 2.2 below provides explanations on the content of each box constituting the en-route and the terminal analysis. Section 2.3 presents the content of the gate-to-gate analysis and of the technical notes provided at the end of the report when specific issues need to be documented. Finally, Section 2.4 displays the factual information provided by the ANSPs in relation to their Capex investments.

### 2.2 En-route and terminal ANS analysis

#### 1. En-route (or terminal) contextual economic information

Box 1 presents information on the State's share in SES ANS determined costs in 2019, the name of the main Air Traffic Service Provider (ATSP), FAB membership, national currency and the 2009 exchange rate against the €.

For Terminal Charging Zones (TCZs) box 1 also indicates the number of airports in the TCZ (with a classification per number of air transport movements) and whether the traffic risk sharing applies in the TCZ.

#### 2. En-route (or terminal) DUC monitoring at Charging Zone level

Box 2 identifies whether the actual DUC is lower (improvement of the performance indicator) or higher (deterioration of the performance indicator) than the DUC target set in the Performance Plan (PP), and what were the drivers for the improvement or deterioration.

It provides transparency on the different steps required to undertake the monitoring of the DUC, showing:

- the planned performance (based on RP2 PP data);
- the actual performance (based on the June 2020 Reporting Tables for the all RP2 years); and
- the differences between actual and planned performance.

To ensure consistency with the determined costs data provided in the adopted PP, actual costs are expressed in 2009 prices. Planned and actual inflation indices are also shown in box 2.

### 3. Focus on en-route (or terminal) at State/Charging Zone level

Box 3 contains graphical summaries (right-hand side) of the differences in costs, traffic, and DUCs for all years of RP2, as well as comments (left-hand side) on the situation observed for the year 2019 and for the overall RP2 period.

The comments provide an analysis and general conclusions on the 2019 DUC at State/Charging zone level, including:

- Comparison of actual and planned DUC, and if the actual DUC is higher than the planned DUC, comments on whether the NSA Monitoring Report provides specific information on the definition and application of corrective measures designed to rectify the situation.
- Comparison of actual costs and traffic to the costs and traffic in the PP.
- Comments on the application of the traffic risk sharing mechanism in the State: whether the 2019 difference between actual and planned traffic falls within the  $\pm 2\%$  dead band or the  $\pm 10\%$  threshold.
- Comments on which entity is driving the difference between actual and planned costs (excluding ATSPs costs, which are analysed in box 12).
- A note on the costs exempted from cost-sharing reported by the State (see box 6).
- A RP2 overall summary

### 4. En-route (or terminal) traffic monitoring (Actual 2015-2019 TSUs compared to PP)

Box 4 reviews the traffic situation in the Charging Zone, comparing planned with actual values and showing how the actual trend developed over RP2. It also helps visualise (with error bars) the  $\pm 2\%$  dead band and the  $\pm 10\%$  threshold of the traffic risk sharing mechanism. This provides an indication on the likelihood of activation of the traffic alert mechanism during RP2.

### 5. En-route (or terminal) costs monitoring (2019 actuals compared to PP)

Box 5 shows a comparison between the actual and the planned costs by entity at State level and by nature at ATSP level. The comparison is made both in absolute terms (in M€<sub>2009</sub>) and in %. This helps identify the main elements driving the differences between the actual and the planned costs.

The upper chart shows the situation by entity (ATSP, other ANSPs, METSP, NSA/EUROCONTROL). The ATSP is the “main” ATSP of the State concerned (as identified in box 1). The other ANSPs are the other services providers in the Charging Zone, if any (e.g. MUAC in Germany, Netherlands and Belgium/Luxembourg, ITAF in Italy, etc.).

The bottom chart shows the situation for the main ATSP with a breakdown of cost differences by nature (staff, other operating costs, depreciation, cost of capital, exceptional costs and VFR exempted flights). The chart supports the analysis provided in box 12.

Both charts follow the same logic, on the left side the displayed bars for each element show the difference when the actual costs are lower than the planned and on the right side the higher than the planned. VFR exempted flights costs follow the invers logic since these costs entail a deduction from the total cost. (e.g. lower actual VFR exempted flights costs involve a lower deduction and consequently an increase effect on the actual total cost compared with the planned)

### 6. En-route (or terminal) costs exempted from cost-sharing

Box 6 contains a table listing all the costs reported by the State (in the June 2020 Reporting Table) as being exempted from cost-sharing. Costs are listed by item and by entity, (in €<sub>2009</sub>, using the actual inflation index for 2019 as shown in box 2). The total costs exempted from cost-sharing are summed at the bottom of the table. If the total is negative, the costs are to be recovered from airspace users in future years; if costs are positive, they are to be reimbursed.

These costs will be eligible for carry-over to the following reference period(s) in part or in whole, if deemed allowed by the European Commission (EC) after verification on the basis of the NSA report establishing and justifying these exemptions.

### 7. En-route (or terminal) DUC 2019 vs. 2019 unit rate charged to users

Box 7 shows all the adjustments required to calculate the Chargeable Unit Rate (CUR) starting from the DUC (in national currency in nominal terms). The bar on the left-hand side of the chart presents the 2019 DUC, and each bar moving to right shows the contribution (in nominal terms) of each adjustment to reach the 2019 CUR (the last bar on right-hand side). The rationale for the different adjustments is provided below:

- Other revenues: to reflect the fact that in some States “other revenues” (such as commercial revenues or income from grants) are deducted from the DUC to calculate the CUR.
- Inflation adjustment: to reflect the impact of a higher/lower than planned inflation index in the year “N-2”, and the subsequent charging/reimbursement to airspace users in year “N”.
- Traffic risk sharing adjustment: to reflect the gain/loss in revenues due to higher/lower traffic than planned in the year “N-2” which is reimbursed/charged to airspace users in year “N”.
- Traffic adjustment: to reflect the fact that, for the costs not subject to traffic risk sharing, over/under recoveries due to higher/lower traffic than planned in the year “N-2” are fully reimbursed/charged to airspace users in year “N”.
- Bonus/penalty: to reflect the fact that the achievement (or the failure to achieve) capacity and environment targets in year “N-2” triggers the charging of a financial bonus (or penalty) in year “N”.
- Costs exempt from cost-sharing: to reflect the elements of costs incurred by the States in RP1 (when deemed eligible) which are charged/reimbursed to airspace users in 2019.
- Over/under recovery up to 2011: to reflect the fact that over/under recoveries incurred before the introduction of the Performance Scheme are carried-over to 2019.

For the calculation of unit costs in box 7, all cost categories listed above are divided by the forecast TSUs for 2019 as laid out in the PP. Note that both the DUC and the CUR presented in this box are before the addition of the administrative unit rate for the billing and collection of route charges on a regional basis.

The right-hand side of box 7 contains a short comment on the main drivers for the difference between the DUC and the CUR.

### 8. En-route (or terminal) DUC 2019 vs. 2019 actual unit cost for users

Box 8 shows all the adjustments required to calculate the Actual Unit Cost for airspace Users (AUC-U) for 2019 (also referred to as the “true cost for users”) starting from the DUC (in national currency in nominal terms). This reflects the unit cost that airspace users genuinely incur in respect of the activities performed in 2019.

The bar on the left-hand side of the chart presents the 2019 DUC and each bar moving to the right shows the contribution (in nominal terms) of each adjustment to reach the 2019 AUC-U (the last bar on right-hand side). The rationale for the different adjustments is provided below:

- Other revenues: to reflect the fact that in some States “other revenues” are deducted from the DUC to calculate the amounts charged in 2019.
- Inflation adjustment: to reflect the impact of higher/lower inflation index in year “N” which will be charged/reimbursed to airspace users in year “N+2”. Although the cash flow does not take place in year “N”, it is considered as part of the 2019 AUC-U.
- Traffic risk sharing adjustment: to reflect the gain/loss in revenues due to higher/lower traffic than planned in year “N”, which will be reimbursed/charged to airspace users in year “N+2”. Although the cash flow does not take place in year “N”, it is considered as part of the 2019 AUC-U.
- Traffic adjustment: to reflect the fact that, for the costs not subject to traffic risk sharing, over/under

recoveries due to higher/lower traffic than planned in year “N” will be fully reimbursed/charged to airspace users in year “N+2”. Although the cash flow does not take place in year “N”, it is considered as part of the 2019 AUC-U.

- **Bonus/penalty:** to reflect the fact that the achievement (or the failure to achieve) capacity and environment targets in year “N” will trigger the charging of a financial bonus (or penalty) in year “N+2”. Although the cash flow does not take place in year “N”, it is considered as part of the 2019 AUC-U.
- **Costs exempt from cost-sharing:** to reflect the elements of costs incurred in 2019 (if deemed eligible) which will be charged/reimbursed to airspace users in future Reference Period(s). Although the cash flow does not take place in year “N”, it is considered as part of the 2019 AUC-U.

For the calculation of unit costs in box 8, all cost categories listed above are divided by the actual TSUs for 2019. To assess the impact of other revenues (OR) adjustment on AUC-U, actual OR (=forecast OR as reported in the reporting tables adjusted for actual traffic) are divided by the actual TSUs, as well. Optionally forecast OR (as reported in the RTs) can be used. In that case, it is divided by the forecast TSU. The resulting adjustment is the same in both cases.

The right-hand side of box 8 contains a short comment of the main drivers for the difference between the DUC and the AUC-U.

### 9. Focus on ATSP: net ATSP gain/loss on en-route (or terminal) activity

Box 9 focuses on the main ATSP net gain/loss on ANS activities. A graphical illustration of this analysis is also shown on the left-hand side of box 11. The main ATSP is the most significant contributor to the State’s costs and the only (or main) entity subject to costs and traffic risk sharing mechanisms foreseen by the Charging Regulation.

The net gain/loss calculated in the bottom line of box 9 results from the combination of three distinct items:

1. The outcome of the cost-sharing mechanism to be retained by the ATSP (including the impact of costs exempted from cost-charging that will be recovered from or reimbursed to users, under the assumption that they will be deemed eligible by the EC).
2. The outcome of the traffic risk sharing mechanism.
3. The outcome of the financial incentive mechanism for capacity and environment targets (expressed in €<sub>2009</sub>, and in % of revenues in the year).

For the calculation of the gain/loss to be retained in respect of cost-sharing (item 1 above), the following elements are taken into account:

- The difference between determined and actual costs, using:
  - determined costs as presented in the PP for 2019 for the main ATSP, converted into €<sub>2009</sub> using the inflation index of the PP (as shown in box 2); and,
  - actual 2019 costs for the main ATSP, as reported in the June 2020 Reporting Tables, converted into €<sub>2009</sub> using the actual inflation index (as shown in box 2).

This calculation ensures that the inflation adjustment carried-over by ATSPs is taken into account in the cost-sharing gain/loss.

- Any amounts reported as costs exempted from cost-sharing for the ATSP, as shown in box 6, that are to be recovered from (+) reimbursed to (-) airspace users, provided they are deemed eligible by the EC.

As the confirmation by the EC of the eligibility of costs exempted from cost-sharing arising in 2019 has not yet taken place, there is uncertainty on whether the reported exemptions will be allowed or not. For this reason, the results without taking into account the costs exempted from cost-sharing is also presented in the ATSP analysis in box 12 (for those ATSPs having reported considerable exempted amounts likely to change the results significantly).



For the calculation of the gain/loss to be retained in respect of traffic risk sharing (item 2 above), the following elements are taken into account:

- The difference in total service units (actual vs. PP) in percentage terms.
- The determined costs of the main ATSP in 2019 after deduction of costs for exempted VFR flights, as these are the basis for the calculation of the traffic risk sharing. These are expressed in €<sub>2009</sub>, using the 2019 actual inflation index (as shown in box 2) due to the fact that the gain/loss retained by the ATSP for the current year is an actual gain/loss, so converting this value into €<sub>2009</sub> has to be done using the actual inflation rate.
- The features of traffic risk sharing mechanism: if actual traffic is  $\pm 2\%$  compared to the PP, the gain/loss in revenues is borne entirely by the ATSP; between 2% and 10% (higher or lower) than the PP it is shared between the ATSP (30%) and airspace users (70%); and if the difference between actual and planned traffic exceeds  $\pm 10\%$ , the gain/loss relating to traffic beyond  $\pm 10\%$  is entirely borne by the airspace users and has therefore no impact on the ATSP gain/loss from traffic risk sharing.

The amounts of financial incentives on capacity and environment targets (item 3 above) correspond to the amounts reported in the June 2020 Reporting Tables in respect of the performance achieved in 2019. These are expressed in €<sub>2009</sub>, using the 2019 actual inflation index and in % of revenues in the year. The revenues in the year are estimated by multiplying the ATSP component of the unit rate (item 5.9 in the Reporting Tables) with the actual number of TSUs in 2019, in line with the European Commission instructions.

The net gain/loss referred to in box 9 considers the total determined and actual ATSP costs and treats them as “genuine costs” although a fraction of the cost of capital corresponds to the ATSP return on equity and is a source of profit. Therefore, and as was the case in RP1 monitoring reports, the ATSP analysis is completed using the notion of estimated surplus, which is documented in box 10.

### 10. Focus on ATSP: En-route (or terminal) ATSP estimated surplus

Box 10 uses the notion of overall estimated surplus, and provides continuity with the analyses developed in RP1. It is important to emphasise that this analysis focuses on the ATSP results entitled to the ANS activity in the year. It is therefore different from the net accounting profit disclosed in ATSPs financial statements. Indeed, the latter include revenues from other activities (e.g. consultancy services) which are not financed through user charges, as well as revenues and costs pertaining to other years of activity.

The overall estimated surplus combines two elements:

- the main ATSP net gain/loss on ANS activities (see box 9); and
- the estimated actual surplus embedded in the cost of capital.

The estimated actual surplus embedded in the cost of capital corresponds to the return on equity, which is a source of profit. For an ATSP which is 100% financed through debt, the estimated surplus embedded in the cost of capital will be null, while for an ATSP which 100% financed through equity, the entire cost of capital will be considered as the estimated surplus.

Box 10 is structured in two parts. A first table shows how the estimated surplus embedded in the determined cost of capital is calculated, and a second table shows how the estimated surplus embedded in the actual cost of capital is calculated. In both tables, additional indicators are calculated: the estimated surplus in percent of en-route revenues and the estimated ex-ante (determined) or ex-post (actual) return on equity (in %).

The estimated surplus, when expressed in % of the revenues, can be associated to a “profit margin” generated by the ATSP with respect to the activity of the year, but it is not comparable to the profit margin that would be calculated straight from ATSPs financial statements.

The elements taken into account to calculate the estimated surplus embedded in the determined and the

actual cost of capital are:

- a. The total asset base, as reported in the PP and the June 2020 Reporting Tables.
- b. The estimated proportion of financing through equity (in %), which is calculated based on information reported by ATSPs in the PP and the June 2020 Reporting Tables, with  $b = (f / a - g) / (i - g)$ .
- c. The estimated proportion of financing through equity (in value), with  $c = a \times b$ .
- d. The estimated proportion of financing through debt (in %), with  $d = 1 - b$ .
- e. The estimated proportion of financing through debt (in value), with  $e = a \times d$ .
- f. The cost of capital pre-tax (in value), as reported in the PP and in the June 2020 Reporting Tables.
- g. The average interest on debt (%), as reported in the PP and in the June 2020 Reporting Tables.
- h. The interest on debt (in value), with  $h = e \times g$ .
- i. The determined RoE (pre-tax) in %, as reported in the PP and in the June 2020 Reporting Tables (with the actual RoE % expected to match the determined RoE % from the PP).

The actual estimated surplus embedded in the cost of capital is then calculated as the determined RoE (pre-tax) rate multiplied by equity. Referring to the items listed above it is equal to  $c \times i$ .

### 11. Focus on ATSP: Summary of ATSP gain/loss on en-route (or terminal) activity and estimated surplus

Box 11 provides:

- On the left-hand side, a graphical summary of the ATSP net gain/loss for the year 2019 arising from variations in costs, traffic, and bonus/penalty from incentives (see box 9).
- On the right-hand side, a bar chart comparing the planned and actual overall estimated surplus, both in value (€<sub>2009</sub>) and in % of the en-route revenue (see box 10).

The notion of revenue used in box 10, 11 and 12 corresponds to the revenue arising from the activity in the year, and is different from that used when expressing the bonus/penalty from incentives (box 9) where the ATSP component of the unit rate (therefore including adjustments from previous years carry-over to 2019) is used.

### 12. Focus on en-route (or terminal) ATSP: General conclusions

Box 12 contains comments on the ATSP cost-efficiency performance for the year 2019. The determined and actual costs for the main ATSP include ATM, Communication, Navigation, Surveillance and MET services, if applicable. The comments mainly focus on:

- The deviation between actual and determined costs, looking at the difference per cost category (staff, other operating costs, depreciation, cost of capital and exceptional items) and using the explanations provided in the NSA Monitoring Report and in the Additional Information to the Reporting Tables).
- The presence and nature of costs exempted from cost-sharing for the ATSP.
- The financial effect of the Traffic Risk Sharing on the ATSP.
- The financial effect of incentives (bonus/penalty) on the ATSP.
- The situation in relation to the asset base and the financing structure.
- The net ATSP gain/loss for the en-route (or terminal) activities.
- The ATSP overall estimated surplus (i.e. including the surplus embedded in the cost of capital).
- The ATSP overall estimated surplus for the whole RP2 period

## 2.3 Gate-to-gate ANS analysis and technical notes

<b>1. Monitoring of gate-to-gate ANS costs</b>
Box 1 presents an aggregation of en-route and terminal costs (in € <sub>2009</sub> ) as well as the share of en-route costs in total gate-to-gate costs. It also shows the difference between actual and planned data measured at gate-to-gate level (in € <sub>2009</sub> and in %).
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>
The right-hand side of box 2 shows a graphical presentation of the planned and actual split of gate-to-gate costs between en-route and terminal. It helps identify possible changes in cost-allocation methodology. Comments and conclusions are provided on the left-hand side of box 2.
<b>Technical notes on en-route and terminal information provided by the State</b>
These notes, if any, explain specific issues affecting the analysis and possibly requiring additional information from the States to be gathered during the “fact validation”.

## 2.4 Monitoring of CAPEX

The objective of this section is to present factual information provided by the ANSPs in relation to their Capex investments. More precisely, it shows the following information per ANSP:

- Data from RP2 National Performance Plan related to Total Capex, Main Capex and Real Gate to Gate ANSP costs
- Actual data from the FAB Monitoring Reports related Total Capex, Main Capex and Real Gate to Gate ANSP costs
- The difference between Actual and Planned Capex data in absolute value and in percentage
- A bar chart comparing the Planned and Actual Total Capex

The planned and actual Capex data are presented in both nominal and real terms (i.e. €<sub>2009</sub>).

It should be noted that this section of the report, is a factual presentation of Capex data, and it is based on the data and information provided by Member States through their annual FAB Monitoring reports. It does not comprise an analysis on the deferment of Capex projects.

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## Union Wide En-route charging zones

## Monitoring of en-route COST-EFFICIENCY for 2019

## 1. Contextual information: en-route air navigation services

Commission Decision 2014/132 of 11 March 2014 sets the Union-wide targets for the cost-efficiency Key Performance Area in RP2. These targets, are expressed in average DUC for en-route ANS and correspond to an average DUC decrease of -3.3% p.a. between 2014 (starting point based on the RP1 Determined Costs (DCs) for 2014 i.e. 58.09 €2009) and 2019. The aggregation of the individual national cost-efficiency targets for the 30 SES States that corresponds to 30 en-route Charging Zones (CZ) (Belgium and Luxembourg share one CZ and Spain has two CZs) is shown below.

In 2016, Malta, Poland and Bulgaria requested the Commission to revise their RP2 en-route cost-efficiency targets for the years 2018 to 2019. The figures for these three States show the amended Performance Plan (Commission Decision (EU) 2017/2376 of 15 December 2017). In 2017, Romania and Portugal submitted a request to the European Commission to revise their RP2 en-route cost-efficiency target DUC for the years 2018 to 2019. This report includes the amended figures for these States as reflected in the revised Performance Plan (EC Decision 2018/2021 of 17 December 2018).

## 2. En-route DUC monitoring at Charging Zone level

SES States - Data as per EC Decision on Union-wide targets for RP2	2015	2016	2017	2018	2019	
Real en-route costs (determined costs 2015-2019) - (in EUR2009)	6 147 905 000	6 055 686 000	5 904 294 000	5 756 687 000	5 612 769 000	
Total en-route Service Units	108 541 000	110 196 000	111 436 000	112 884 000	114 305 000	
<b>Real en-route unit costs per Service Unit - (in EUR2009)</b>	<b>56.64</b>	<b>54.95</b>	<b>52.98</b>	<b>51.00</b>	<b>49.10</b>	
Data from RP2 Performance Plan (EC Decision 2018/2021 of 17 December 2018)	2015D	2016D	2017D	2018D	2019D	
Real en-route costs (EUR2009)	6 235 113 277	6 195 878 072	6 164 525 008	6 153 524 516	6 059 092 064	
Total en-route Service Units	112 687 532	115 027 116	117 494 197	122 148 732	124 649 261	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>55.33</b>	<b>53.86</b>	<b>52.47</b>	<b>50.38</b>	<b>48.61</b>	
Union Wide Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
Real en-route costs (EUR2009)	6 079 269 388	6 060 523 324	6 002 852 359	6 077 800 962	6 145 242 571	
Total en-route Service Units	114 994 014	120 135 471	126 856 192	133 959 583	137 752 174	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>52.87</b>	<b>50.45</b>	<b>47.32</b>	<b>45.37</b>	<b>44.61</b>	
Difference between Actuals and EC Decision on Union-wide targets	2015	2016	2017	2018	2019	
Real en-route costs (EUR2009)	in value	68 635 612	-4 837 324	-98 558 359	-321 113 962	532 473 571
	in %	1.1%	-0.1%	-1.6%	-5.3%	9.5%
Total en-route Service Units	in value	4 146 532	4 831 116	6 058 197	9 264 732	10 344 261
	in %	5.9%	9.0%	13.8%	18.7%	-17.0%
Real en-route unit cost per Service Unit (EUR2009)	in value	-3.78	-4.51	-5.66	-5.63	-4.49
	in %	-6.7%	-8.2%	-10.7%	-11.0%	-9.1%
Difference between Actuals and EC Decision from Performance Plans	2015	2016	2017	2018	2019	
Real en-route costs (EUR2009)	in value	-155 843 889	-135 354 748	-161 672 649	-75 723 553	86 150 507
	in %	-2.5%	-2.2%	-2.6%	-1.2%	1.4%
Total en-route Service Units	in value	2 306 482	5 108 355	9 361 996	11 810 851	13 102 913
	in %	2.0%	4.4%	8.0%	9.7%	10.5%
Real en-route unit cost per Service Unit (EUR2009)	in value	-2.47	-3.42	-5.15	-5.01	-4.00
	in %	-4.5%	-6.3%	-9.8%	-9.9%	-8.2%

## 3. Focus on en-route at State/Charging Zone level

## En-route unit cost (see box 2)

In 2019 the Union-wide actual en route unit cost (44.61 €2009) was -8.2% lower than planned in the 2019 RP2 PPs (48.61 €2009). This is because in 2019 actual en route costs were +1.4% (+86.2 M€2009) higher than the DCs reported in the PPs (6,059.1 M€2009), while the actual number of Total Service Units (TSUs) was +10.5% higher than planned. In addition, the Union-wide actual en route unit cost (44.61 €2009) was -9.1% lower than the Union-wide target for 2018 (49.10 €2009) as adopted by the Commission in 2014. The overall deviation of En-route unit costs observed at Union-wide level masks different situations across the 30 CZs as shown in the table at the final page of this en-route, Union Wide view summary, costs efficiency Monitoring report.

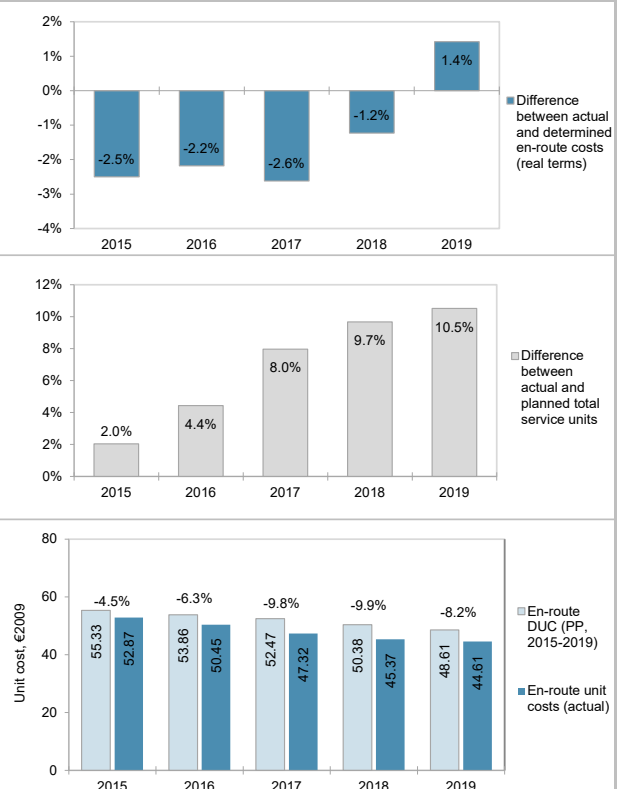
## En-route service units (see box 4)

In 2019, Union-wide actual total service units were +10.5% higher than planned in the adopted Performance Plans (i.e. slightly above the ±10% alert threshold at system level). The traffic has been substantially higher than planned for whole of RP2 period. The traffic has greatly exceeded the ±2% dead-band foreseen in the traffic risk-sharing mechanism although this is just applicable at charging zone level. Additionally, the difference between actual and planned traffic increased each year (+2.0%, +4.4%, +8.0% +9.7% and +10.5% in 2015, 2016, 2017, 2018 and 2019 respectively).

## En-route costs (see box 5)

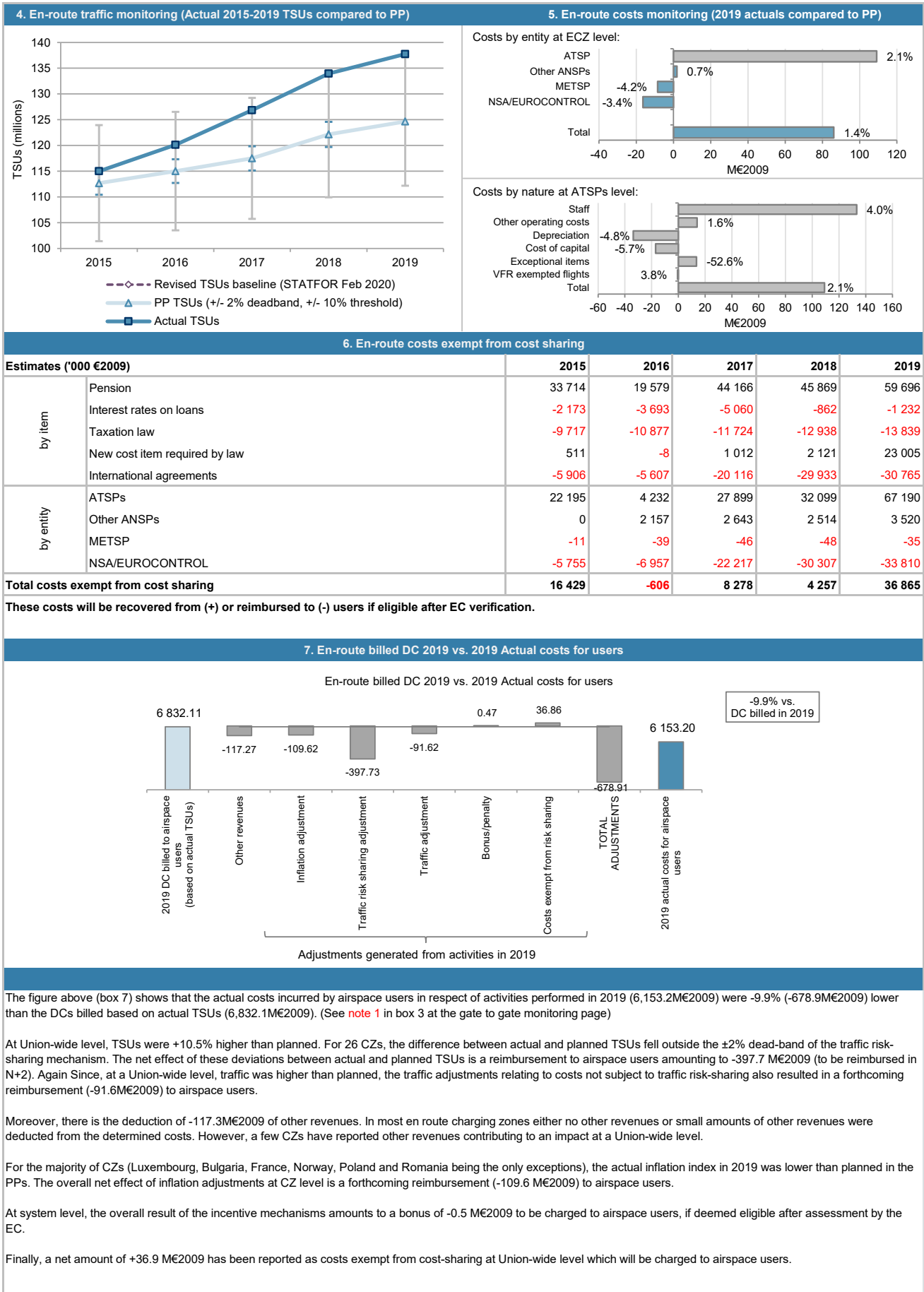
The higher than planned en route costs in real terms are mainly driven by the main ATSPs (+2.1%, or +109.2 M€2009), while the costs for the MET service provider (-4.2%, or -8.5 M€2009) and the NSA/EUROCONTROL (-3.4%, or -16.3 M€2009) are lower than planned. The (main) en route Member State's ATSP is the most significant contributor to the State's en-route costs, in 2019 they counts for the 85% of the total en route costs at Union-wide level. The ATSPs are the only (or main) entities subject to the costs and traffic risk-sharing mechanisms as foreseen by the Charging Regulation. A detailed analysis at ATSP level is provided in box 12.

Box 6 shows that the net amount of en route costs exempted from cost-sharing in 2019 is +36.9M€2009 (to be recovered from the airspace users). The costs exempted from cost-sharing reported by main ATSPs amount to +67.2M€2009 (to be recovered from airspace users). Costs ex-empted from cost-sharing reported by MET service providers (-3.5M€2009) and the NSAs/EUROCONTROL (-33.8M€2009) are negative (indicating reimbursement to the users). More details on the deviation between the DUC and actual en-route unit cost for 2019 at CZ level are available in Annex II of the PRB 2019 Annual Monitoring Report.



Union Wide En-route charging zones

Monitoring of en-route COST-EFFICIENCY for 2019



## Union-wide En-route ATSPs

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSPs: Net ATSPs gain/loss on en-route activity					
<b>Cost sharing ('000 €2009)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Determined costs for the ATSPs (PP) - based on planned inflation	5 289 228	5 225 457	5 249 455	5 233 089	5 135 840
Actual costs for the ATSPs	5 147 242	5 093 510	5 109 924	5 187 571	5 244 995
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSPs	141 986	131 946	139 530	45 518	-109 155
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	22 195	4 232	27 899	32 099	67 190
<b>Gain (+)/Loss (-) to be retained by the ATSPs in respect of cost sharing</b>	<b>164 181</b>	<b>136 179</b>	<b>167 429</b>	<b>77 616</b>	<b>-41 965</b>
<b>Traffic risk sharing ('000 €2009)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Difference in total service units (actual vs PP) %	2.0%	4.4%	8.0%	9.7%	10.5%
Determined costs for the ATSPs (PP) - based on actual inflation	5 319 561	5 314 633	5 316 694	5 269 263	5 184 965
<b>Gain (+)/Loss (-) to be retained by the ATSPs in respect of traffic risk sharing</b>	<b>31 689</b>	<b>97 558</b>	<b>154 580</b>	<b>165 789</b>	<b>170 686</b>
<b>Incentives ('000 €2009)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Gain (+)/Loss (-) to be retained by the ATSPs in respect of incentives (bonus/penalty)</b>	<b>9 708</b>	<b>3 158</b>	<b>2 961</b>	<b>-7 074</b>	<b>471</b>
<b>Net ATSPs gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>205 578</b>	<b>236 895</b>	<b>324 970</b>	<b>236 331</b>	<b>129 192</b>
* The metric presented in box 10 (economic surplus) is computed using information provided by States/ANSPs in their Reporting Tables for the purposes of the cost-efficiency monitoring analysis. It is important to note that, mainly due to differences in scope, this metric may not reflect the financial situation of ANSPs as it is presented in their audited financial statements.					
10. Focus on ATSPs: En-route ATSPs estimated surplus *					
<b>ATSPs estimated surplus ('000 €2009) from RP2 Performance Plan</b>	<b>2015P</b>	<b>2016P</b>	<b>2017P</b>	<b>2018P</b>	<b>2019P</b>
Total asset base	6 321 739	6 208 733	6 132 025	5 980 428	5 801 714
Estimated proportion of financing through equity (in %)	55.9%	57.2%	58.6%	59.6%	61.1%
Estimated proportion of financing through equity (in value)	3 534 295	3 551 321	3 595 444	3 564 812	3 544 181
Estimated proportion of financing through debt (in %)	44.1%	42.8%	41.4%	40.4%	38.9%
Estimated proportion of financing through debt (in value)	2 787 444	2 657 412	2 536 581	2 415 615	2 257 533
Cost of capital pre-tax (in value)	330 739	328 002	336 148	324 000	300 116
Average interest on debt (in %)	3.1%	3.1%	3.0%	2.8%	2.8%
Interest on debt (in value)	86 205	81 236	77 349	67 914	63 331
Determined RoE pre-tax rate (in %)	6.9%	6.9%	7.2%	7.2%	6.7%
Estimated surplus embedded in the cost of capital for en-route (in value)	244 534	246 767	258 799	256 087	236 785
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>244 534</b>	<b>246 767</b>	<b>258 799</b>	<b>256 087</b>	<b>236 785</b>
<b>Revenue/costs for the en-route activity</b>	<b>5 289 228</b>	<b>5 225 457</b>	<b>5 249 455</b>	<b>5 233 089</b>	<b>5 135 840</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>4.6%</b>	<b>4.7%</b>	<b>4.9%</b>	<b>4.9%</b>	<b>4.6%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.9%</b>	<b>6.9%</b>	<b>7.2%</b>	<b>7.2%</b>	<b>6.7%</b>
<b>ATSPs estimated surplus ('000 €2009) based on actual data from Reporting Tables</b>	<b>2015A</b>	<b>2016A</b>	<b>2017A</b>	<b>2018A</b>	<b>2019A</b>
Total asset base	6 356 267	6 338 468	6 077 412	5 796 665	5 877 908
Estimated proportion of financing through equity (in %)	58.5%	58.4%	63.3%	66.8%	1
Estimated proportion of financing through equity (in value)	3 718 580	3 703 737	3 848 183	3 870 446	4 021 101
Estimated proportion of financing through debt (in %)	41.5%	41.6%	36.7%	33.2%	0
Estimated proportion of financing through debt (in value)	2 637 687	2 634 731	2 229 229	1 926 219	1 856 807
Cost of capital pre-tax (in value)	333 180	325 105	316 958	327 518	4 021 101
Average interest on debt (in %)	2.7%	2.5%	1.8%	2.6%	0
Interest on debt (in value)	72 290	66 744	40 360	49 171	10 844
Determined RoE pre-tax rate (in %)	7.0%	7.0%	7.2%	7.2%	0
Estimated surplus embedded in the cost of capital for en-route (in value)	260 890	258 362	276 599	278 346	272 169
Net ATSPs gain(+)/loss(-) on en-route activity	205 578	236 895	324 970	236 331	129 192
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>466 468</b>	<b>495 257</b>	<b>601 569</b>	<b>514 678</b>	<b>401 361</b>
<b>Revenue/costs for the en-route activity</b>	<b>5 352 820</b>	<b>5 330 405</b>	<b>5 434 895</b>	<b>5 423 903</b>	<b>5 374 187</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>8.7%</b>	<b>9.3%</b>	<b>11.1%</b>	<b>9.5%</b>	<b>7.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>12.5%</b>	<b>13.4%</b>	<b>15.6%</b>	<b>13.3%</b>	<b>10.0%</b>

## Union-wide En-route ATSPs

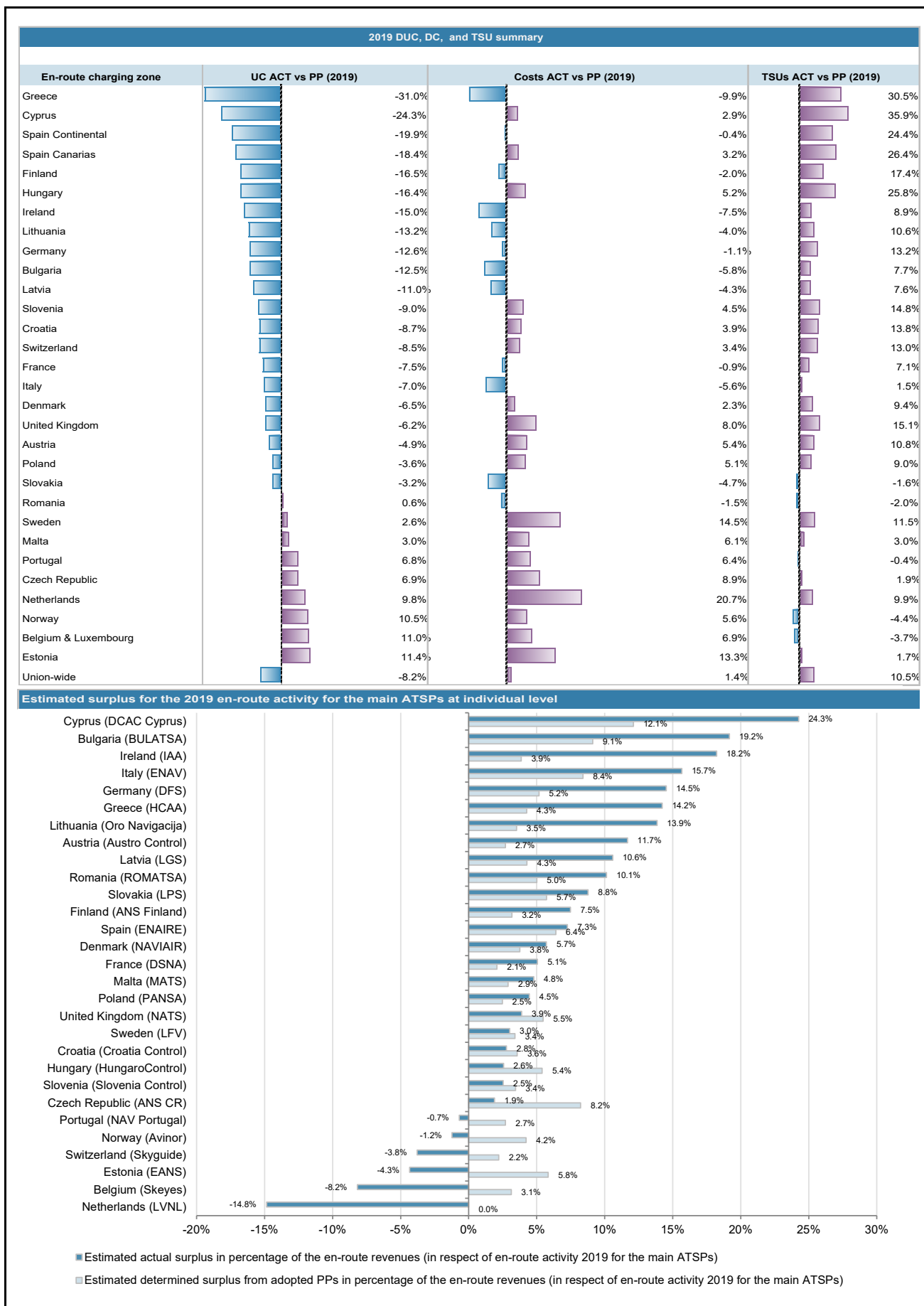
## Monitoring of en-route COST-EFFICIENCY for 2019





Union Wide En-route charging zones

Monitoring of en-route COST-EFFICIENCY for 2019



Union-wide Terminal charging zones

Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services

Although there are no Union-wide cost-efficiency targets for terminal ANSs, 2019 is the fifth year in which terminal ANS cost-efficiency performance has been monitored according to the re-quirements of Article 18 of the Commission Implementing Regulation (EU) No 390/2013. The terminal cost-efficiency KPI is the result of the ratio between the determined costs and the forecast terminal navigation service units (TNSUs) contained in the PPs. Each State has adopted local cost-efficiency targets at terminal charging zone (TCZ) level for RP2 with the same risk-sharing arrangements than for en route except that traffic risk-sharing exemptions can apply for TCZs including airports with less than 225,000 movements.

A total of 38 TCZs have been reported (generally one per State, but two TCZs have been reported for Italy, France Poland, United Kingdom and five for Belgium) covering a total of 174 airports. The two TCZs reported by UK have been excluded from the Union wide analysis for the following reasons:

- information relating to UK TCZ B (nine airports) should be reported to the EC on a confidential basis in accordance with the requirements related to market conditions and;
- UK TCZ C (London Approach) is not directly comparable with other TCZs since the service provided is of a hybrid nature, making the transition between en-route and terminal services for the five London Airports (which are also part of TCZ B).

It should be noted that the 2019 cost-efficiency monitoring analysis for UK TCZ C is available in the accompanying CZ view shown in the local level view part of the 2019 PRB Monitoring Report.

In 2016, Malta requested the Commission to revise their RP2 terminal DUC for the years 2017 to 2019. The figures for this State show the amended Performance Plan (Commission Implementing Decision (EU) 2017/2376 of 15 December 2017. In 2017, Romania and Portugal submitted a request to the European Commission to revise their RP2 terminal cost-efficiency targets DUC for the years 2018 to 2019. This report includes the amended figures for these States as reflected in the revised Performance Plan (EC Decision 2018/2021 of 17 December 2018.

2. Terminal DUC monitoring at Charging Zone level

Data from RP2 Performance Plan		2015D	2016D	2017D	2018D	2019D
Real terminal costs (EUR2009)		1 117 713 492	1 103 962 617	1 066 100 758	1 064 115 512	1 059 985 630
Total terminal Service Units		6 181 013	6 331 707	6 430 770	6 645 093	6 786 564
<b>Real average terminal unit cost per Service Unit (EUR2009)</b>		<b>180.83</b>	<b>174.35</b>	<b>165.78</b>	<b>160.14</b>	<b>156.19</b>
Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
Real terminal costs (EUR2009)		1 084 292 299	1 096 452 314	1 088 023 758	1 104 601 261	1 128 686 012
Total terminal Service Units		6 318 950	6 621 834	6 890 820	7 215 315	7 382 258
<b>Real average terminal unit cost per Service Unit (EUR2009)</b>		<b>171.59</b>	<b>165.58</b>	<b>157.89</b>	<b>153.09</b>	<b>152.89</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
Real terminal costs (EUR2009)	in value	-33 421 193	-7 510 302	21 923 000	40 485 749	68 700 382
	in %	-3.0%	-0.7%	2.1%	3.8%	6.5%
Total terminal Service Units	in value	137 937	290 127	460 050	570 222	595 695
	in %	2.2%	4.6%	7.2%	8.6%	8.8%
<b>Real average terminal unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-9.24</b>	<b>-8.77</b>	<b>-7.89</b>	<b>-7.04</b>	<b>-3.30</b>
	<b>in %</b>	<b>-5.1%</b>	<b>-5.0%</b>	<b>-4.8%</b>	<b>-4.4%</b>	<b>-2.1%</b>

3. Focus on terminals at Union-wide/Charging Zone level

Terminal unit cost (see box 2)

In 2019 the Union-wide actual terminal unit cost (152.89€2009) was -2.1% lower than planned in the RP2 performance plans. This variation results from the combination of higher than planned TNSUs (+8.8%) and higher than planned terminal costs (+6.5%, or +68.7 M€2009). The overall deviation of terminal unit costs observed at Union-wide level masks different situations across the 36 TCZs as shown in the table at the final page of this terminal costs efficiency Monitoring report.

It is the third time, taking in to account RP1 and RP2, that the total terminal ANS actual costs were higher than planned, i.e. +2.1% or +21.9 M€2009 in 2017, +3.8% or +40.8 M€2009 in 2018 and +6.5%, or +68.7 M€2009 in 2019.

Terminal service units (see box 4)

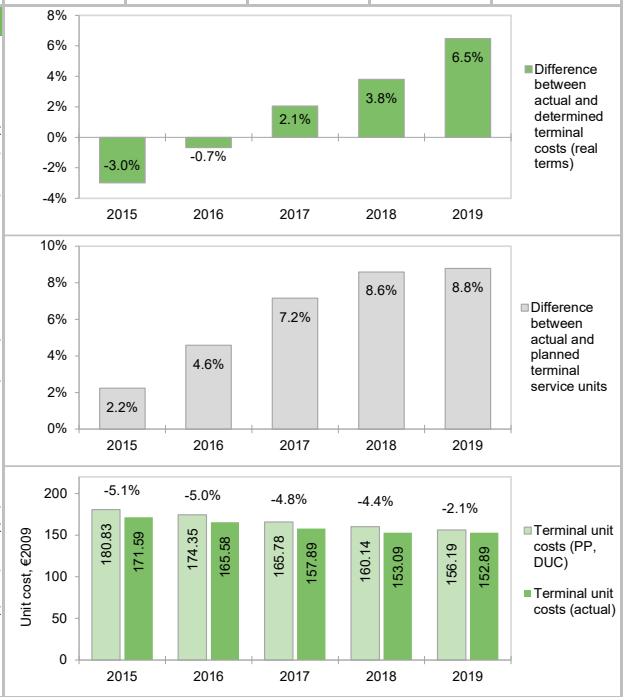
The TNSU forecasts used in the performance plans are consistently below the actual values. As for en route, the actual terminal traffic over RP2 is higher than the forecasts included in the performance plans at a Union-wide level. This implies additional revenues for the States/ATSPs and amounts to be reimbursed to airspace users according to the traffic risk-sharing adjustments.

The traffic has greatly exceed the ±2% dead-band foreseen in the traffic risk-sharing mechanism although this is just applicable at charging zone level. Additionally, the difference between actual and planned traffic has been increasing each year during RP2 (+2.2%, +4.6%, +7.2% +8.6% and +8.8% in 2015, 2016, 2017, 2018 and 2019 respectively).

It must be noted that that only 18 out of the 36 original TCZ are applying traffic risk-sharing.

Terminal costs (see box 5)

At SES level actual terminal costs were lower than planned for the MET service providers (-10.5% or -4.5M€2009). Differently, the NSA costs (+6.3% or +0.8M€2009) and the terminal cost for the main ATSPs were higher (+7.2% or 72.3M€2009). Due to their relative size in the CZs, most of the deviation observed for the total terminal ANS costs (+6.5% or +68.7M€2009) was due to the main ATSPs. Details on the main drivers underlying the deviation between actual and determined costs for each of these costs categories are available at CZ local view, Annex II of this PRB 2019 Annual Monitoring Report.



Union-wide Terminal charging zones

Monitoring of terminals COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level

ATSP	7.2%
Other ANSPs	43.6%
METSP	-10.5%
NSA	6.3%
<b>Total</b>	<b>6.5%</b>

Costs by nature at ATSP level

Staff	10.5%
Other operating costs	16.8%
Depreciation	-12.3%
Cost of capital	-25.0%
Exceptional items	0.9%
VFR exempted flights	-2.9%
<b>Total</b>	<b>7.2%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	1 436	2 428	2 623	5 335	8 781
	Interest rates on loans	-534	-899	-1 278	-188	-295
	Taxation law	-1 350	-1 399	-1 409	-1 464	-1 486
	New cost item required by law	115	650	1 286	2 546	4 632
	International agreements	0	0	0	0	0
by entity	ATSPs	-327	799	1 245	6 254	11 650
	Other ANSPs	0	0	0	0	0
	METSPs	-6	-19	-23	-24	-18
	NSAs	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>-332</b>	<b>780</b>	<b>1 221</b>	<b>6 229</b>	<b>11 632</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DC billed to users 2019 vs. 2019 Actual costs for users

Union-wide 2019 Actual Costs for users vs. 2019 DC billed to users (in M€2009)

The actual costs incurred by airspace users in respect of activities performed in 2019 (962.2M€2009) are -16.5% (-190.2M€2009) lower than the determined costs billed based on actual TNSUs (1,152.4M€2009). (See note 1 in box 3 at the gate to gate monitoring page)

The most important factor contributing to the observed difference is the deduction of -110.2M€2009 of other revenues. In a large majority of TCZs, there are either no (or negligible), amounts of other revenues deducted from the determined costs. However, circumstances in a few TCZs have a large impact at Union-wide level.

Traffic risk-sharing applies to 18 TCZs out of the 36 included in this monitoring report. In these TCZs, the net effect of differences between actual and planned TNSUs is a reimbursement (-35.8M€2009) to airspace users. Since traffic was in general higher than planned, the traffic adjustments relating to costs not subject to traffic risk-sharing is again a forthcoming reimbursement (-38.2M€2009) to airspace users.

For the majority of CZs the actual inflation index in 2019 was lower than planned in the PPs. The overall net effect of inflation adjustments at CZ level is a forthcoming reimbursement (-19.2 M€2009) to airspace users.

Six ATSPs (DFS, Avinor, ENAV, Skyguide, LGS and Oro Navegacija) reported a bonus for their operational performance in 2019 (for an overall amount of 2.0M€2009) and three (LVNL, ANS Fin-land and PANSAs) reported a penalty (for an overall amount of 0.4M€2009) leading to a net amount of 1.6M€2009.

Finally, +11.6 M€2009 costs exempt from cost-sharing were reported.

## Union-wide Terminal ATSPs

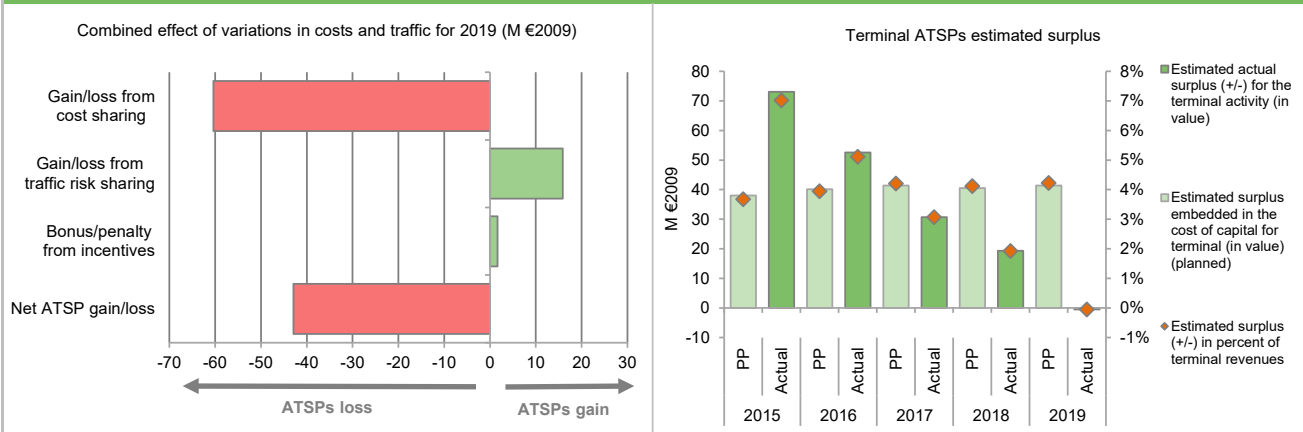
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSPs: Net ATSPs gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSPs (PP) - based on planned inflation	1 034 271	1 018 655	985 233	983 098	979 223
Actual costs for the ATSPs	1 008 139	1 017 908	1 013 219	1 028 585	1 051 255
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSPs	26 133	746	-27 986	-45 487	-72 032
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-327	799	1 245	6 254	11 650
<b>Gain (+)/Loss (-) to be retained by the ATSPs in respect of cost sharing</b>	<b>25 806</b>	<b>1 546</b>	<b>-26 741</b>	<b>-39 233</b>	<b>-60 382</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.5%	4.0%	6.1%	7.0%	7.4%
Determined costs for the ATSPs (PP) - based on actual inflation	847 361	835 087	798 652	789 811	786 175
<b>Gain (+)/Loss (-) to be retained by the ATSPs in respect of traffic risk sharing</b>	<b>6 488</b>	<b>7 071</b>	<b>10 964</b>	<b>14 625</b>	<b>15 859</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSPs in respect of incentives (bonus/penalty)</b>	<b>1 072</b>	<b>1 816</b>	<b>1 464</b>	<b>1 809</b>	<b>1 611</b>
<b>Net ATSPs gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>33 366</b>	<b>10 432</b>	<b>-14 314</b>	<b>-22 800</b>	<b>-42 912</b>
* The metric presented in box 10 (economic surplus) is computed using information provided by States/ANSPs in their Reporting Tables for the purposes of the cost-efficiency monitoring analysis. It is important to note that, mainly due to differences in scope, this metric may not reflect the financial situation of ANSPs as it is presented in their audited financial statements.					
10. Focus on ATSPs: Terminal ATSPs estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSPs estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	1 172 571	1 171 611	1 170 406	1 154 743	1 147 512
Estimated proportion of financing through equity (in %)	53.3%	55.0%	54.1%	54.6%	55.9%
Estimated proportion of financing through equity (in value)	624 906	644 393	633 596	630 725	641 759
Estimated proportion of financing through debt (in %)	46.7%	45.0%	45.9%	45.4%	44.1%
Estimated proportion of financing through debt (in value)	547 665	527 218	536 810	524 018	505 753
Cost of capital pre-tax (in value)	56 122	57 755	59 191	56 271	56 386
Average interest on debt (in %)	3.3%	3.3%	3.3%	3.0%	3.0%
Interest on debt (in value)	18 075	17 595	17 780	15 763	15 014
Determined RoE pre-tax rate (in %)	6.1%	6.2%	6.5%	6.4%	6.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	38 048	40 160	41 411	40 507	41 372
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>38 048</b>	<b>40 160</b>	<b>41 411</b>	<b>40 507</b>	<b>41 372</b>
<b>Revenue/costs for the terminal activity</b>	<b>1 034 509</b>	<b>1 018 966</b>	<b>985 601</b>	<b>983 524</b>	<b>979 704</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>3.7%</b>	<b>3.9%</b>	<b>4.2%</b>	<b>4.1%</b>	<b>4.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.1%</b>	<b>6.2%</b>	<b>6.5%</b>	<b>6.4%</b>	<b>6.4%</b>
ATSPs estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	1 113 589	1 155 116	1 138 473	1 043 103	1 041 144
Estimated proportion of financing through equity (in %)	56.7%	56.4%	59.1%	62.4%	63.5%
Estimated proportion of financing through equity (in value)	631 488	651 928	672 861	650 688	661 603
Estimated proportion of financing through debt (in %)	43.3%	43.6%	40.9%	37.6%	36.5%
Estimated proportion of financing through debt (in value)	482 101	503 187	465 613	392 415	379 541
Cost of capital pre-tax (in value)	53 253	56 027	54 238	54 680	42 347
Average interest on debt (in %)	2.8%	2.8%	2.0%	3.2%	-0.0%
Interest on debt (in value)	13 502	13 904	9 269	12 533	-91
Determined RoE pre-tax rate (in %)	6.3%	6.5%	6.7%	6.5%	6.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	39 751	42 123	44 969	42 147	42 438
Net ATSPs gain(+)/loss(-) on terminal activity	33 366	10 432	-14 314	-22 800	-42 912
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>73 118</b>	<b>52 556</b>	<b>30 655</b>	<b>19 347</b>	<b>-474</b>
<b>Revenue/costs for the terminal activity</b>	<b>1 041 505</b>	<b>1 028 341</b>	<b>998 905</b>	<b>1 005 785</b>	<b>1 008 344</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>7.0%</b>	<b>5.1%</b>	<b>3.1%</b>	<b>1.9%</b>	<b>0.0%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>11.6%</b>	<b>8.1%</b>	<b>4.6%</b>	<b>3.0%</b>	<b>-0.1%</b>

Union-wide Terminal ATSPs

Monitoring of terminal COST-EFFICIENCY for 2019

11. Focus on ATSPs: Summary of ATSP gain/loss on terminal activity and estimated surplus



12. Focus on terminal ATSPs: General conclusions

Actual 2019 ATSPs terminal costs vs. PP (see box 5)

The observed higher actual costs compared to the DCs for the main ATSPs masks different situations across the different costs categories in 2019. The main drivers of the deviation are the higher staff costs (+10.5% or +73.9M€2009) and the higher operational costs (+16.8% or 28.1M€2009), only partially compensated by lower depreciation costs (-12.3% or -15.5M€2009) and lower cost of capital (-25.0% or -14.3M€2009).

Details on the main drivers underlying the deviation between actual and determined costs for each of these costs categories are available at CZ local view, Annex II of this PRB 2019 Annual Monitoring Report.

Net gain/loss on terminal activity in 2019 (see box 9)

In 2019, the main ATSPs collectively generated a net loss of -43.0 M€2009 on the terminal activity. This is a combination of three elements:

- a loss of -60.4 M€2009 arising from the cost-sharing mechanism;
- a gain of +15.9 M€2009 arising from the traffic risk-sharing mechanism (applied in 18 out of 36 TCZs included in this analysis); and
- a gain of +1.6 M€2009, corresponding to a bonus from the capacity incentive mechanism.

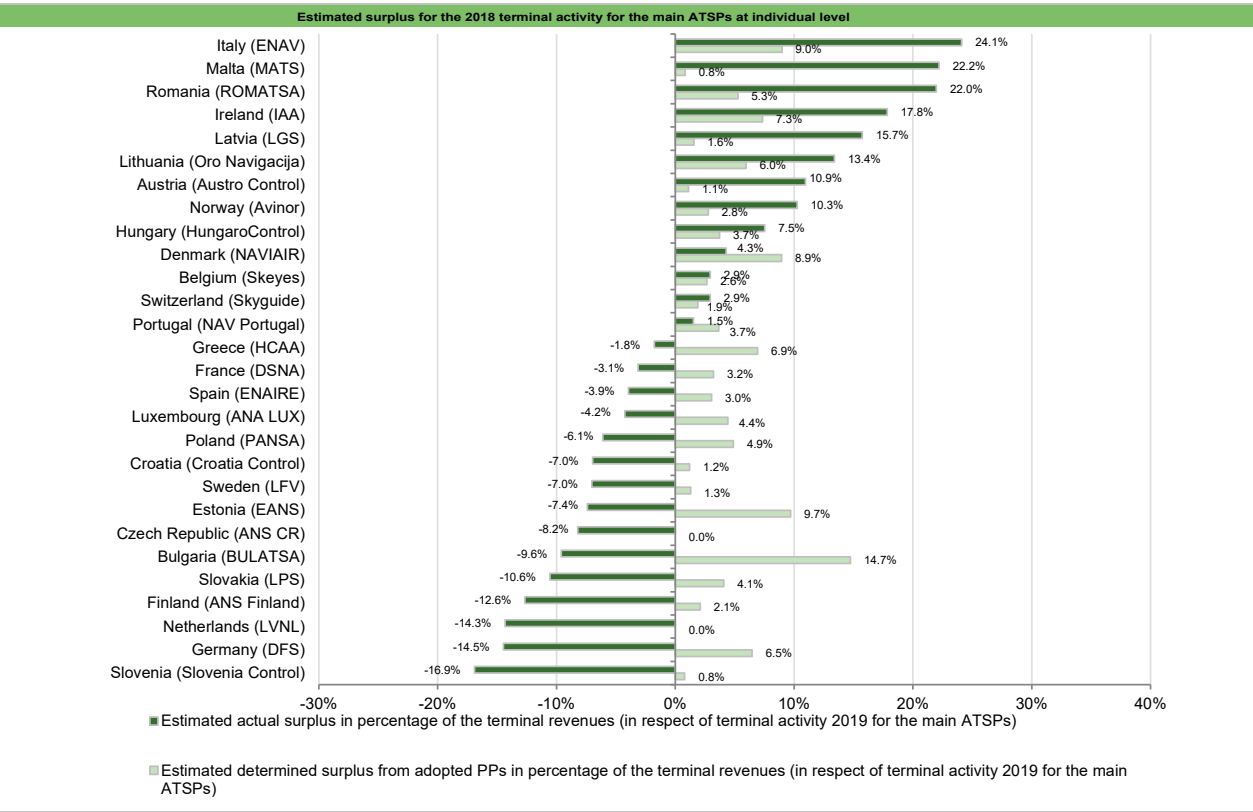
The gain, in respect of capacity incentives (+1.6M€2009), reflects the fact that six ATSPs (DFS, Avinor, ENAV, Skyguide, LGS and Oro Navigacija) reported a bonus for their operational performance in 2019 (for an overall amount of 2.0M€2009) and three (LVNL, ANS Finland and PANSA) reported a penalty (for an overall amount of 0.4M€2009). The inclusion of these bonuses in the chargeable cost base is still being assessed by the European Commission

Overall estimated surplus for the terminal activity (see box 10 and 11)

Ex-post, the overall estimated surplus taking into account the net loss from the terminal activity mentioned above (-43.0M€2009) and the surplus embedded in the actual cost of capital (42.4 M€2009) amounts to -0.47M€2009. At Union-wide level, the resulting ex-post rate of return on equity (RoE) is -0.1%, which is lower than the 6.4% planned in the PPs. Many TCZs are very small (for RP2 123 out of 166 airports included in this report, were below the 70,000 threshold of air transport movements per year) and in many cases the asset base reported for the TCZ is also very small. The RoE expressed in terms of percentage should therefore be interpreted with caution since relatively high/low values do not necessarily reflect very large gains/losses in absolute values. (see note 2 in box 3 at the gate to gate monitoring page).

Union-wide Terminal charging zones

Monitoring of terminal COST-EFFICIENCY for 2019



## Union-wide Gate-to-gate

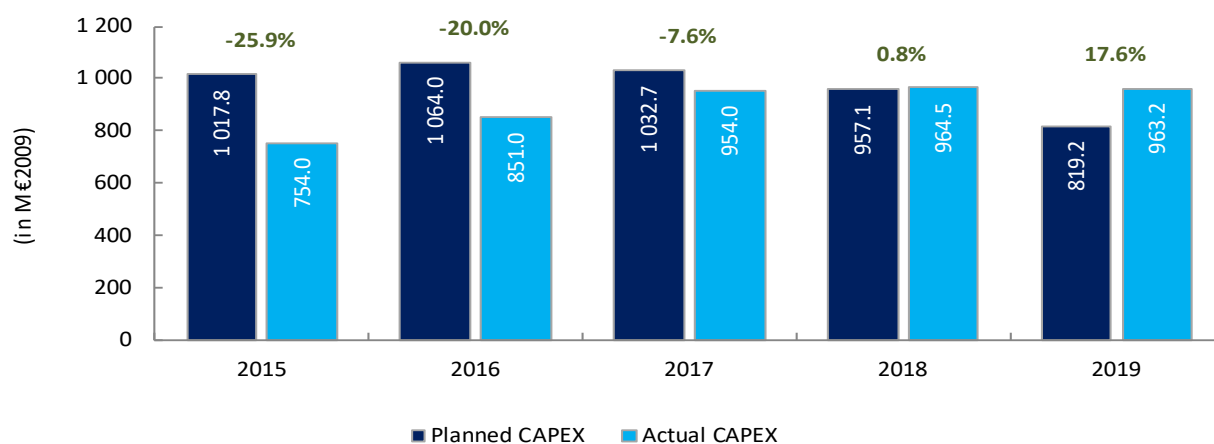
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Data from RP2 Performance Plan</b>																																												
	<b>2015D</b>	<b>2016D</b>	<b>2017D</b>	<b>2018D</b>	<b>2019D</b>																																							
Real en-route costs (EUR2009)	6 235 113 277	6 195 878 072	6 164 525 008	6 153 524 516	6 059 092 064																																							
Real terminal costs (EUR2009)	1 117 713 492	1 103 962 617	1 066 100 758	1 064 115 512	1 059 985 630																																							
Real gate-to-gate costs (EUR2009)	7 352 826 769	7 299 840 689	7 230 625 766	7 217 640 028	7 119 077 694																																							
En-route share (%)	84.8%	84.9%	85.3%	85.3%	85.1%																																							
<b>Actual data from Reporting Tables</b>																																												
	<b>2015A</b>	<b>2016A</b>	<b>2017A</b>	<b>2018A</b>	<b>2019A</b>																																							
Real en-route costs (EUR2009)	6 079 269 388	6 060 523 324	6 002 852 359	6 077 800 962	6 145 242 571																																							
Real terminal costs (EUR2009)	1 084 292 299	1 096 452 314	1 088 023 758	1 104 601 261	1 128 686 012																																							
Real gate-to-gate costs (EUR2009)	7 163 561 686	7 156 975 638	7 090 876 116	7 182 402 224	7 273 928 583																																							
En-route share (%)	84.9%	84.7%	84.7%	84.6%	84.5%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>																																							
Real gate-to-gate costs (EUR2009)																																												
in value	-189 265 082	-142 865 051	-139 749 650	-35 237 804	154 850 889																																							
in %	-2.6%	-2.0%	-1.9%	-0.5%	2.2%																																							
En-route share																																												
in p.p.	0.1 p.p.	-0.2 p.p.	-0.6 p.p.	-0.0 p.p.	-0.0 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>Actual gate-to-gate ANS costs at Union-wide level in 2018 were -0.4% lower than planned in the adopted PPs (7 191 M€2009 compared to 7 217 M€2009) due to a combination of lower en-route costs and higher terminal costs.</p> <p>The actual proportion of en-route in total ANS costs (84.6%) is in line with the proportion planned in the PPs (85.3%). This indicates that, at system level, there is no noticeable reallocation of costs from en-route to terminal ANS.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>84.8%</td> <td>15.2%</td> </tr> <tr> <td>Actual</td> <td>84.9%</td> <td>15.1%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>84.9%</td> <td>15.1%</td> </tr> <tr> <td>Actual</td> <td>84.7%</td> <td>15.3%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>85.3%</td> <td>14.7%</td> </tr> <tr> <td>Actual</td> <td>84.7%</td> <td>15.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>85.3%</td> <td>14.7%</td> </tr> <tr> <td>Actual</td> <td>84.6%</td> <td>15.4%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>85.1%</td> <td>14.9%</td> </tr> <tr> <td>Actual</td> <td>84.5%</td> <td>15.5%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	84.8%	15.2%	Actual	84.9%	15.1%	2016	Determined	84.9%	15.1%	Actual	84.7%	15.3%	2017	Determined	85.3%	14.7%	Actual	84.7%	15.3%	2018	Determined	85.3%	14.7%	Actual	84.6%	15.4%	2019	Determined	85.1%	14.9%	Actual	84.5%	15.5%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	84.8%	15.2%																																									
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2019	Determined	85.1%	14.9%																																									
	Actual	84.5%	15.5%																																									
<b>3. Technical notes on en-route and terminal information</b>																																												
<p><b>Note 1:</b> It should be noted that the calculation of the "true costs" for users does not include the impact of the risk associated with exchange rates linked to the billing of the chargeable unit rate. The unit rate charged to airspace users is established in national currency but billed in Euros using the current exchange rate. In case of exchange rate fluctuations, the actual costs paid by airspace users will be higher or lower than planned.</p>																																												
<p><b>Note 2:</b> Although 30 main ATSPs reported information relating to terminal ANS in 2019, the analysis presented hereafter focuses on 28 ATSPs in order to take into account the specificities of some TCZs:</p> <ul style="list-style-type: none"> <li>• Actual data for the ATSPs operating in UK TCZ B (mainly NERL) are not publicly available (should be reported to the European Commission on a confidential basis as terminal ANS are provided on a contractual basis). UK TCZs were excluded from this analysis in order to ensure consistency with terminal monitoring report section</li> <li>• In Cyprus and at four Belgian regional TCZs, terminal ANS is 100% subsidised by the States/Regions.</li> <li>• In Sweden, no capital-related costs (depreciation and cost of capital) are reported for the main ATSP (LFV) in the terminal reporting tables since these costs are fully borne by the airport operator (Swedavia) that owns the CNS infrastructure used by LFV to provide terminal ANS services. For monitoring purposes, the overall estimated terminal surplus for ATSPs (LFV and Swedavia) is considered.</li> <li>• From 2017, France and Poland have two terminal CZ but one single ATSP each (DSNA and PANSA respectively) and Italy from 2015 (ENAV). Therefore, the ATSP surplus is calculated by taking into account both CZs of each state.</li> </ul> <p>In the cases mentioned above, the notion of economic surplus is either not appropriate, or to be interpreted with caution. NERL, DCAC and Skeyes (except for its activity in Brussels TCZ) have therefore been excluded from the analysis.</p>																																												

## EU - all FABs

## Monitoring of CAPEX for 2019

Economic Assessment						
Currency: EUR						
Data from RP2 national performance plan	2015P	2016P	2017P	2018P	2019P	RP2P
<b>Total CAPEX (in M €2009)</b>	<b>1 017.8</b>	<b>1 064.0</b>	<b>1 032.7</b>	<b>957.1</b>	<b>819.2</b>	<b>4 890.7</b>
Main CAPEX (in M €2009)	725.8	789.1	760.9	664.7	541.1	3 481.6
% Main into Total CAPEX	71.3%	74.2%	73.7%	69.5%	66.0%	71.2%
Real gate-to-gate ANSP costs (in M €2009)	<b>6 498.1</b>	<b>6 419.5</b>	<b>6 413.4</b>	<b>6 397.6</b>	<b>6 298.0</b>	<b>32 026.6</b>
% of CAPEX into Real gate-to-gate ANSP costs	15.7%	16.6%	16.1%	15.0%	13.0%	15.3%
Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	RP2A
<b>Total CAPEX (in M €2009)</b>	<b>754.0</b>	<b>851.0</b>	<b>954.0</b>	<b>964.5</b>	<b>963.2</b>	<b>4 486.7</b>
Main CAPEX (in M €2009)	<b>528.9</b>	<b>626.9</b>	<b>688.8</b>	<b>673.9</b>	<b>660.4</b>	<b>3 179.0</b>
% Main into Total CAPEX	70.2%	73.7%	72.2%	69.9%	68.6%	70.9%
Real gate-to-gate ANSP costs (in M €2009)	<b>6 315.5</b>	<b>6 283.1</b>	<b>6 299.3</b>	<b>6 397.9</b>	<b>6 490.1</b>	<b>31 785.9</b>
% of CAPEX into Real gate-to-gate ANSP costs	11.9%	13.5%	15.1%	15.1%	14.8%	14.1%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in M €2009)	-263.8	-213.0	-78.6	7.4	144.0	-404.0
<b>Total CAPEX (in %, for M €2009)</b>	<b>-25.9%</b>	<b>-20.0%</b>	<b>-7.6%</b>	<b>0.8%</b>	<b>17.6%</b>	<b>-8.3%</b>



The table above shows that in 2019 the actual total CAPEX are 963.2 M€2009, this is +17.6% higher than planned in the PP (819.2 M€2009) and it represents 14.8% the total real gate-to-gate costs. The difference of +17.6% higher actual CAPEX than planned, confirms last year change in the tendency, with almost no difference between actual and planned, while in the first three years of RP2, the actual CAPEX compared to planned were lower by -25.9% in 2015 by -20.0% in 2016 and by -7.6% in 2017.

Over the 5 years of RP2, 8.3% (i.e. 404.0 M€2009) of capital expenditure (CAPEX) planned in the RP2 Performance Plans have not materialised (i.e. have been cancelled and/or postponed). However, the related planned costs (depreciation and cost of capital) were included in the de-termined costs and therefore have been (or are being) charged to airspace users.

The postponement of capital expenditures (CAPEX) which was observed during the RP1 period could have been triggered to adjust to lower than expected traffic volumes over the whole RP1 period, but this was not the case in RP2.



# **Annual Monitoring Report 2019**

Local level view  
BALTIC FAB

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## BALTIC FAB

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management			2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs					C
	at ANSP level	For Safety Culture MO					C
		For all other MOs					D
FAB level	States / Regulatory authorities	For all MOs	B	B	A	B	B
	ANSPs	For Safety Culture MO	A	A	C	C	C
	ANSPs	For all other MOs	A	A	B	C	D
Application of the severity classification of the Risk Analysis Tool (RAT)			2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Ground Score							
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%		100%
	Runway Incursions (RIs)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		N/A	40%	0%	100%	100%
	Runway Incursions (RIs)		N/A	41%	0%	100%	100%
Overall Score							
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	9%	0%	27%	29%
	Runway Incursions (RIs)		100%	0%	25%	25%	0%
	ATM Specific occurrences (ATM-S)		100%	33%	14%	100%	100%

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

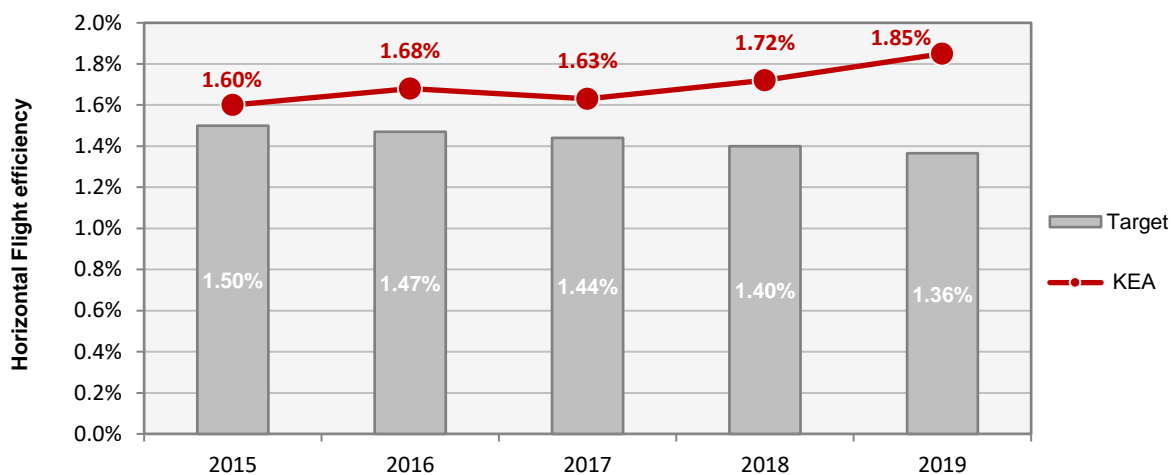
#### Observations

The lowest level in all EoSM Component/area of the States is Level "B", achieved in Safety Culture, which is below the 2019 EoSM target level. All other components are already at or above the 2019 EoSM target level. Note that this component is not verified by EASA.

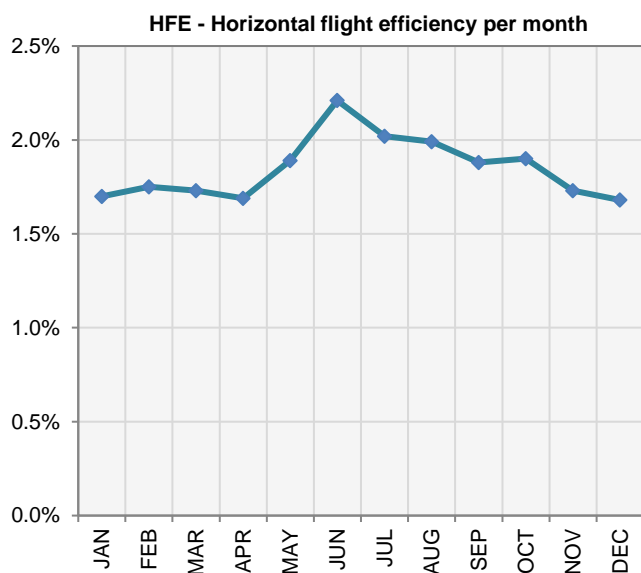
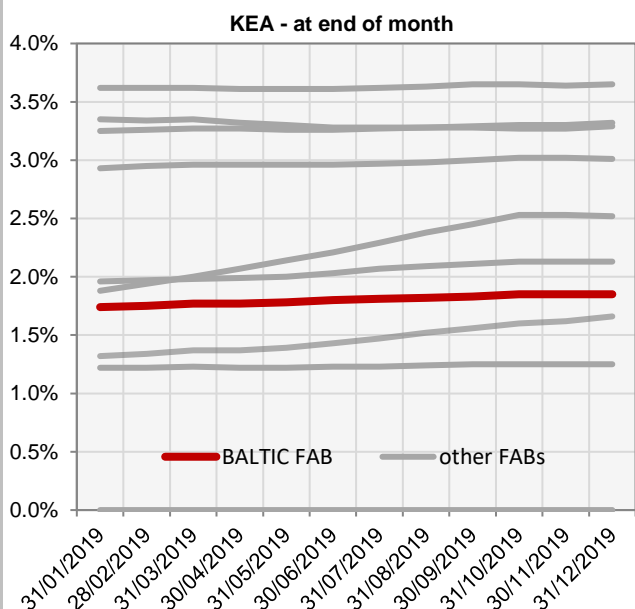
**BALTIC FAB**

**Monitoring of ENVIRONMENT for 2019**

KEA					
	2015	2016	2017	2018	2019
<b>FAB Target</b>	1.50%	1.47%	1.44%	1.40%	1.36%
<b>KEA Value</b>	1.60%	1.68%	1.63%	1.72%	1.85%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>KEA (at end of month)</b>	1.74%	1.75%	1.77%	1.77%	1.78%	1.80%	1.81%	1.82%	1.83%	1.85%	1.85%	1.85%
<b>HFE</b>	1.70%	1.75%	1.73%	1.69%	1.89%	2.21%	2.02%	1.99%	1.88%	1.90%	1.73%	1.68%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.

**BALTIC FAB**

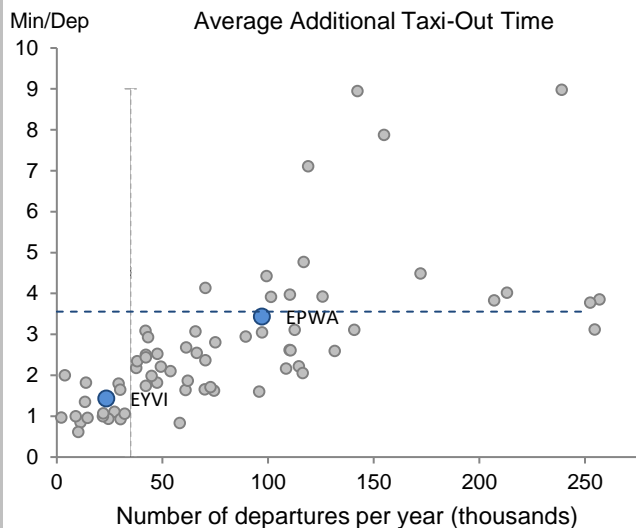
**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

Only two airports in the Baltic FAB have established the Airport Operator Data Flow (APDF), required for the calculation of the environmental performance indicators. The FAB evaluation is therefore done on the basis of these two airports: Vilnius (EYVI) and Warsaw (EPWA). Member States shall empower the respective airport reporting entity to establish the airport operator data flow and/or address the remaining data issues.

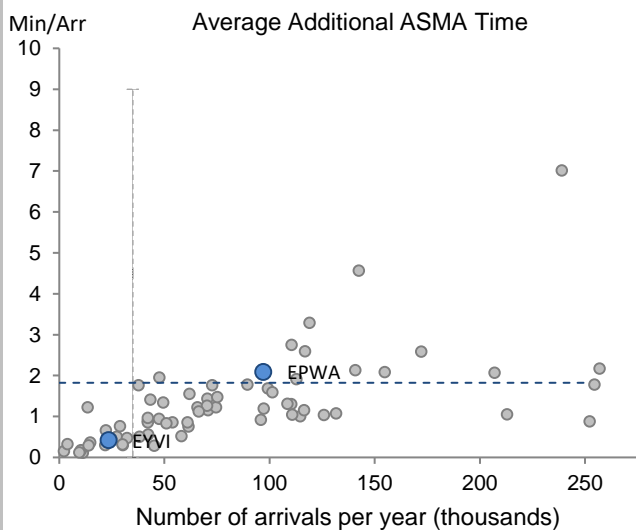
Both airports show performance in line with their number of movements although additional times at Warsaw have observed significant deterioration since the beginning of RP2.

**2. Additional Taxi-Out Time**



Average additional taxi-out time at Warsaw sits just below the European average (RP2 available airports: 3.56 min/dep) after increasing in 2019 due to works. No evolution can be analysed for Vilnius, as it only implemented the Airport Operator Data Flow in 2019. The observed performance in 2019 is however commensurate with the level of traffic.

**3. Additional ASMA Time**



The additional ASMA time for Warsaw in 2019 shows slightly worse performance than the average of measured airports in RP2 (1.82 min/arr.). This performance is also associated to the works at the airport and moderately worse than many airports with similar number of movements. Vilnius shows low additional ASMA times very much in line with similar airports in terms of movements.

**BALTIC FAB****Monitoring of CAPACITY for 2019**

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
<b>FAB Reference Value</b>	0.21	0.21	0.21	0.22	0.22	
<b>FAB Target</b>	0.21	0.21	0.21	0.22	0.22	
<b>Actual performance</b>	0.16	0.35	0.10	0.22	0.10	

**BALTIC FAB assessment of capacity performance**

The value of en-route delays achieved in Baltic FAB in 2019 resulted at the level of 0.10 min/flight and it was lower than the target set for the FAB. The better value of the en-route delays indicator was primarily influenced by the operational situation at FIR Warszawa.

There were several reasons of the positive results in 2019, however the main factor was the lower number of operations, including the Summer 2019 season, which was below the STATFOR forecasts from February 2019. Apart from the above-mentioned lower volume of the air traffic, actions taken to optimize airspace management, space re-structuring and optimal use of resources were positively influencing the en-route ATFM delay indicator.

**Monitoring process for capacity performance**

The monitoring process was conducted continuously on the basis of data derived from Pan-European ANS Performance data repository (<http://ansperformance.eu/data/>) and information provided by Polish Air Navigation Services Agency (PANSA). Monitoring was performed on the national and FAB levels (by the Baltic FAB Strategic, Economic and Performance Committee).

**Application of Corrective Measures for Capacity**

Due to visible restrictions on the airspace capacity in some countries, for the Summer 2019 Network Manager (EUROCONTROL), in cooperation with ANSPs, introduced measures to relieve these most congested parts of the European network airspace (so-called enhanced NM Summer 2019 Measures - eNM S19 Measures). In case of Poland, PANSA was actively participating in the eNM S19 Measures. According to Network Manager calculations it has generated 68,577 minutes of en-route delays at FIR Warszawa. As a consequence of implementation of regulations concerning re-distributing delays for 2019 in connection with eNM S19 Measures (the post-ops performance adjustment process) the corresponding value of minutes for en-route delays was attributed to the German airspace (DFS). This resulted in a route delay at the level Poland of 0.12 min/flight. Without this correction, the value of the delay for Poland for 2019 would be slightly higher (0.19 min/flight).

**Capacity Planning**

Capacity planning process was based on the cycle agreed by Network Manager and local ANSPs (including annual meeting of NM representatives and local ANSPs when ACC capacity plan is updated).

Significant changes in air traffic flow and its density together with dynamic of air traffic growth were mainly influencing the capacity planning process. The geopolitical situation in the region and some factors related to the activities of airspace users and air navigation service providers, indicated the necessity for changes of assumptions made for RP2. The main factors were: significant increase of traffic - mainly from Russian Federation bypassing Ukrainian airspace, changes of business plans of airlines and large Military/NATO exercises.

To respond to all dynamic changes PANSA implemented solutions to mitigate problems and create conditions to meet targets set for the RP2. The main steps were indicating:

- analysing of lessons learned from the operational experience;
- introducing flexible roster;
- providing conditions for efficient training of operational personnel;
- operational support in core areas;
- direct cooperation with airspace users;
- opening sectors for longer period of time;
- establishment of new sectors, especially in South-East part of FIR Warszawa;
- capacity management adapted to the traffic demands;
- implementation of 5 NM separation;
- implementation of POLFRA.

### Assessment of capacity performance

BALTIC FAB achieved a level of capacity performance that provided a positive contribution to the Union-wide target for en route capacity. Even though traffic increased by just over 5% from 2018 levels BALTIC FAB caused airspace users significantly fewer delays than in 2018, predominantly due to an improvement in Poland (Lithuania continued to provide excellent capacity performance with zero delays.).

Overall the traffic level was between the base and high traffic levels forecasted by STATFOR back in 2014. The actual delays were less than one third of those predicted in the NOP 2019 - 2024.

#### EUROCONTROL 7 year traffic forecast February 2014

	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	820		863		926		982		1 044		1 106	
<b>Base</b>	807	<b>788</b>	837	<b>790</b>	873	<b>842</b>	904	<b>888</b>	938	<b>976</b>	974	<b>1 025</b>
<b>Low</b>	794		812		825		838		853		868	

#### Delay forecast (with eNM/ANSPs measures for 2019/2020)

	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.13	0.14	0.18	0.24	N/A	N/A
<b>NOP 2019 - 2024</b>	0.36	0.33	0.21 - 0.26			

#### EUROCONTROL 7 year traffic forecast September 2016

	2017		2018		2019		BALTIC FAB submitted a revised performance plan during RP2. BALTIC FAB state that the planned resources for PANSAs were based on the latest traffic forecast available when the revised performance plan was submitted (September 2016 Forecast). BALTIC FAB have requested that the evolution of traffic is presented with the 2016 forecast.
		actual		actual		actual	
<b>High</b>	907		965		1 025		
<b>Base</b>	879	<b>888</b>	905	<b>976</b>	937	<b>1 025</b>	
<b>Low</b>	848		854		862		

### En route Capacity Incentive Scheme

Baltic FAB do not apply a FAB-wide incentive scheme but apply local / national schemes instead. These schemes are presented in the relevant national performance report.

#### Result of FAB Capacity Incentive Scheme

N/A

### Update on Military dimension of the plan

Poland: No significant changes in the Military Dimension of the plan were reported during 2019.

To improve the level of civil-military cooperation the following projects were implemented:

1. Feeding PANSAs radar system with radar data from military radars in accordance with national security regulations.
2. Organisation of the meetings and briefings concerning possible locations of PANSAs radio-navigation equipment on military locations.
3. Continuation of the harmonisation process of GAT and OAT traffic connected to implementation of EUROAT in FIR Warszawa.
4. Continuation of the theoretical training of ACS/OAT controllers. In 2019 there were organised session for 13 persons.
5. Continuation of the planning process for implementation regulations that allow functioning of PANSAs during crisis and war.
6. Implementation of the Ministry of Infrastructure regulations concerning civil-military use of airspace. There were implemented LoA between PANSAs and military authorities concerning changes in seven MATZ.
7. Reorganized some of the structures of military space and rules of their use (for example conversion of some TSAs to TRAs, introduction of time limitations for military use of airspace).

Lithuania: June 2018 SE Oro Navigacija implemented civil-military ASM coordination tool LARA, functionalities to support allocation of airspace for civil and military users, publication of Airspace Use Plan (AUP). As of second half of 2020 military expects to start using LARA tool for ASM Level 2 and 3.

On 14 June 2016 amended Letter of Agreement among NATO and ESTONIA, LATVIA and LITHUANIA on airspace management arrangements in support to the NATO airpolicing mission and other air activities in the Baltic States (Amendment of this LoA expected second half of 2020).

On 24 September 2016 amended LoA among SE Oro Navigacija and Lithuanian Army on airspace management arrangement, operational cooperation ensuring efficient airspace surveillance, control, defence and flight safety.

On 3 August 2018 amended LoA was signed between SE Oro Navigacija and Lithuanian Army on airspace management arrangement, operational cooperation with the purpose to ensure efficient airspace surveillance, control, defence and flight safety (Amendment of this LoA expected second half of 2020).

Further enhancement of FUA supporting legislation, airspace use planning, coordination and booking procedures, supporting technology were applied. Steps for the implementation of EUROAT concept will be limited, due to absence of Military (OAT) ATC (ATS in Lithuanian FIR/UIR is provided by civil ATCO's).

### Observations on Military dimension of the plan

The update on the Military dimension of the plan is welcomed.

### Application of FUA

Poland: In 2019 the Ministry of National Defence, Polish CAA and PANSAs were working together to enhance FUA concept by implementing a new generation of the system Common Airspace Tool – CAT. The system aimed at improving the effectiveness of booking procedures and supporting the Advanced Flexible Use of Airspace - AFUA. CAT provided all necessary information about current and planned airspace structures reservations, supported airspace management, both in the Free Route Airspace and the ATS route network. System was used by air navigation operations personnel including Airspace Management Cell and by the Polish Air Force. It supported the information exchange process regarding the planned and actual use of airspace. It was evidently with benefit to civil users in Poland.

Allowing to achieve the maximum benefits from more accurate ASM information sharing, the ASM LoA was signed and became effective since 2016.05.26. According to LoA, responsibility of pre-tactical and tactical coordination regarding SUA in the airspace of common interest used for military/other airspace users activities rests on Lithuanian side with AMC Lithuania/ACC Vilnius Supervisor, and on Polish side with AMC Poland.

Airspace of common interest is defined as: FIR/UIR Vilnius – EY-D12, EY-TSA 6, EY-TSA7A,B,C and Ad-hoc SUA's above FL95 south of N5500 and west of E2400; FIR Warszawa - EP TRA 54A, 80, 81, EP TSA 02D and Ad-hoc SUA's above FL95 north of N5330 and east of E2200. LoA regularly maintained, last time updated in March 2020.

#### Lithuania

Regular annual national airspace utilisation planning and monitoring started in Lithuania in 2018. It involves all kind of airspace users (military, sport aviation and GAT) into the coordination process. Revised LoA between SE Oro navigacija and Lithuanian Air Forces of the Armed Forces was signed on 3 August 2018. It enhanced the FUA procedures. ON started to apply automated ASM tool LARA and real-time B2B connection with NM from 2 July 2018. The information related with special zones reservation and impact on air traffic is promptly provided to airspace users. Changes of the reservations, such as cancellations or changes related with the duration of the reservations are also tactically distributed via UUP and it contributes to the implementation of FUA. ON monitors and analyses the reservation related efficiency indicators and suggest how the usage of the special airspace reservations could become more efficient. It is planned to update current LARA version 3.0 to LARA version 3.1 or version 3.2 which allows to start the automated ASM performance monitoring tool PRISMIL use in 2020 (it depends on the new ATM system iTEC deployment date).

What is more:

1. Lithuania's airspace structure continuously revised to reflect all airspace users needs and to ensure maximum effectiveness and flexibility of provided services. In March 2020 ARESEs near Kaunas international airport were revised (introduced new EY-TSA7A/B/C, EYR28 and EYR34) and new introduced, followed by route revision process and new SLoA establishment.
2. Lithuanian Military established Air Operation Coordination Cell (AOCC) in 2020. One of the main functions of AOCC is to collect all Special use Airspace (SUA) requests and provide information directly through the LARA system. This must improve the efficiency of ATM, ensure the provision of verified and harmonized airspace use information, possibly reduce the number of airspace reservation applications, and expand cooperation between the ON and MIL at FUA level. It is planned that MIL will start operations using LARA from 2020 July 1 (operations could be shifted to the right due to COVID-19 impact).

### Observations of the Application of FUA

The update on the application of FUA within the BALTIC FAB is welcomed.



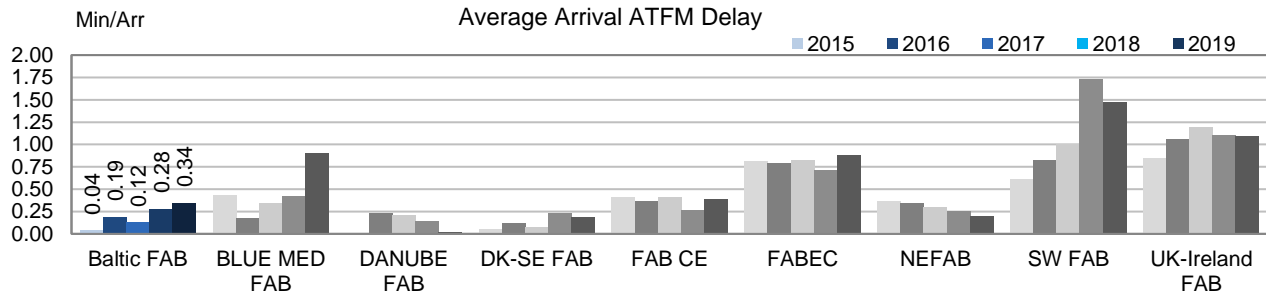
**BALTIC FAB**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

Baltic FAB contributes adequately to the airport-related ANS capacity performance in Europe with an arrival ATFM delay of 0.34 min/arr. in 2019, still well below the European average (0.86 min/arr.) However there is a progressive and drastic deterioration along RP2 driven mainly by the delays at Warsaw, associated to a notable traffic increase combined with aerodrome capacity constraints.

**2. Arrival ATFM Delay**



Lithuania shows no ATFM terminal delays at all, and in Poland the main contributor to the arrival delay is once more Warszawa/Chopina, where delays have significantly increased in 2019 reaching 0.86 min/arr. The aerodrome capacity constraints generate more than 62% of these delays at EPWA while weather related delays account for 18.7% and ATC related delays (ATC Capacity, Staffing and Disruptions) represent 16.4%.

**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

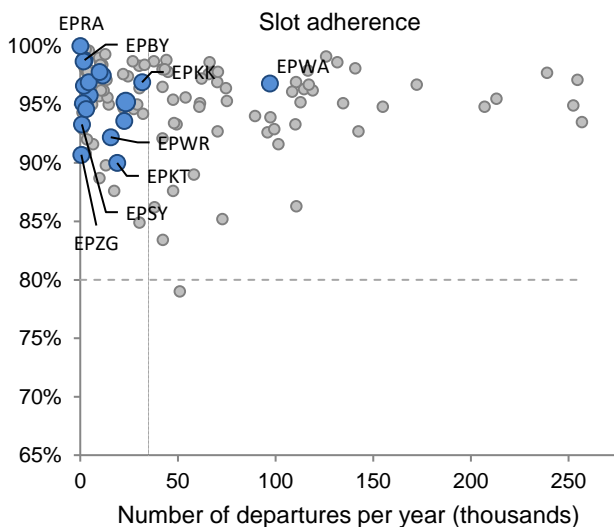
Both Poland and Lithuania have established national targets adequate to historical performance. In 2019 Lithuania meets the zero delay target and qualifies for a bonus of 0.1% of the revenues from terminal services.

Poland specified local targets per airport or airport group in their Performance Plan with associated thresholds for bonuses and penalties.

Penalties will be applied for the air traffic services provided at EPWA of -0.1% of revenue from terminal air navigation services provided at that airport. Concerning the rest of airports subject to incentives, Krakow and Katowice miss the target but the actual delay falls within the dead band, so no penalties nor bonuses shall apply.

Gdansk, Wroclaw and Poznan met the zero delay target, but as the terminal capacity target is missed on national level, the bonuses could not be applied.

**4. ATFM Slot Adherence**



The ATFM Slot Adherence at all airports in Baltic FAB ranges well above 90%, and 96% of regulated departures in the FAB adhere to their ATFM slots, which has a positive effect on the network, especially taking into account that the share of regulated departures overall at Baltic FAB has drastically increased along RP2 (from 8% in 2015 to 25% in 2019)

**5. ATC Pre-departure Delay**

The monitoring of pre-departure delay requires the implementation of the Airport Operator Data Flow and a proper reporting of delays through this data flow. Vilnius only established this data flow in 2019 and the ATC pre-departure delays are quite low but no evolution can be analysed. Warszawa/Chopina (EPWA) was the only airport where this indicator could be monitored for the entire RP2 period, showing an important deterioration associated to the same capacity constraints that have driven the ATFM delay at this airport.

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# Annual Monitoring Report 2019

Local level view

Lithuania

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## LITHUANIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	60.7	C	C	C	C	B
ORO NAVIGACIJA	78.4	D	D	D	D	C
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	N/A	N/A				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	ORO NAVIGACIJA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	5	4				
Legal/Judiciary	6	1				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>13</b>	<b>5</b>				
ORO NAVIGACIJA	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>23</b>	<b>1</b>				
Observations						
<p>The State did not reach the RP2 target in 2019 by only one question in the EoS Component/area of Safety Culture, out of 36 questions. That question was self-assessed and not reviewed by EASA.</p> <p>All other safety targets have been met.</p>						

## LITHUANIA

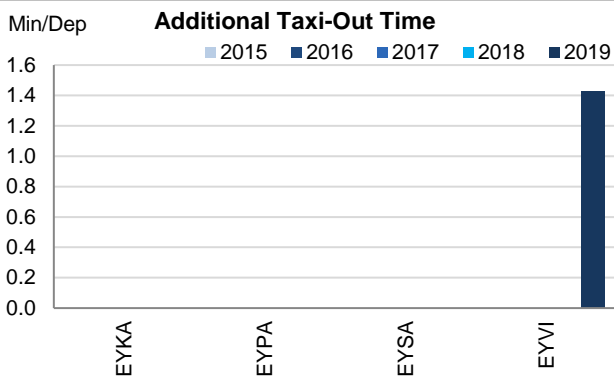
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

ANS at a total of 4 airports are subject to RP2 monitoring in Lithuania. The Airport Operator Data Flow, necessary for the monitoring of the environmental indicators is only established for Vilnius since 2019. Hence no evolution in RP2 can be analysed.

The performance at Vilnius is in line with similar airports in terms of movements.

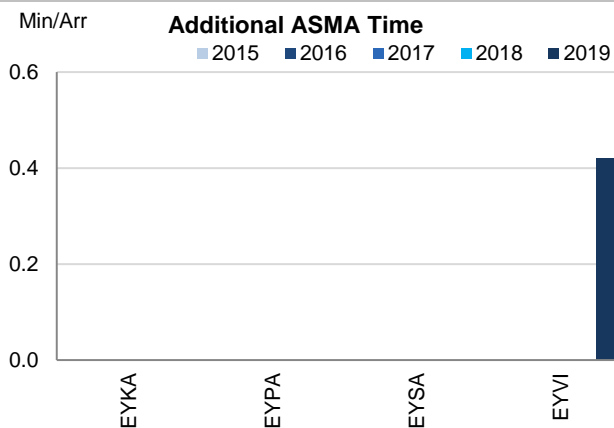
## 2. Additional Taxi-Out Time



The additional taxi-out times in Vilnius (EYVI) during 2019 averaged 1.43 min/dep. which is commensurate with the level of traffic.

The highest additional taxi-out times were observed in January, probably associated with de-icing procedures.

## 3. Additional ASMA Time



The additional ASMA times in Vilnius (EYVI) during 2019 averaged 0.42 min/dep. which is commensurate with the level of traffic.

The highest additional ASMA times were observed in January.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Kaunas	EYKA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Palanga	EYPA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Šiauliai	EYSA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Vilnius	EYVI	n/a	n/a	n/a	n/a	1.43	n/a	n/a	n/a	n/a	0.42

**LITHUANIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.01	0.02	0.03	0.04	0.04	
Deadband +/-	0.0 < x ≤ 0.1		0.00			
Actual performance	0.00	0.00	0.00	0.00	0.00	

**National capacity incentive scheme**

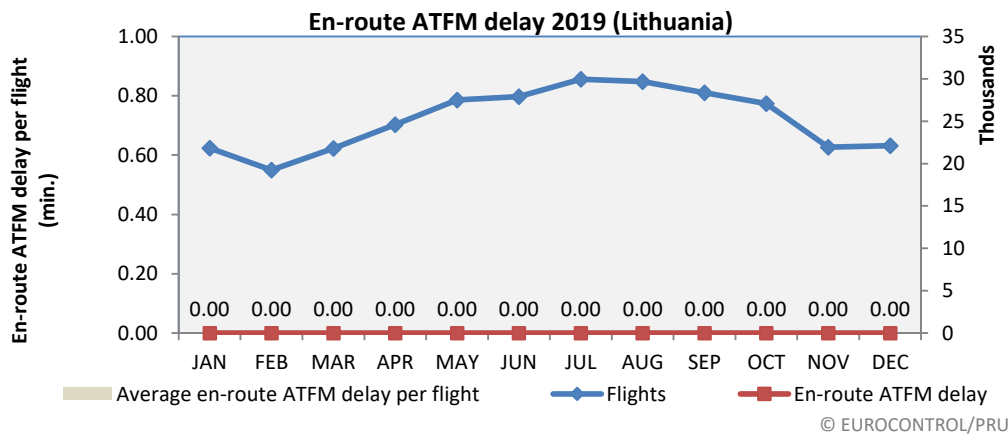
As in previous RP2 years, Oro Navigacija performed very well in Capacity KPA. En route ATFM delay per flight target established for Oro Navigacija for 2019 (average 0.04 min/flight) was reached and delivered even better result at the reference value of 0.00 min/flight. En route Capacity target has also been met at FAB level (achieved value 0,10 min/flight delay - much better than has been set in the PP (0,22 min/flight)). min/flight delay - the same as set in the PP).

Oro Navigacija will receive bonus 0.1% of revenue from en route air navigation services.

Calculation:

Actual TSUs 2019 ANSP component of the UR 2019 (38.72) x 0.1% bonus = 23,963 Eur.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
High	263		280		298		313		330		348	
Base	258	<b>257</b>	271	<b>260</b>	281	<b>261</b>	289	<b>277</b>	299	<b>301</b>	308	<b>303</b>
Low	254		262		265		269		273		277	

Delay forecast - Oro Navigacija						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	-	-	-	-	N/A	N/A
NOP 2019 - 2024	0.05	0.01	0.01			

The ANSP in Lithuania, Oro Navigacija, has once again provided zero en-route ATFM delay in 2017, making 11 consecutive years of zero delay.

Traffic levels in Lithuania have remained at or below those initially predicted for the baseline scenario in the STATFOR forecast available when FAB performance plans and associated capacity plans were being determined.

### Planning and Effective Use of CDRs

Since February 2019 Free Route Airspace Operations have been implemented

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
N/A	92%	96%	97%	95%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
0%	0%	0%	0%	0%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

No performance-related benefits from monitoring this specific indicator have been noted.



## LITHUANIA

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

ANS at a total of 4 airports are subject to RP2 monitoring in Lithuania, a national target on arrival ATFM delay consistent with the level of traffic and the historic performance has been established. During RP2 so far, no capacity constraints or congestion are observed, although traffic levels at these airports have drastically increased in this period (+24.9% with respect to 2015).

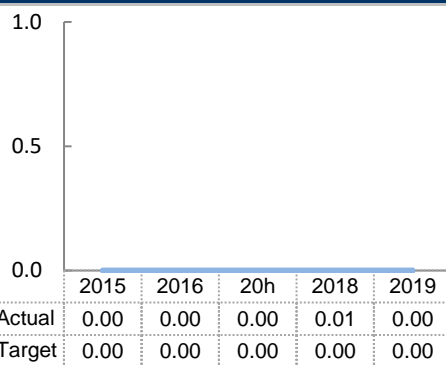
The monitoring of the ATC pre-departure delay indicator requires the establishment of the Airport Operator Data Flow, which is in place only for Vilnius who implemented the data flow in 2019.

In terms of arrival ATFM delays values have remained close to zero during the entire reference period and the ATFM slot adherence has improved with respect to 2015 (2015: 91.0%; 2019: 95.3%)

Lithuania contributes adequately to the Baltic FAB and European performance.

## 2. Arrival ATFM Delay

Arrival  
ATFM  
Delay



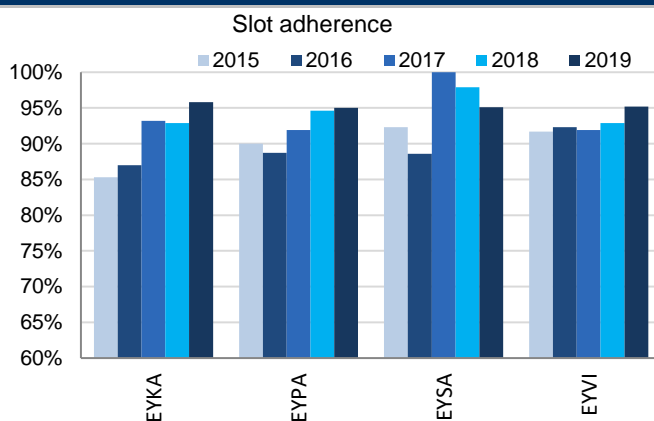
Lithuania has established a national target of 0 min/arr. on arrival ATFM delay for the entire RP2. During 2019, no arrival ATFM delays have been observed at any of the airports monitored in Lithuania.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The FAB performance plan refers to the fact that for all airports in Lithuania there is no risk of arrival ATFM delay identified or predicted for RP2.

The achieved performance in 2019 (0.00 min/arr) meets the zero delays target and qualifies for a bonus (0.1% of the revenues from terminal services).

## 4. ATFM Slot Adherence



All four airports show an excellent compliance with the ATFM slot window of more than 95% of the regulated flights. The number of regulated departures at Palanga and Šiauliai is however negligible.

## 5. ATC Pre-departure Delay

The monitoring of pre-departure delay requires the implementation of the Airport Operator Data Flow. Vilnius successfully established the data flow in 2019, being the only Lithuanian airport for which this indicator can be calculated. The ATC pre-departure delay Vilnius is very low (0.04 min/dep).

## 6. Appendix

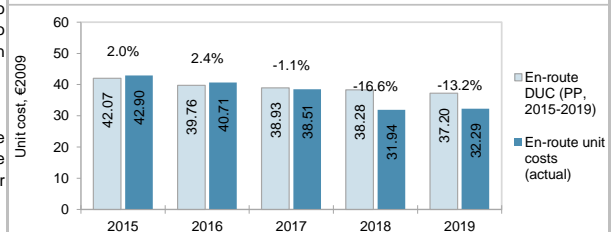
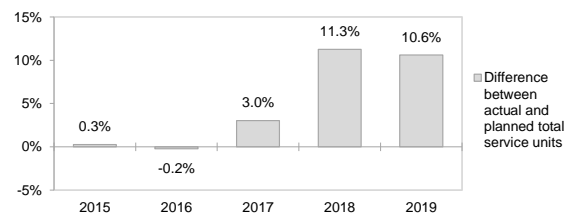
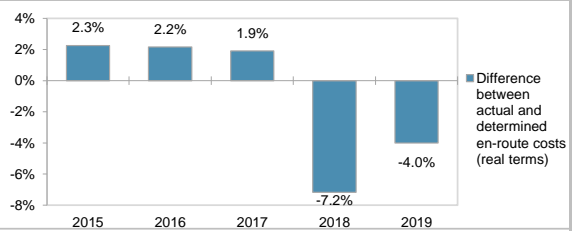
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Kaunas	EYKA	0.00	0.00	0.00	0.04	0.00	85.3%	87.0%	93.2%	92.9%	95.8%	n/a	n/a	n/a	n/a	n/a
Palanga	EYPA	0.00	0.00	0.00	0.04	0.00	90.0%	88.7%	91.9%	94.6%	95.0%	n/a	n/a	n/a	n/a	n/a
Šiauliai	EYSA	0.00	0.00	0.00	0.00	0.00	92.3%	88.6%	100.0%	97.9%	95.1%	n/a	n/a	n/a	n/a	n/a
Vilnius	EYVI	0.00	0.00	0.00	0.00	0.00	91.7%	92.3%	91.9%	92.9%	95.2%	n/a	n/a	n/a	n/a	0.04

## LITHUANIA: En-route charging zone

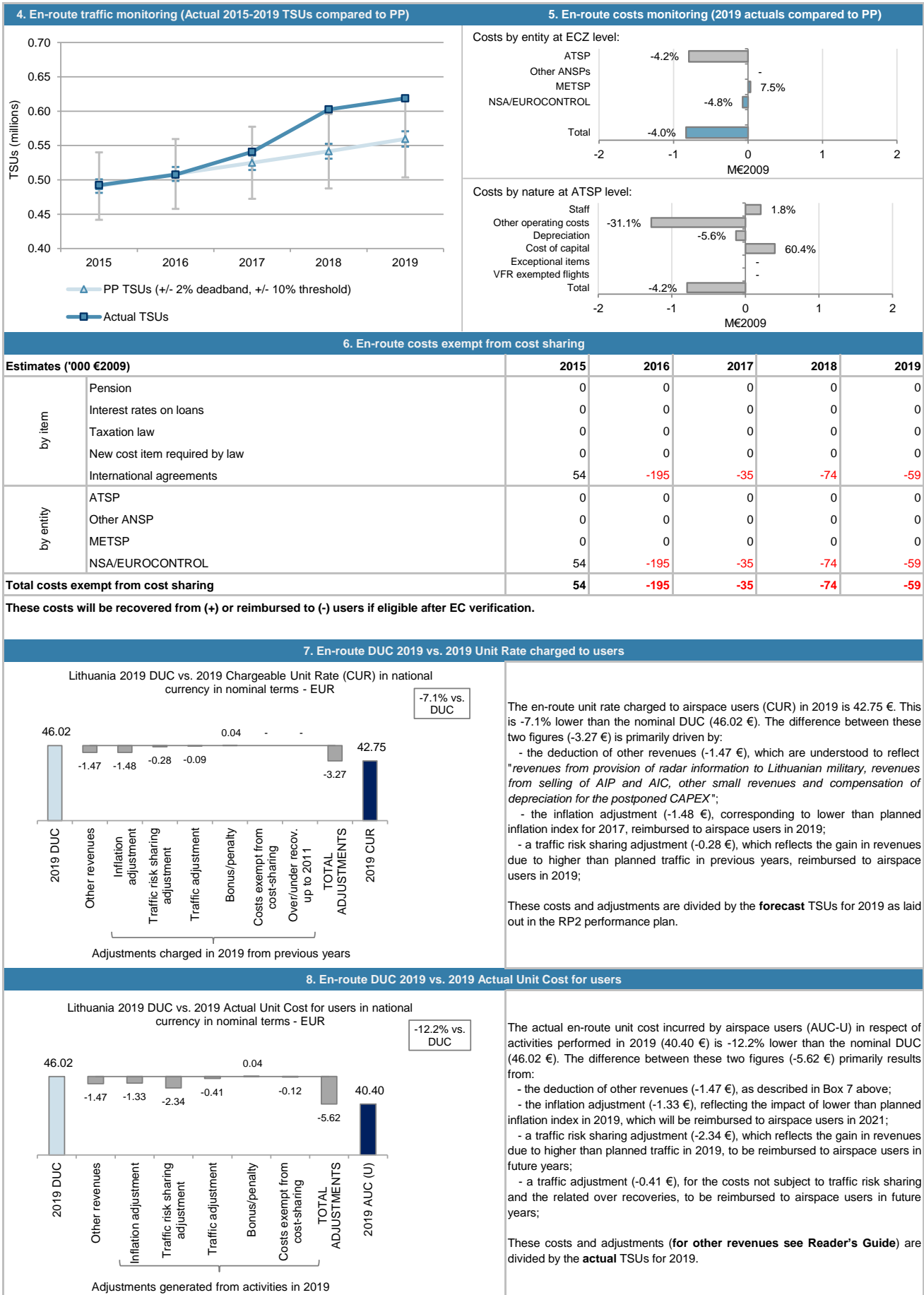
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Lithuania ECZ represents 0.3% of the SES en-route ANS determined costs in 2019					
· ATSP: Oro Navigacija					
· FAB: Baltic FAB					
· National currency: EUR					
2. En-route DUC monitoring at Charging Zone level					
Lithuania: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	23 316 993	23 342 321	24 186 978	25 093 574	25 748 766
Inflation %	1.7%	2.2%	2.5%	2.2%	2.2%
Inflation index (100 in 2009)	112.9	115.4	118.4	121.0	123.7
Real en-route costs (EUR2009)	20 652 919	20 223 855	20 434 886	20 737 566	20 814 037
Total en-route Service Units	490 928	508 601	524 877	541 672	559 548
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>42.07</b>	<b>39.76</b>	<b>38.93</b>	<b>38.28</b>	<b>37.20</b>
Lithuania: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	23 121 075	22 775 385	23 808 929	22 554 980	23 929 209
Inflation %	-0.7%	0.7%	3.7%	2.5%	2.2%
Inflation index (100 in 2009)	109.5	110.2	114.3	117.2	119.8
Real en-route costs (EUR2009)	21 120 276	20 659 882	20 826 832	19 248 723	19 981 907
Total en-route Service Units	492 283	507 472	540 776	602 689	618 822
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>42.90</b>	<b>40.71</b>	<b>38.51</b>	<b>31.94</b>	<b>32.29</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)	-195 918	-566 936	-378 049	-2 538 594	-1 819 558
in %	-0.8%	-2.4%	-1.6%	-10.1%	-7.1%
Inflation %	-2.4 p.p.	-1.5 p.p.	1.2 p.p.	0.3 p.p.	-0.03 p.p.
Inflation index (100 in 2009)	-3.4 p.p.	-5.2 p.p.	-4.0 p.p.	-3.8 p.p.	-4.0 p.p.
Real en-route costs (EUR2009)	467 357	436 027	391 946	-1 488 843	-832 130
in %	2.3%	2.2%	1.9%	-7.2%	-4.0%
Total en-route Service Units	1 355	-1 129	15 899	61 017	59 274
in %	0.3%	-0.2%	3.0%	11.3%	10.6%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>0.83</b>	<b>0.95</b>	<b>-0.42</b>	<b>-6.35</b>	<b>-4.91</b>
in %	<b>2.0%</b>	<b>2.4%</b>	<b>-1.1%</b>	<b>-16.6%</b>	<b>-13.2%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (32.29 €2009) is -13.2% lower than planned in the PP (37.20 €2009). This results from the combination of much higher than planned TSUs (+10.6%) and lower than planned en-route costs in real terms (-4.0%, or -0.8 ME2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+10.6%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Oro Navigacija) retaining an amount of +0.9 ME2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -7.1% (-1.8 M€) lower than planned. However, since the actual inflation index is also lower than planned (-4.0 p.p.), actual en-route costs are -4.0% (-0.8 ME2009) below plans when expressed in real terms.					
The lower than planned en-route costs in real terms are driven by Oro Navigacija (-4.2%, or -0.8 ME2009) and the NSA/EUROCONTROL (-4.8%, or -0.1 ME2009), while the costs for the MET service provider (+7.5%, or +0.03 ME2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -0.1 ME2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for the Lithuania charging zone, actual en-route TSUs are +5.2% higher than planned, while actual costs in real terms are -1.0% lower than the determined costs (some -1.0 ME2009). As a result, the weighted average actual unit cost over RP2 (36.87 €2009) is -5.9% lower than planned in the NPP (39.18 €2009).					



LITHUANIA: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



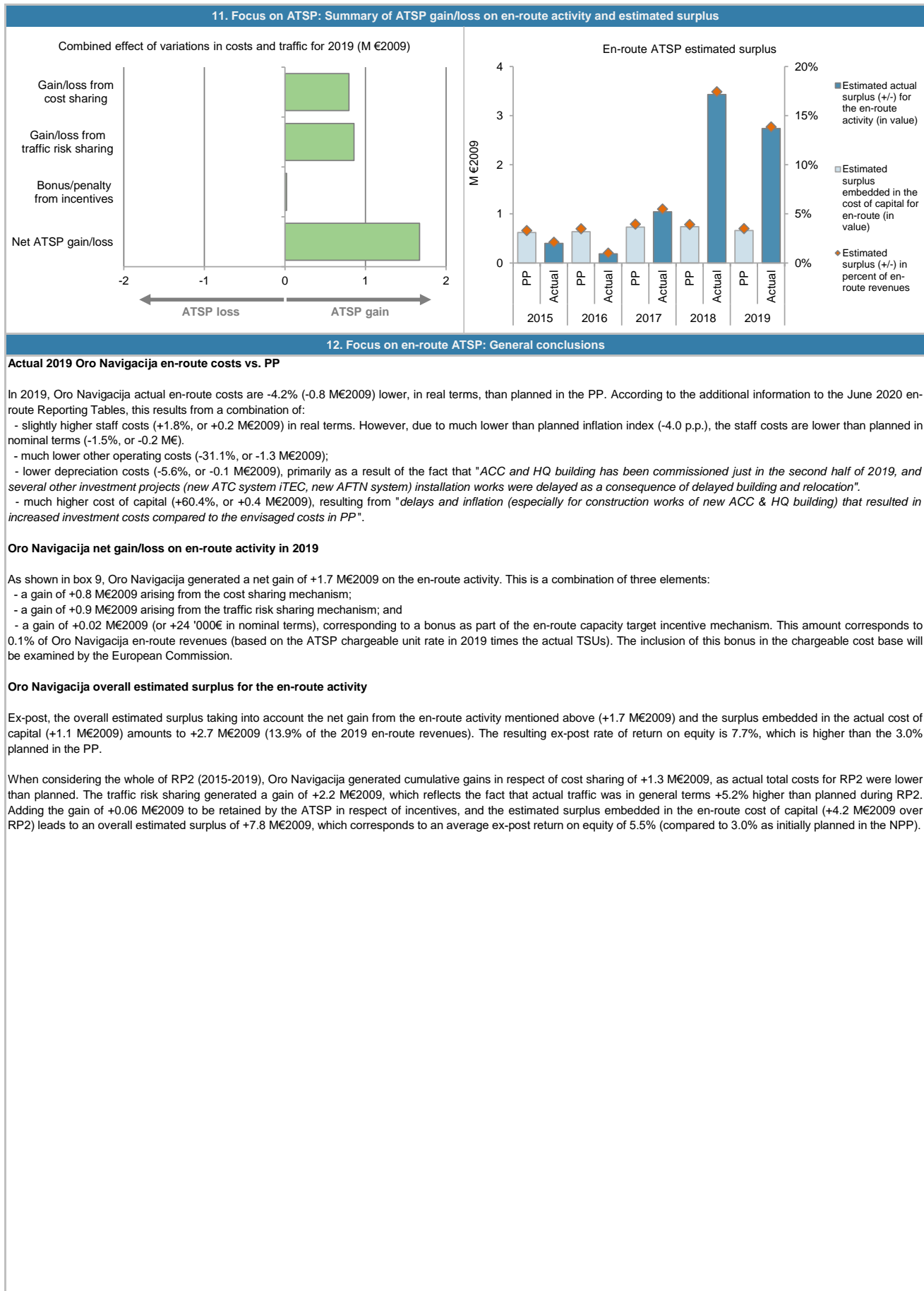
## LITHUANIA: En-route ATSP (Oro Navigacija)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	18 786	18 322	18 493	18 794	18 877
Actual costs for the ATSP	19 066	18 772	18 754	17 270	18 083
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-280	-450	-261	1 524	794
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-280</b>	<b>-450</b>	<b>-261</b>	<b>1 524</b>	<b>794</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	0.3%	-0.2%	3.0%	11.3%	10.6%
Determined costs for the ATSP (PP) - based on actual inflation	19 374	19 183	19 147	19 408	19 500
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>53</b>	<b>-43</b>	<b>442</b>	<b>854</b>	<b>858</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>20</b>	<b>20</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>-227</b>	<b>-493</b>	<b>200</b>	<b>2 398</b>	<b>1 672</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	20 679	21 294	24 384	24 592	22 124
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	20 679	21 294	24 384	24 592	22 124
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	620	639	732	738	664
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	3.0%	3.0%	3.0%	3.0%	3.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	620	639	732	738	664
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>620</b>	<b>639</b>	<b>732</b>	<b>738</b>	<b>664</b>
<b>Revenue/costs for the en-route activity</b>	<b>18 786</b>	<b>18 322</b>	<b>18 493</b>	<b>18 794</b>	<b>18 877</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.3%</b>	<b>3.5%</b>	<b>4.0%</b>	<b>3.9%</b>	<b>3.5%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	20 901	22 610	28 083	34 453	35 497
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	20 901	22 610	28 083	34 453	35 497
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	627	678	843	1 034	1 065
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	3.0%	3.0%	3.0%	3.0%	3.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	627	678	843	1 034	1 065
Net ATSP gain(+)/loss(-) on en-route activity	-227	-493	200	2 398	1 672
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>401</b>	<b>185</b>	<b>1 043</b>	<b>3 432</b>	<b>2 736</b>
<b>Revenue/costs for the en-route activity</b>	<b>18 839</b>	<b>18 280</b>	<b>18 954</b>	<b>19 668</b>	<b>19 755</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>2.1%</b>	<b>1.0%</b>	<b>5.5%</b>	<b>17.4%</b>	<b>13.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>1.9%</b>	<b>0.8%</b>	<b>3.7%</b>	<b>10.0%</b>	<b>7.7%</b>

## LITHUANIA: En-route ATSP (Oro Navigacija)

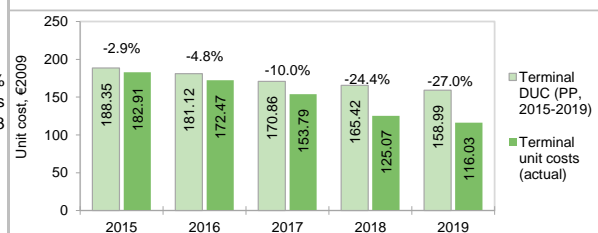
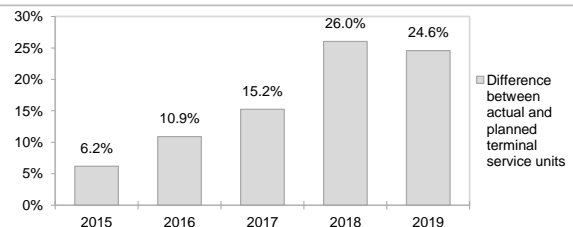
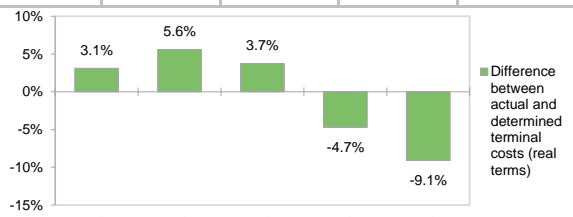
## Monitoring of en-route COST-EFFICIENCY for 2019



## LITHUANIA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Lithuania TCZ represents 0.4% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		No	
ATSP:	Oro Navigacija	Airports with fewer than 70,000 IFRs ATMs:		4	
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		0	
Number of airports in charging zone in 2019:	4,	of which:		Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Lithuania: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	5 076 489	5 140 161	5 156 643	5 318 264	5 429 702
Inflation %	1.7%	2.2%	2.5%	2.2%	2.2%
Inflation index (100 in 2009)	112.9	115.4	118.4	121.0	123.7
Real terminal costs (EUR2009)	4 496 476	4 453 450	4 356 700	4 395 064	4 389 104
Total terminal Service Units	23 873	24 589	25 498	26 569	27 606
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>188.35</b>	<b>181.12</b>	<b>170.86</b>	<b>165.42</b>	<b>158.99</b>
Lithuania: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	5 075 325	5 184 575	5 166 244	4 906 917	4 777 964
Inflation %	-0.7%	0.7%	3.7%	2.5%	2.2%
Inflation index (100 in 2009)	109.5	110.2	114.3	117.2	119.8
Real terminal costs (EUR2009)	4 636 128	4 703 003	4 519 165	4 187 629	3 989 803
Total terminal Service Units	25 346	27 269	29 385	33 483	34 386
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>182.91</b>	<b>172.47</b>	<b>153.79</b>	<b>125.07</b>	<b>116.03</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-1 164	44 414	9 601	-411 347	-651 738
	in value				
	-0.0%	0.9%	0.2%	-7.7%	-12.0%
	in %				
Inflation %	-2.4 p.p.	-1.5 p.p.	1.2 p.p.	0.3 p.p.	-0.03 p.p.
	in p.p.				
Inflation index (100 in 2009)	-3.4 p.p.	-5.2 p.p.	-4.0 p.p.	-3.8 p.p.	-4.0 p.p.
	in p.p.				
Real terminal costs (EUR2009)	139 651	249 553	162 466	-207 435	-399 301
	in value				
	3.1%	5.6%	3.7%	-4.7%	-9.1%
	in %				
Total terminal Service Units	1 474	2 680	3 887	6 914	6 781
	in value				
	6.2%	10.9%	15.2%	26.0%	24.6%
	in %				
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-5.44</b>	<b>-8.65</b>	<b>-17.07</b>	<b>-40.35</b>	<b>-42.96</b>
	in value				
	-2.9%	-4.8%	-10.0%	-24.4%	-27.0%
	in %				
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Lithuania Terminal Charging Zone (TCZ) comprising 4 airports: Vilnius (EYVI), Kaunas (EYKA), Palanga (EYPA) and Šiauliai (EYSA)					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (116.03 €2009) is -27.0% lower than planned in the PP (158.99 €2009). This results from the combination of much higher than planned TNSUs (+24.6%) and lower than planned terminal costs in real terms (-9.1%, or -0.4 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Lithuania TCZ. In 2019, the actual TNSUs in Lithuania TCZ are +24.6% higher than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -12.0% (-0.65 M€) lower than planned. However, since the actual inflation index is also lower than planned (-4.0 p.p.), actual terminal costs are -9.1% (-0.4 M€2009) below plans when expressed in real terms. The lower than planned terminal costs in real terms are driven by Oro Navigacija (-9.2%, or -0.4 M€2009) and the NSA (-21.2%, or -0.01 M€2009), while the costs for the MET service provider (+7.0%) are higher than planned. A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Lithuania TCZ, actual TNSUs are +17.0% higher than planned, while actual costs in real terms are -0.2% lower than the determined costs (some -0.06 M€2009). As a result, the weighted average actual unit cost over RP2 (147.03 €2009) is -14.7% lower than planned in the NPP (172.40 €2009).					



LITHUANIA: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	-9.2%
Other ANSPs	-
METSP	-21.2%
NSA	7.0%
<b>Total</b>	<b>-9.1%</b>

Costs by nature at ATSP level:

Staff	4.5%
Other operating costs	-27.6%
Depreciation	-18.5%
Cost of capital	-30.8%
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>-9.2%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Lithuania 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 159.00 €. This is -19.2% lower than the nominal DUC (196.69 €). The difference between these two figures (-37.69 €) relates to:

- the deduction of other revenues (-5.72 €), which are understood to reflect "revenues from provision of radar information to Lithuanian military, revenues from selling of AIP and AIC, other small revenues";
- the inflation adjustment (-6.38 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic adjustment (-25.77 €), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019; and
- a bonus in respect of the capacity target incentive mechanism related to 2017 performance (+0.19 €).

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Lithuania 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (147.29 €) is -25.1% lower than the nominal DUC (196.69 €). The difference between these two figures (-49.40 €) is mainly due to:

- the deduction of other revenues (-5.72 €), as described in box 7 above;
- the inflation adjustment (-5.05 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users;
- a traffic adjustment (-38.78 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years; and
- a bonus in respect of the capacity target incentive mechanism related to 2019 performance (+0.15 €).

These costs and adjustments (for other revenues see Reader's Guide) are divided by the **actual** TNSUs in 2019.



## LITHUANIA: Terminal ATSP (Oro Navigacija)

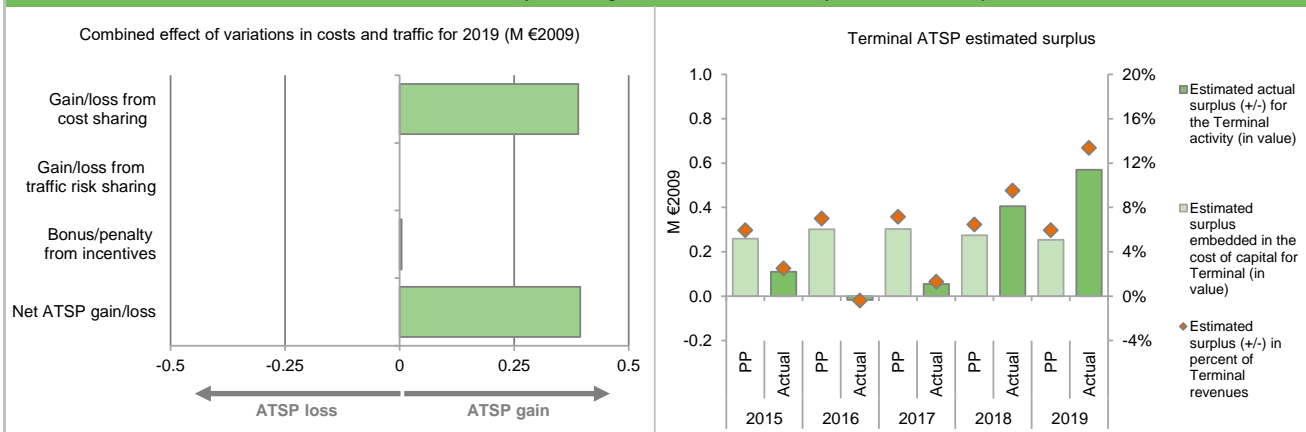
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	4 364	4 317	4 218	4 258	4 255
Actual costs for the ATSP	4 484	4 548	4 360	4 039	3 865
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-119	-231	-142	219	390
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-119</b>	<b>-231</b>	<b>-142</b>	<b>219</b>	<b>390</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>0</b>	<b>4</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-115</b>	<b>-226</b>	<b>-137</b>	<b>219</b>	<b>394</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	8 651	10 065	10 076	9 166	8 452
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	8 651	10 065	10 076	9 166	8 452
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	260	302	302	275	254
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	3.0%	3.0%	3.0%	3.0%	3.0%
Estimated surplus embedded in the cost of capital for terminal (in value)	260	302	302	275	254
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>260</b>	<b>302</b>	<b>302</b>	<b>275</b>	<b>254</b>
<b>Revenue/costs for the terminal activity</b>	<b>4 364</b>	<b>4 317</b>	<b>4 218</b>	<b>4 258</b>	<b>4 255</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>5.9%</b>	<b>7.0%</b>	<b>7.2%</b>	<b>6.5%</b>	<b>6.0%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	7 487	6 974	6 413	6 199	5 850
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	7 487	6 974	6 413	6 199	5 850
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	225	209	192	186	176
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	3.0%	3.0%	3.0%	3.0%	3.0%
Estimated surplus embedded in the cost of capital for terminal (in value)	225	209	192	186	176
Net ATSP gain(+)/loss(-) on terminal activity	-115	-226	-137	219	394
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>110</b>	<b>-17</b>	<b>55</b>	<b>405</b>	<b>570</b>
<b>Revenue/costs for the terminal activity</b>	<b>4 369</b>	<b>4 322</b>	<b>4 222</b>	<b>4 258</b>	<b>4 259</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.5%</b>	<b>-0.4%</b>	<b>1.3%</b>	<b>9.5%</b>	<b>13.4%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>1.5%</b>	<b>-0.2%</b>	<b>0.9%</b>	<b>6.5%</b>	<b>9.7%</b>

## LITHUANIA: Terminal ATSP (Oro Navigacija)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 Oro Navigacija terminal costs vs. PP

In 2019, Oro Navigacija actual terminal costs are -9.2% (-0.4 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- higher staff costs (+4.5%, or +0.1 M€2009), driven by "salaries increase according to the agreements in new collective agreement" and slight a increase in the number of employees.
- much lower other operating costs (-27.6%, or -0.3 M€2009), reflecting: i) "changed model for equipment maintenance and repairs", and ii) "delays in some repair works and actual payments deferred to 2020".
- much lower depreciation costs (-18.5%, or -0.2 M€2009), due to the fact that "new ACC and HQ building has been commissioned just in the second half of 2019, and several other investment projects finishing works were delayed, purchased way cheaper than expected, whereas renewal of Kaunas Aerodrome ATC system has been postponed to RP3".
- much lower cost of capital (-30.8%, or -0.1 M€2009), primarily resulting from the postponement of investment in Kaunas ATC noted above.

## Oro Navigacija net gain/loss on terminal activity in 2019

As shown in box 9, Oro Navigacija generated a net gain of +0.4 M€2009 on the terminal activity. This is a combination of two elements:

- a gain of +0.4 M€2009 arising from the cost sharing mechanism; and
- a gain of +0.004 M€2009 (or +5.3 '000€ in nominal terms), corresponding to a bonus as part of the terminal capacity target incentive mechanism. This amount corresponds to 0.1% of Oro Navigacija terminal revenues (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

## Oro Navigacija overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+0.4 M€2009) and the surplus embedded in the actual cost of capital (+0.2 M€2009) amounts to +0.6 M€2009 (13.4% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 9.7%, which is much higher than the 3.0% planned in the PP.

When considering the whole of RP2 (2015-2019), Oro Navigacija generated cumulative gains in respect of cost sharing of +0.1 M€2009, as actual total costs for RP2 were slightly lower than planned. The TCZ is not subject to traffic risk sharing. Adding the gain of +0.02 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+1.0 M€2009 over RP2) leads to an overall estimated surplus of +1.1 M€2009, which corresponds to an average ex-post return on equity of 3.4% (compared to 3.0% as initially planned in the NPP).

## LITHUANIA: Gate-to-gate

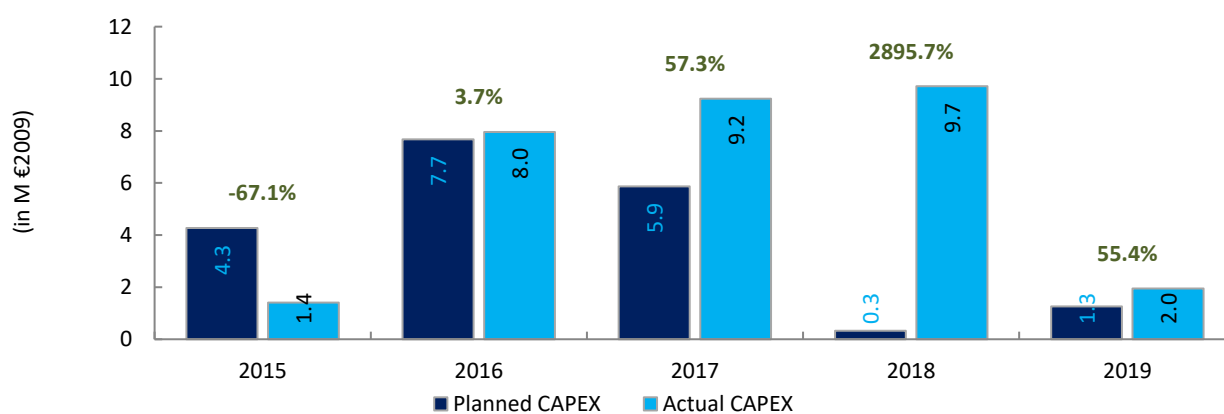
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Lithuania: Data from RP2 Performance Plan</b>																																												
	<b>2015D</b>	<b>2016D</b>	<b>2017D</b>	<b>2018D</b>	<b>2019D</b>																																							
Real en-route costs (EUR2009)	20 652 919	20 223 855	20 434 886	20 737 566	20 814 037																																							
Real terminal costs (EUR2009)	4 496 476	4 453 450	4 356 700	4 395 064	4 389 104																																							
Real gate-to-gate costs (EUR2009)	25 149 396	24 677 305	24 791 586	25 132 629	25 203 141																																							
En-route share (%)	82.1%	82.0%	82.4%	82.5%	82.6%																																							
<b>Lithuania: Actual data from Reporting Tables</b>																																												
	<b>2015A</b>	<b>2016A</b>	<b>2017A</b>	<b>2018A</b>	<b>2019A</b>																																							
Real en-route costs (EUR2009)	21 120 276	20 659 882	20 826 832	19 248 723	19 981 907																																							
Real terminal costs (EUR2009)	4 636 128	4 703 003	4 519 165	4 187 629	3 989 803																																							
Real gate-to-gate costs (EUR2009)	25 756 404	25 362 885	25 345 998	23 436 352	23 971 710																																							
En-route share (%)	82.0%	81.5%	82.2%	82.1%	83.4%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>																																							
Real gate-to-gate costs (EUR2009) in value	607 008	685 580	554 412	-1 696 277	-1 231 431																																							
Real gate-to-gate costs (EUR2009) in %	2.4%	2.8%	2.2%	-6.7%	-4.9%																																							
En-route share in p.p.	-0.1 p.p.	-0.5 p.p.	-0.3 p.p.	-0.4 p.p.	0.8 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
In 2019, actual gate-to-gate ANS costs are -4.9% (-1.2 M€2009) lower than planned due to lower than planned en-route costs (-4.0%, or -0.8 M€2009) and terminal costs (-9.1%, or -0.4 M€2009).																																												
The actual share of en-route in gate-to-gate ANS costs (83.4%) is slightly higher than planned in the PP for 2019 (82.6%).																																												
For Oro Navigacija, the estimated gate-to-gate economic surplus in 2019 amounts to 3.3 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 13.8% of gate-to-gate ANS revenues.																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>82.1%</td> <td>17.9%</td> </tr> <tr> <td>Actual</td> <td>82.0%</td> <td>18.0%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>82.0%</td> <td>18.0%</td> </tr> <tr> <td>Actual</td> <td>81.5%</td> <td>18.5%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>82.4%</td> <td>17.6%</td> </tr> <tr> <td>Actual</td> <td>82.2%</td> <td>17.8%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>82.5%</td> <td>17.5%</td> </tr> <tr> <td>Actual</td> <td>82.1%</td> <td>17.9%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>82.6%</td> <td>17.4%</td> </tr> <tr> <td>Actual</td> <td>83.4%</td> <td>16.6%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	82.1%	17.9%	Actual	82.0%	18.0%	2016	Determined	82.0%	18.0%	Actual	81.5%	18.5%	2017	Determined	82.4%	17.6%	Actual	82.2%	17.8%	2018	Determined	82.5%	17.5%	Actual	82.1%	17.9%	2019	Determined	82.6%	17.4%	Actual	83.4%	16.6%
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<b>3. Technical notes on en-route and terminal information reported by Lithuania</b>																																												

## LITHUANIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: Oro Navigacija						
FAB: Baltic FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	4.8	8.9	6.9	0.4	1.6	22.6
Main CAPEX (in nominal M)	4.2	8.7	6.4	0.1	1.2	20.7
Inflation %	1.7%	2.2%	2.5%	2.2%	2.2%	
Inflation index (100 in 2009)	112.9	115.4	118.4	121.0	123.7	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>4.3</b>	<b>7.7</b>	<b>5.9</b>	<b>0.3</b>	<b>1.3</b>	<b>19.4</b>
Main CAPEX (in M €2009)	3.8	7.5	5.4	0.1	1.0	17.8
% Main of Total CAPEX	87.9%	98.3%	92.4%	15.5%	80.3%	91.7%
Real gate-to-gate ANSP costs (in M €2009)	23.2	22.6	22.7	23.1	23.1	114.7
Total CAPEX as % of Real gate-to-gate ANSP costs	18.4%	33.9%	25.9%	1.4%	5.4%	16.9%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	1.5	8.8	10.6	11.4	2.3	34.6
Main CAPEX (in nominal M)	0.8	8.4	10.2	10.0	1.7	31.0
Inflation %	-0.7%	0.7%	3.7%	2.5%	2.2%	
Inflation index (100 in 2009)	109.5	110.2	114.3	117.2	119.8	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>1.4</b>	<b>8.0</b>	<b>9.2</b>	<b>9.7</b>	<b>2.0</b>	<b>30.3</b>
Main CAPEX (in M €2009)	0.7	7.6	8.9	8.6	1.4	27.2
% Main of Total CAPEX	50.8%	95.4%	96.4%	88.2%	71.2%	89.8%
Real gate-to-gate ANSP costs (in M €2009)	23.5	23.3	23.1	21.3	21.9	113.2
Total CAPEX as % of Real gate-to-gate ANSP costs	6.0%	34.1%	40.0%	45.6%	8.9%	26.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-3.3	-0.1	3.6	11.0	0.8	12.0
Total CAPEX (in M €2009)	-2.9	0.3	3.4	9.4	0.7	10.9
<b>Total CAPEX (in %, M €2009)</b>	<b>-67.1%</b>	<b>3.7%</b>	<b>57.3%</b>	<b>2895.7%</b>	<b>55.4%</b>	<b>56.0%</b>



# Annual Monitoring Report 2019

Local level view

Poland

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## POLAND

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	60	C	C	C	C	C
PANSA	76	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	0%				
Runway Incursions (RIs)	100%	0%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	CAA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	7	2				
Legal/Judiciary	6	1				
Occurrence reporting and Investigation	0	2				
<b>TOTAL</b>	<b>13</b>	<b>5</b>				
PANSA	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	6	2				
<b>TOTAL</b>	<b>21</b>	<b>3</b>				
Observations						
<p>With regard the RAT application, data received from the AST mechanism show performance far below targets in the SMI and RI overall (State's responsibility)</p> <p>All other safety targets have been met.</p>						

## POLAND

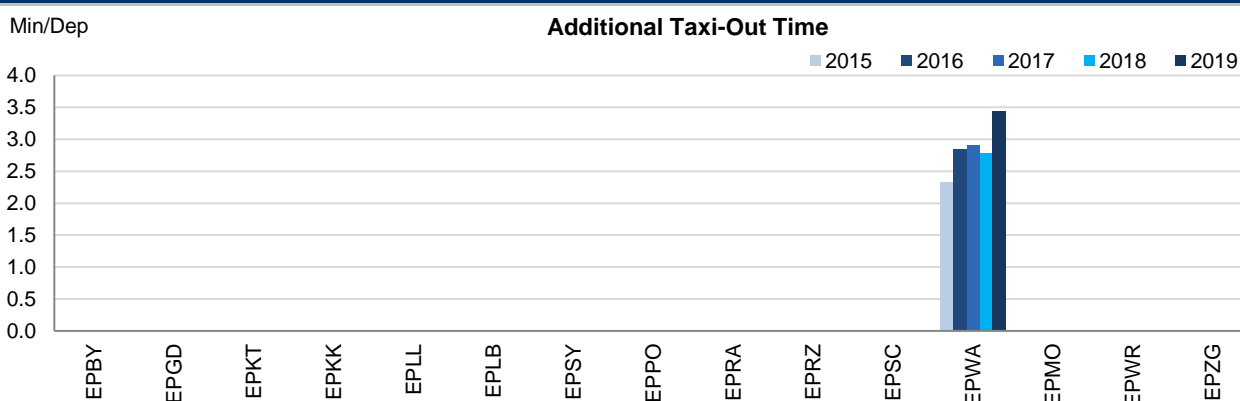
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

Poland, as a member of the Baltic FAB, identified fifteen airports as subject to RP2 monitoring, with the last addition of EPSY in 2016 (due to inclusion in the charging zone). However, Warsaw (EPWA) continues to be the only airport for which the Airport Operator Data Flow is established. It is strongly recommended to establish the APDF for Krakow (EPKK), Gdansk (EPGD), Katowice (EPKT), Wroclaw (EPWR), Poznan (EPPO), Warsaw Modlin (EPMO) and Rzeszow - Jasionka (EPRZ). Implementation of the APDF at EPLL, EPSC, EPBY, EPLB, EPZG, EPSY and EPRA should be considered.

The performance at Warsaw has deteriorated significantly mainly associated with the works that took place in 2019, although it is still not much worse than other airports with the same the level of traffic.

## 2. Additional Taxi-Out Time



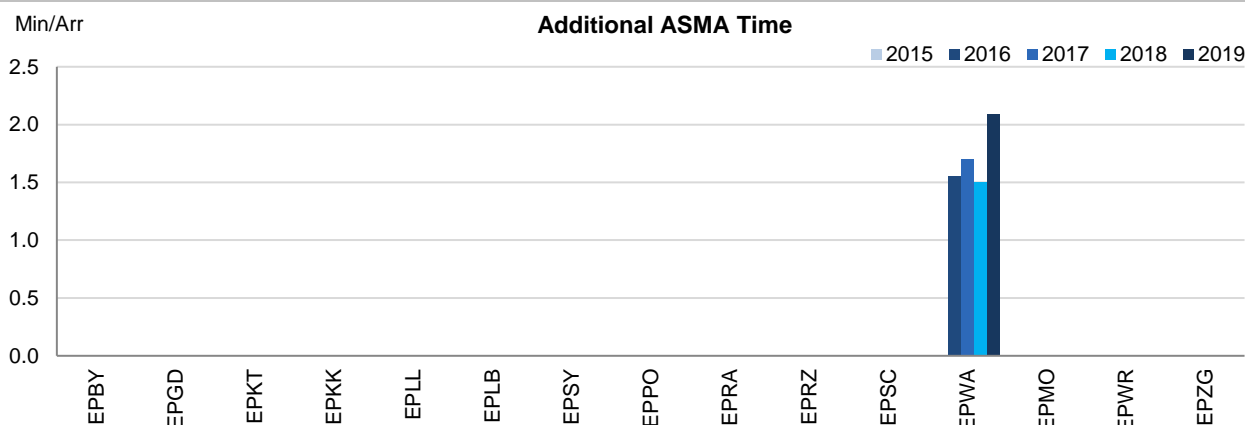
Warsaw shows a significant increase in its additional TXOT in 2019, reaching 3.43 min/dep. in average.

The highest additional taxi-out times were observed in January (probably due to de-icing operations), but they were also above 3 min/dep. in April, May and June, when the airport operated in single runway mode due to works on the runway and taxiway system.

Additional taxi-out times in Warsaw have increased by almost 50% since the beginning of RP2.

The additional TXOT at the rest of Polish airports cannot be monitored at the time being due to the lack of data.

## 3. Additional ASMA Time



The additional ASMA time at Warsaw suffered a significant increase in 2019 (EPWA; 2018: 1.5 min/arr.; 2019: 2.09 min/arr.)

The worst performance is observed, like the additional taxi-out times, in the April-June period when the airport was operating with only one runway, and therefore suffering higher capacity constraints.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bydgoszcz	EPBY	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gdansk	EPGD	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Katowice - Pyrzowice	EPKT	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Krakow - Balice	EPKK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a



Lodz - Lublinek	EPLL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lublin	EPLB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Olsztyn-Mazury	EPSY		n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a
Poznan - Lawica	EPPO	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Radom	EPRA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rzeszow - Jasionka	EPRZ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Szczecin - Goleniów	EPSC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Warszawa/ Chopina	EPWA	2.32	2.84	2.90	2.78	3.43	n/a	1.55	1.70	1.50	2.09
Warszawa/ Modlin	EPMO	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wroclaw/ Strachowice	EPWR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Zielona Gora - Babimost	EPZG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**POLAND**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.26	0.23	0.23	0.23	0.23	
Deadband +/-	0.15-0.4		0.15 - 0.3			
Actual performance	0.18	0.39	0.11	0.25	0.12	

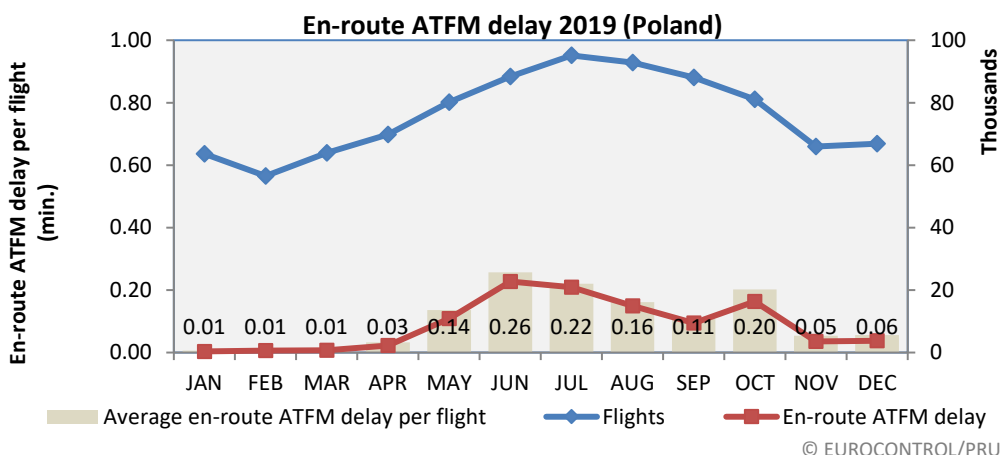
**National capacity incentive scheme**

The actual en-route ATFM delay in FIR Warszawa was 0,12 min/flight. The result is better than the target given for the year 2019. The incentive scheme for en-route ATFM delay 2016-2019 years provides the level for the bonus to be applied at the level of 0,025% of revenue.

PANSA will receive bonus 0.025% of revenue from en route air navigation services.

Calculation: Actual TSUs 2019 x ER UR x 0.025% bonus = 217 541,36 PLN.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2.00	1.63	1.13	0.64	0.51	0.50	0.78	0.18	0.39	0.11	0.25	0.12

EUROCONTROL 7 year traffic forecast February 2014											
	2014		2015		2016		2017		2018		2019
	actual		actual		actual		actual		actual		actual
High	722		764		821		871		926		981
Base	710	702	741	699	774	755	802	793	832	872	864
Low	699		719		731		743		756		769

Delay forecast - PANSA						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.14	0.15	0.20	0.26	N/A	N/A
NOP 2019 - 2024	0.28	0.27	0.23 - 0.28			

EUROCONTROL traffic forecast September 2016						
	2017		2018		2019	
		actual		actual		actual
<b>High</b>	813		865		919	
<b>Base</b>	787	<b>793</b>	811	<b>872</b>	839	<b>912</b>
<b>Low</b>	764		765		773	

BALTIC FAB submitted a revised performance plan during RP2. PANSAs state that their planned resources were based on the latest traffic forecast available when the revised performance plan was submitted (September 2016 Forecast). PANSAs have requested that the evolution of traffic is presented with the 2016 forecast.

Traffic levels in Poland increased by almost 5% on 2018 levels, remaining between the baseline and high traffic scenario for 2019, as forecasted by STATFOR back in 2014.

The year on year increase in traffic, was due in part to re-routing scenarios implemented through the eNM measures initiative to mitigate a significant capacity shortfall in neighbouring FABEC airspace.

Average en route ATFM delay per flight in Poland improved from 0,25 minutes in 2018 to 0,12 minutes in 2019, contrasting with the NOP forecasted delay of 0,28 minutes per flight.

The airspace users, in particular IATA, recognised Poland as a "very positive contributor to the network delay mitigation during the summer."

#### Planning and Effective Use of CDRs

Since February 2019 Free Route Airspace Operations has been implemented.

#### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

#### Effective booking procedures

##### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
0%	45%	51%	55%	40%

##### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
48%	88%	84%	4%	6%

##### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
0%	N/A	N/A	N/A	N/A

#### Observations on Effective booking procedures

The Ministry of National Defence, Polish CAA and PANSAs were working together in 2019 to enhance FUA concept by strengthening processes used for reserving flexible airspace structures and by implementing a new generation of the system improving the effectiveness of booking procedures and supporting the Advanced Flexible Use of Airspace - AFUA. The system provides all necessary information about current and planned airspace structures reservations and supports airspace management.

## POLAND

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

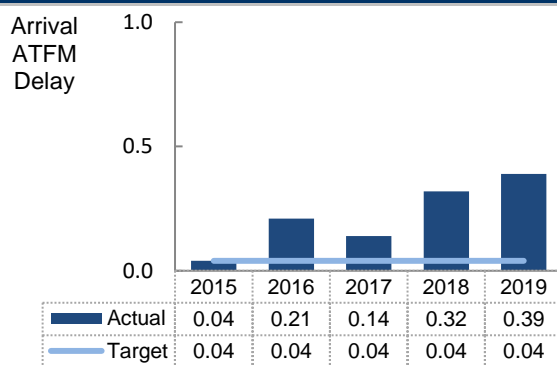
15 Polish airports are subject to RP2 monitoring (EPSY: Olsztyn-Mazury since 2016 only). Poland has established a constant national target on arrival ATFM delay of 0.04 min/arr. for RP2. Although no risk of occurrence of arrival ATFM delays during RP2 was identified, the situation deteriorated and the target was only met in 2015 (2015: 0.04 min/arr.; 2016: 0.21 min/arr.; 2017: 0.14 min/arr.; 2018: 0.32 min/arr.; 2019: 0.39 min/arr)

Traffic levels at these airports have drastically increased during RP2 (+35% with respect to 2015). In terms of arrival ATFM delays, values are drastically higher than those in the beginning of the reference period (delay per arrival in 2019 is almost ten times the delay registered in 2015).

ATFM slot adherence has improved in the last 4 years (2015: 94.0%; 2019: 95.6%).

The monitoring of the pre-departure delay indicator requires the establishment of the Airport Operator Data Flow. At the time being the data flow is only established for Warszawa/Chopin (EPWA). Poland is encouraged to consider the implementation of the data flow at other airports to improve the operational performance monitoring.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Poland have moderately increased with respect to the previous year (2018: 0.32 min/arr, 2019: 0.39 min/arr)

The target set for terminal ATFM arrival delay per flight in Polish airports was missed in 2019 for the fourth consecutive year.

Just like in previous years, the delays were generated mainly by Warsaw Chopin Airport (EPWA), where traffic has increased by 39% in RP2. Majority of delays are attributed to aerodrome capacity (April, May, June and October) followed by bad weather (mainly in May, June and July) and ATC capacity.

According to the Baltic FAB's monitoring report, this result was primarily influenced by the modernization of runways at the EPWA airport carried out from March to June and in October 2019. In addition delays were also generated in connection with special events (the air parade on May 3) and the weather conditions.

The terminal delays attributable to ATC (CRSTMP) represented 18,8% of the terminal ATFM arrival delays in EPWA. The main reasons were:

1. The increase in air traffic - above the forecasts constituting the assumptions for RP2 EPWA capacity;
2. Introduction of "core night" at EPWA, resulting in total ban on air operations between 23:30 and 5:30 which caused periodic accumulation of traffic;
3. A significant number of ATFCM regulations in other EU countries, resulting in the unexpected traffic congestion in EPWA;
4. Structural and technical conditions of TMA Warsaw;
5. Shortage of operational staff at TMA Warsaw (APP EPWA).

Additionally, terminal delays in 2019 were generated also by EPBY, EPKT, EPKK, EPPO, EPWO airports. These delays were related to atmospheric conditions, renovation works, special events and special situations related to security or runway conditions. ATC delays were reported only at EPKT, EPKK, EPWO airports. ATC delays for EPKK and EPKT airports were related to capacity and radar failure.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Poland has established a constant national target on arrival ATFM delay of 0.04 min/arr. for the whole reference period while the observed performance in 2019 ranges at 0.39 min/arr.

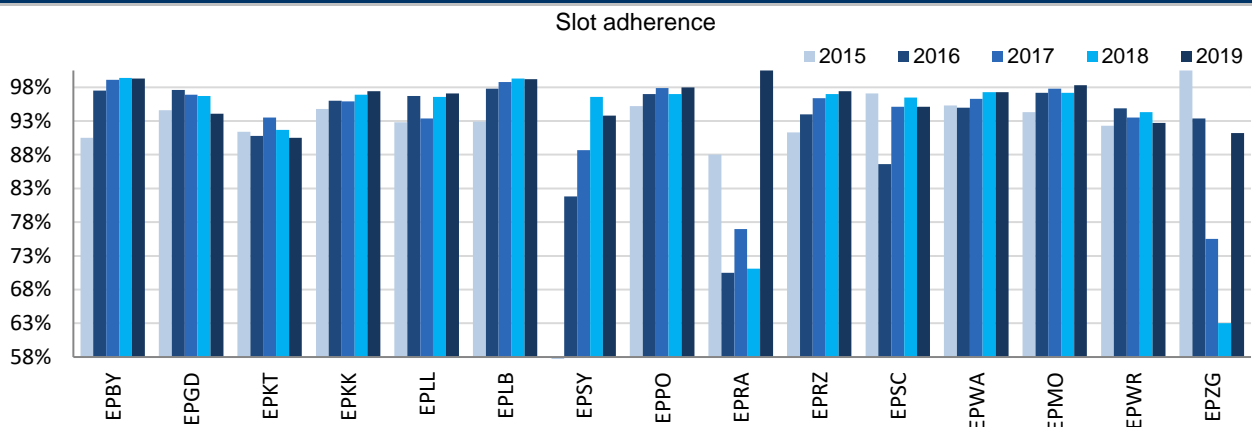
Poland has established a financial incentive scheme for terminal ATFM delay with reference to the arrival ATFM performance at airport level. This comprises an individual scheme for EPWA and a separate scheme for the five bigger regional airports (i.e. EPGD, EPKT, EPWR, EPPO and EPKK). The remaining airports were not considered within the incentive scheme due to their limited impact on the European network, although delays at Warszawa/ Modlin (EPWO) in 2018 and 2019 are no longer negligible.

Warsaw has missed the target of 0.08 min/arr and has also exceeded the upper value of the dead band, therefore a penalty of 0.1% of the revenues from terminal services provided at EPWA will be applied.

The actual observed performance at Krakow and Katowice falls within the dead band, so no penalties nor bonuses shall apply.

Gdansk, Wroclaw and Poznan met the zero delay target, but as the terminal capacity target is missed on national level, the bonuses could not be applied.

#### 4. ATFM Slot Adherence



The aggregated ATFM slot adherence at national level in Poland is very good with 95.6% of departures within their ATFM window. The two airports that did not reach the minimum target of 80% in previous years, EPRA and EPZG have drastically improved the adherence and surpass the target.

#### 5. ATC Pre-departure Delay

Warszawa/Chopina (EPWA) continues to be the only airport in Poland that has established the Airport Operator Data Flow required to monitor the pre-departure delay indicator. The indicator has significantly deteriorated with respect to the previous years reaching now 0.87 min/dep.

#### 6. Appendix

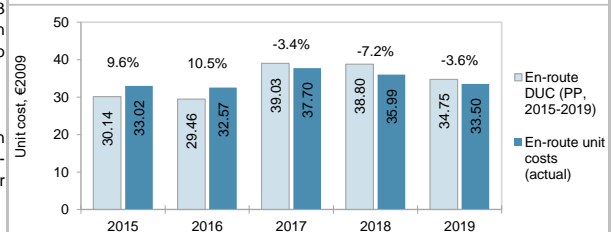
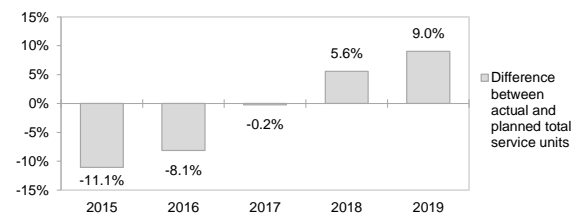
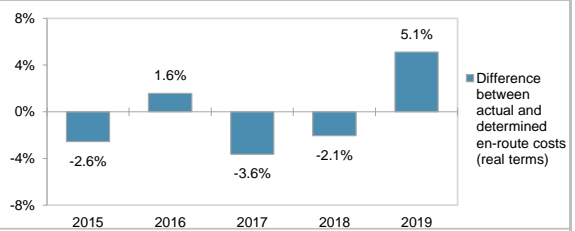
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bydgoszcz	EPBY	0.00	0.00	0.00	0.00	0.00	90.0%	97.0%	98.6%	98.9%	98.8%	n/a	n/a	n/a	n/a	n/a
Gdansk	EPGD	0.00	0.00	0.00	0.00	0.00	94.1%	97.1%	96.4%	96.2%	93.6%	n/a	n/a	n/a	n/a	n/a
Katowice - Pyrzowice	EPKT	0.01	0.00	0.01	0.01	0.03	90.9%	90.3%	93.0%	91.2%	90.0%	n/a	n/a	n/a	n/a	n/a
Krakow - Balice	EPKK	0.21	0.05	0.01	0.04	0.03	94.3%	95.5%	95.4%	96.4%	96.9%	n/a	n/a	n/a	n/a	n/a
Lodz - Lublinek	EPLL	0.00	0.04	0.14	0.00	0.00	92.3%	96.2%	92.9%	96.1%	96.6%	n/a	n/a	n/a	n/a	n/a
Lublin	EPLB	0.00	0.00	0.00	0.00	0.00	92.4%	97.3%	98.3%	98.8%	98.7%	n/a	n/a	n/a	n/a	n/a
Olsztyn-Mazury	EPSY		0.00	0.00	0.00	0.00	n/a	81.3%	88.2%	96.1%	93.3%		n/a	n/a	n/a	n/a
Poznan - Lawica	EPPO	0.00	0.00	0.02	0.01	0.00	94.7%	96.5%	97.4%	96.5%	97.5%	n/a	n/a	n/a	n/a	n/a
Radom	EPRA	0.00	0.00	0.00	0.00	0.00	87.5%	70.0%	76.5%	70.6%	100.0%	n/a	n/a	n/a	n/a	n/a
Rzeszow - Jasionka	EPRZ	0.00	0.00	0.00	0.00	0.00	90.8%	93.5%	95.9%	96.5%	96.9%	n/a	n/a	n/a	n/a	n/a
Szczecin - Goleniów	EPSC	0.00	0.00	0.00	0.00	0.00	96.6%	86.1%	94.6%	96.0%	94.6%	n/a	n/a	n/a	n/a	n/a
Warszawa/ Chopina	EPWA	0.03	0.48	0.31	0.68	0.86	94.8%	94.5%	95.8%	96.8%	96.8%	0.26	0.45	0.47	0.35	0.87
Warszawa/ Modlin	EPMO	0.00	0.00	0.00	0.32	0.16	93.8%	96.7%	97.3%	96.7%	97.8%	n/a	n/a	n/a	n/a	n/a
Wroclaw/ Strachowice	EPWR	0.00	0.00	0.00	0.00	0.00	91.8%	94.4%	93.0%	93.8%	92.2%	n/a	n/a	n/a	n/a	n/a
Zielona Gora - Babimost	EPZG	0.00	0.00	0.00	0.00	0.00	100.0%	92.9%	75.0%	62.5%	90.7%	n/a	n/a	n/a	n/a	n/a

## POLAND: En-route charging zone

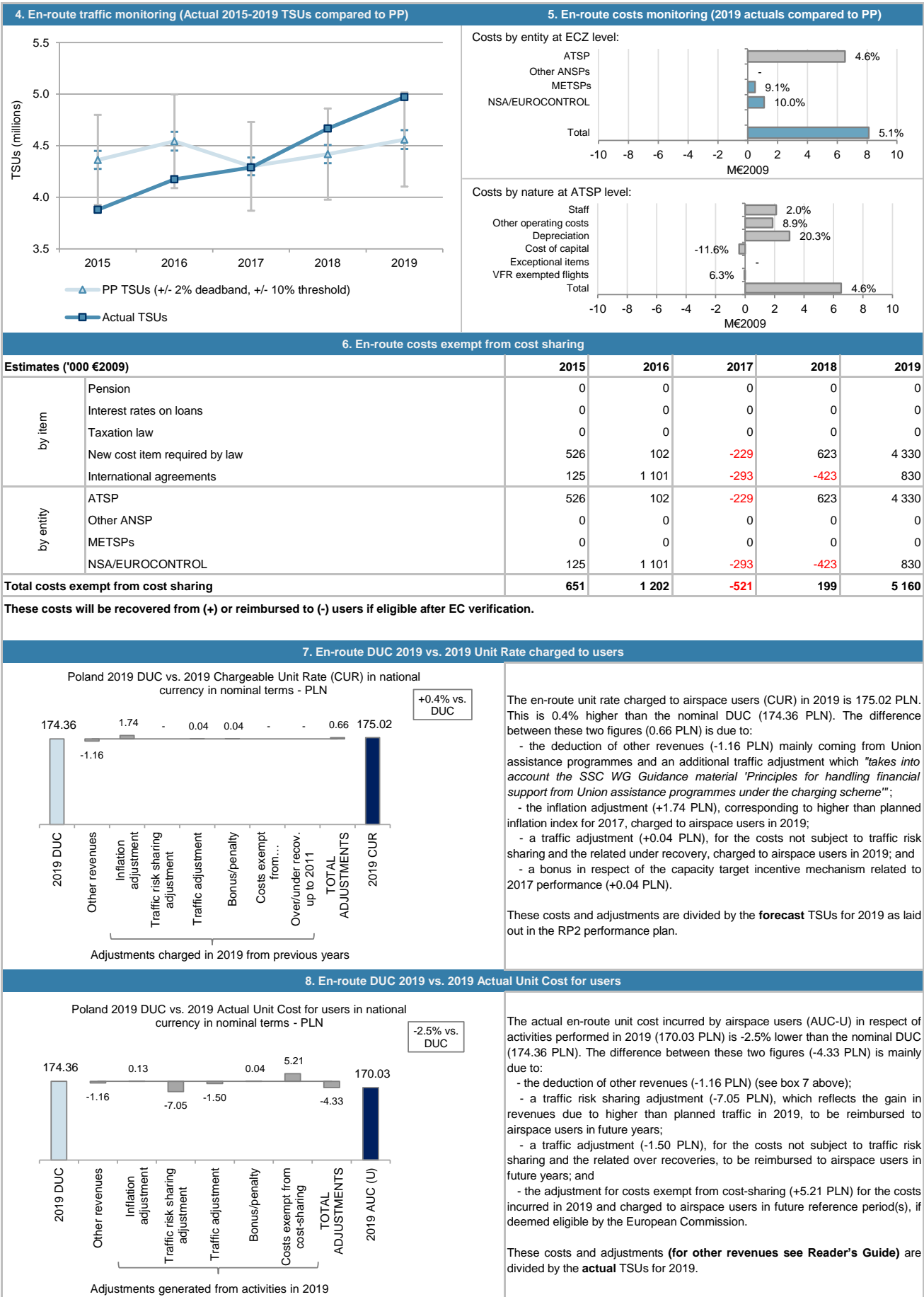
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Poland ECZ represents 2.4% of the SES en-route ANS determined costs in 2019					
· ATSP: PANSА					
· FAB: Baltic FAB					
· National currency: PLN Exchange rate 2009: 1 EUR = 4.32383 PLN					
2. En-route DUC monitoring at Charging Zone level					
Poland: Data from RP2 Performance Plan (EC Decision 2017/2376 of 15 December 2017)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal PLN)	658 592 342	687 375 337	807 874 605	840 660 505	795 098 157
Inflation %	2.4%	2.5%	1.1%	1.9%	2.4%
Inflation index (100 in 2009)	115.9	118.7	111.3	113.4	116.1
Real en-route costs (PLN2009)	568 474 758	578 848 069	725 678 008	741 339 221	685 060 982
Total en-route Service Units	4 362 840	4 544 000	4 299 929	4 419 000	4 560 000
<b>Real en-route unit cost per Service Unit (PLN2009)</b>	<b>130.30</b>	<b>127.39</b>	<b>168.77</b>	<b>167.76</b>	<b>150.23</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>30.14</b>	<b>29.46</b>	<b>39.03</b>	<b>38.80</b>	<b>34.75</b>
Poland: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal PLN)	614 155 894	650 495 550	786 151 715	826 079 860	836 485 578
Inflation %	-0.7%	-0.2%	1.6%	1.2%	2.1%
Inflation index (100 in 2009)	110.9	110.6	112.4	113.8	116.2
Real en-route costs (PLN2009)	553 949 301	587 902 332	699 316 075	726 120 447	720 144 003
Total en-route Service Units	3 880 013	4 174 735	4 290 520	4 666 097	4 971 806
<b>Real en-route unit cost per Service Unit (PLN2009)</b>	<b>142.77</b>	<b>140.82</b>	<b>162.99</b>	<b>155.62</b>	<b>144.85</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>33.02</b>	<b>32.57</b>	<b>37.70</b>	<b>35.99</b>	<b>33.50</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal PLN)	-44 436 448	-36 879 787	-21 722 890	-14 580 645	41 387 421
in %	-6.7%	-5.4%	-2.7%	-1.7%	5.2%
Inflation %	-3.1 p.p.	-2.7 p.p.	0.5 p.p.	-0.7 p.p.	-0.3 p.p.
Inflation index (100 in 2009)	-5.0 p.p.	-8.1 p.p.	1.1 p.p.	0.4 p.p.	0.1 p.p.
Real en-route costs (PLN2009)	-14 525 457	9 054 263	-26 361 933	-15 218 774	35 083 020
in %	-2.6%	1.6%	-3.6%	-2.1%	5.1%
Total en-route Service Units	-482 827	-369 265	-9 409	247 097	411 806
in %	-11.1%	-8.1%	-0.2%	5.6%	9.0%
<b>Real en-route unit cost per Service Unit (PLN2009)</b>	<b>12.47</b>	<b>13.44</b>	<b>-5.77</b>	<b>-12.15</b>	<b>-5.39</b>
in %	<b>9.6%</b>	<b>10.5%</b>	<b>-3.4%</b>	<b>-7.2%</b>	<b>-3.6%</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>2.88</b>	<b>3.11</b>	<b>-1.34</b>	<b>-2.81</b>	<b>-1.25</b>
in %	<b>9.6%</b>	<b>10.5%</b>	<b>-3.4%</b>	<b>-7.2%</b>	<b>-3.6%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (144.85 PLN2009 or 33.50 €2009) is -3.6% lower than planned in the PP (150.23 PLN2009 or 34.75 €2009). This results from the combination of higher than planned TSUs (+9.0%) and higher than planned en-route costs in real terms (+5.1%, or +8.1 M€2009). See <b>Note 2</b> at the end of this report.					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+9.0%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (PANSА) retaining an amount of +5.8 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are +5.2% (+41.4 MPLN) higher than planned. However, since the actual inflation index is also slightly higher than planned (+0.1 p.p.), actual en-route costs are +5.1% (+8.1 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by PANSА (+4.6%, or +6.5 M€2009), the MET service providers (+9.1%, or +0.5 M€2009) and the NSA/EUROCONTROL (+10.0%, or +1.1 M€2009). A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +5.2 M€2009 comprising +4.3 M€2009 for a new cost item required by law and +0.8 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual en-route TSUs are -0.9% lower than planned, while actual costs in real terms are also -0.4% lower than the determined costs (some -2.8 M€2009). As a result, the weighted average actual unit cost over RP2 (149.54 PLN2009 or 34.59 €2009) is +0.6% higher than planned in the NPP (148.72 PLN2009 or 34.39 €2009).					



**POLAND: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## POLAND: En-route ATSP (PANSa)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	116 939	118 981	151 522	155 060	141 971
Actual costs for the ATSP	113 577	119 455	146 131	152 174	148 491
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	3 361	-474	5 391	2 886	-6 520
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	526	102	-229	623	4 330
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>3 888</b>	<b>-373</b>	<b>5 162</b>	<b>3 509</b>	<b>-2 190</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-11.1%	-8.1%	-0.2%	5.6%	9.0%
Determined costs for the ATSP (PP) - based on actual inflation	122 165	127 693	150 053	154 558	141 857
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-5 375</b>	<b>-4 901</b>	<b>-328</b>	<b>4 757</b>	<b>5 829</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>-32</b>	<b>41</b>	<b>0</b>	<b>43</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>-1 488</b>	<b>-5 305</b>	<b>4 875</b>	<b>8 265</b>	<b>3 683</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	140 047	147 467	214 796	241 099	254 476
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	140 047	147 467	214 796	241 099	254 476
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	8 333	8 774	16 776	18 830	3 514
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.0%	6.0%	7.8%	7.8%	1.4%
Estimated surplus embedded in the cost of capital for en-route (in value)	8 333	8 774	16 776	18 830	3 514
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>8 333</b>	<b>8 774</b>	<b>16 776</b>	<b>18 830</b>	<b>3 514</b>
<b>Revenue/costs for the en-route activity</b>	<b>116 939</b>	<b>118 981</b>	<b>151 522</b>	<b>155 060</b>	<b>141 971</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>7.1%</b>	<b>7.4%</b>	<b>11.1%</b>	<b>12.1%</b>	<b>2.5%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.0%</b>	<b>6.0%</b>	<b>7.8%</b>	<b>7.8%</b>	<b>1.4%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	145 940	169 815	201 452	216 788	224 944
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	145 940	169 815	201 452	216 788	224 944
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	8 683	10 104	15 733	16 931	3 107
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.0%	6.0%	7.8%	7.8%	1.4%
Estimated surplus embedded in the cost of capital for en-route (in value)	8 683	10 104	15 733	16 931	3 107
Net ATSP gain(+)/loss(-) on en-route activity	-1 488	-5 305	4 875	8 265	3 683
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>7 196</b>	<b>4 799</b>	<b>20 608</b>	<b>25 196</b>	<b>6 789</b>
<b>Revenue/costs for the en-route activity</b>	<b>112 090</b>	<b>114 150</b>	<b>151 006</b>	<b>160 439</b>	<b>152 174</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.4%</b>	<b>4.2%</b>	<b>13.6%</b>	<b>15.7%</b>	<b>4.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>4.9%</b>	<b>2.8%</b>	<b>10.2%</b>	<b>11.6%</b>	<b>3.0%</b>



**POLAND: En-route ATSP (PANSa)**

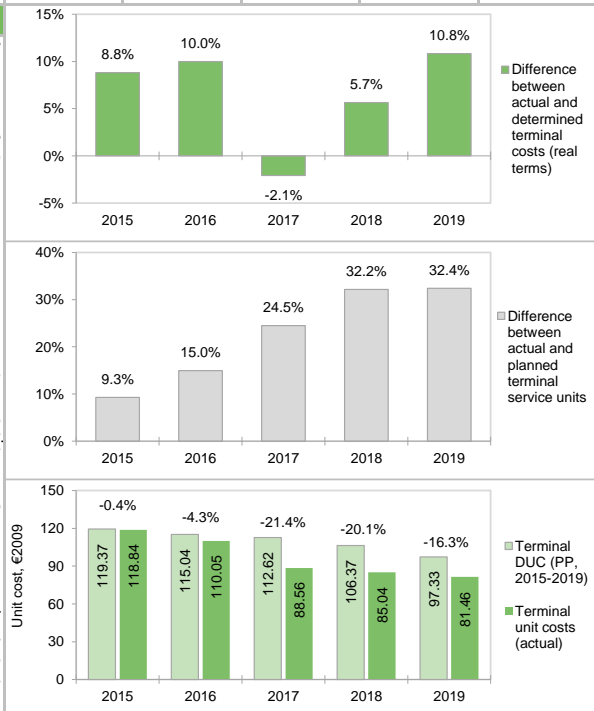
**Monitoring of en-route COST-EFFICIENCY for 2019**



## POLAND - ZONE 1: Terminal charging zone

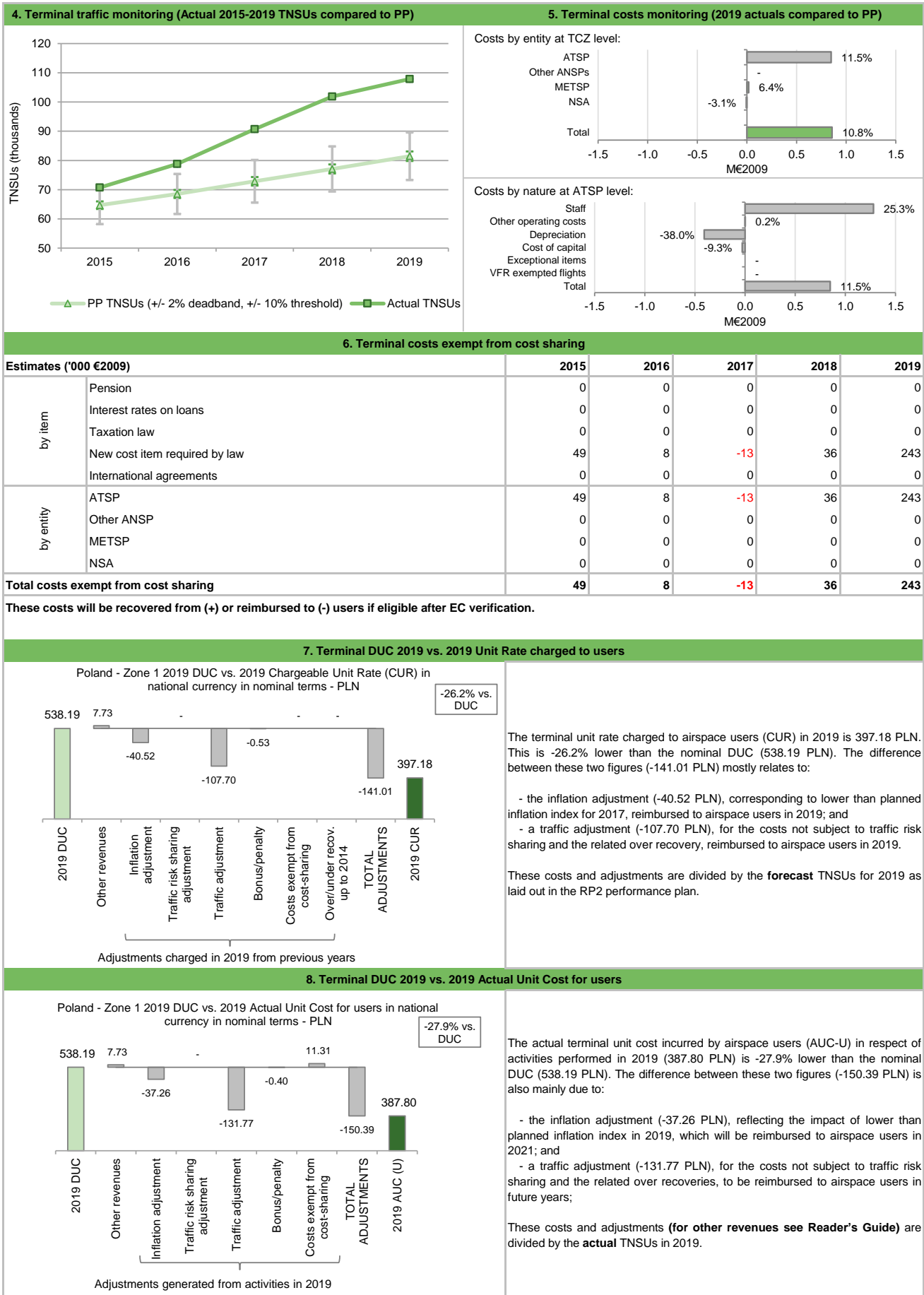
## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Poland - Zone 1 TCZ represents 0.7% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		No	
ATSP: PANSNA		Airports with fewer than 70,000 IFRs ATMs:		0	
National currency: PLN		Airports with between 70,000 and 225,000 IFRs ATMs:		1	
Number of airports in charging zone in 2019: 1, of which:		Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level					
Poland - Zone 1: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal PLN)	38 684 631	40 473 739	43 188 562	44 236 846	43 835 422
Inflation %	2.4%	2.5%	2.5%	2.5%	2.5%
Inflation index (100 in 2009)	115.9	118.7	121.7	124.8	127.9
Real terminal costs (PLN2009)	33 391 272	34 083 483	35 482 607	35 457 415	34 278 692
Total terminal Service Units	64 694	68 522	72 865	77 097	81 450
<b>Real terminal unit cost per Service Unit (PLN2009)</b>	<b>516.14</b>	<b>497.41</b>	<b>486.96</b>	<b>459.91</b>	<b>420.86</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>119.37</b>	<b>115.04</b>	<b>112.62</b>	<b>106.37</b>	<b>97.33</b>
Poland - Zone 1: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal PLN)	40 288 789	41 483 085	39 055 461	42 620 052	44 126 045
Inflation %	-0.7%	-0.2%	1.6%	1.2%	2.1%
Inflation index (100 in 2009)	110.9	110.6	112.4	113.8	116.2
Real terminal costs (PLN2009)	36 339 221	37 491 421	34 741 528	37 462 833	37 988 828
Total terminal Service Units	70 718	78 789	90 729	101 889	107 857
<b>Real terminal unit cost per Service Unit (PLN2009)</b>	<b>513.86</b>	<b>475.85</b>	<b>382.91</b>	<b>367.68</b>	<b>352.21</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>118.84</b>	<b>110.05</b>	<b>88.56</b>	<b>85.04</b>	<b>81.46</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal PLN)	in value 1 604 158	1 009 347	-4 133 101	-1 616 794	290 622
	in % 4.1%	2.5%	-9.6%	-3.7%	0.7%
Inflation %	in p.p. -3.1 p.p.	-2.7 p.p.	-0.9 p.p.	-1.3 p.p.	-0.4 p.p.
Inflation index (100 in 2009)	in p.p. -5.0 p.p.	-8.1 p.p.	-9.3 p.p.	-11.0 p.p.	-11.7 p.p.
Real terminal costs (PLN2009)	in value 2 947 948	3 407 938	-741 079	2 005 418	3 710 136
	in % 8.8%	10.0%	-2.1%	5.7%	10.8%
Total terminal Service Units	in value 6 024	10 267	17 864	24 793	26 407
	in % 9.3%	15.0%	24.5%	32.2%	32.4%
<b>Real terminal unit cost per Service Unit (PLN2009)</b>	<b>in value -2.28</b>	<b>-21.56</b>	<b>-104.05</b>	<b>-92.23</b>	<b>-68.64</b>
	<b>in % -0.4%</b>	<b>-4.3%</b>	<b>-21.4%</b>	<b>-20.1%</b>	<b>-16.3%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -0.53</b>	<b>-4.99</b>	<b>-24.06</b>	<b>-21.33</b>	<b>-15.88</b>
	<b>in % -0.4%</b>	<b>-4.3%</b>	<b>-21.4%</b>	<b>-20.1%</b>	<b>-16.3%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Poland - Terminal Charging Zone 1 (TCZ1) comprising only Warsaw Chopin (EPWA) airport. See <a href="#">Note 1</a> at the end of this report.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (352.21 PLN2009 or 81.46 €2009) is -16.3% lower than planned in the PP (420.86 PLN2009 or 97.33 €2009). This results from the combination of much higher than planned TNSUs (+32.4%) and much higher than planned terminal costs in real terms (+10.8%).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Poland TCZ 1. In 2019, the actual TNSUs in Poland TCZ 1 are +32.4% higher than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +0.7% (+0.3 MPLN) higher than planned. However, since the actual inflation index is lower than planned (-11.7 p.p.), actual terminal costs are +10.8% (+0.9 M€2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by PANSNA (+11.5%, or +0.8 M€2009) and the MET service provider (+6.4%, or +0.02 M€2009), while the costs for the NSA (-3.1%, or -0.01 M€2009) are lower than planned. A detailed analysis is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +0.2 M€2009 corresponding to a new cost item required by law. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for TCZ 1, actual TNSUs are +23.4% higher than planned, while actual costs in real terms are also +6.6% higher than the determined costs (some +2.6 M€2009). As a result, the weighted average actual unit cost over RP2 (408.96 PLN2009 or 94.58 €2009) is -13.7% lower than planned in the NPP (473.62 PLN2009 or 109.54 €2009).					



**POLAND - ZONE 1: Terminal charging zone**

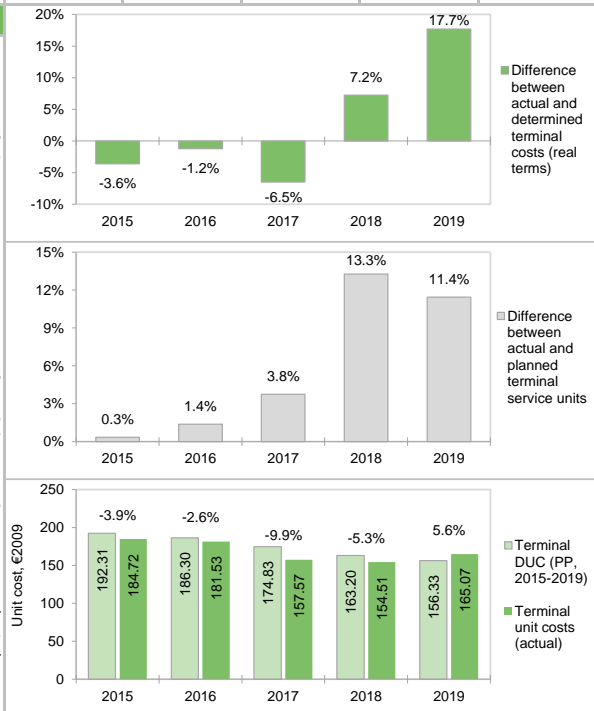
**Monitoring of terminal COST-EFFICIENCY for 2019**



## POLAND - ZONE 2: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Poland - Zone 2 TCZ represents 1.8% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		No	
ATSP:	PANSA	Airports with fewer than 70,000 IFRs ATMs:		14	
National currency:	PLN	Airports with between 70,000 and 225,000 IFRs ATMs:		0	
Number of airports in charging zone in 2019:	14,	of which:		Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Poland - Zone 2: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal PLN)	91 615 857	97 620 964	100 827 140	103 009 775	107 437 855
Inflation %	2.38%	2.5%	2.5%	2.5%	2.5%
Inflation index (100 in 2009)	115.9	118.7	121.7	124.8	127.9
Real terminal costs (PLN2009)	79 079 726	82 207 934	82 836 974	82 566 020	84 014 912
Total terminal Service Units	95 106	102 052	109 584	117 005	124 294
<b>Real terminal unit cost per Service Unit (PLN2009)</b>	<b>831.49</b>	<b>805.55</b>	<b>755.92</b>	<b>705.66</b>	<b>675.94</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>192.31</b>	<b>186.30</b>	<b>174.83</b>	<b>163.20</b>	<b>156.33</b>
Poland - Zone 2: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal PLN)	84 508 955	89 844 281	87 082 979	100 735 338	114 834 656
Inflation %	-0.70%	-0.2%	1.6%	1.2%	2.1%
Inflation index (100 in 2009)	110.9	110.6	112.4	113.8	116.2
Real terminal costs (PLN2009)	76 224 420	81 199 114	77 464 090	88 545 905	98 863 018
Total terminal Service Units	95 437	103 452	113 696	132 542	138 516
<b>Real terminal unit cost per Service Unit (PLN2009)</b>	<b>798.69</b>	<b>784.90</b>	<b>681.33</b>	<b>668.06</b>	<b>713.73</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>184.72</b>	<b>181.53</b>	<b>157.57</b>	<b>154.51</b>	<b>165.07</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal PLN)	-7 106 902	-7 776 683	-13 744 161	-2 274 437	7 396 801
	in %	in %	in %	in %	in %
	-7.8%	-8.0%	-13.6%	-2.2%	6.9%
Inflation %	-3.1 p.p.	-2.7 p.p.	-0.9 p.p.	-1.3 p.p.	-0.4 p.p.
Inflation index (100 in 2009)	-5.0 p.p.	-8.1 p.p.	-9.3 p.p.	-11.0 p.p.	-11.7 p.p.
Real terminal costs (PLN2009)	-2 855 306	-1 008 821	-5 372 884	5 979 885	14 848 106
	in %	in %	in %	in %	in %
	-3.6%	-1.2%	-6.5%	7.2%	17.7%
Total terminal Service Units	332	1 400	4 112	15 538	14 222
	in value	in value	in value	in value	in value
	0.3%	1.4%	3.8%	13.3%	11.4%
<b>Real terminal unit cost per Service Unit (PLN2009)</b>	<b>-32.81</b>	<b>-20.65</b>	<b>-74.60</b>	<b>-37.61</b>	<b>37.79</b>
	in value	in value	in value	in value	in value
	-3.9%	-2.6%	-9.9%	-5.3%	5.6%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-7.59</b>	<b>-4.78</b>	<b>-17.25</b>	<b>-8.70</b>	<b>8.74</b>
	in value	in value	in value	in value	in value
	-3.9%	-2.6%	-9.9%	-5.3%	5.6%
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Poland - Terminal Charging Zone 2 (TCZ 2) comprising 14 airports. See <b>Note 1</b> at the end of this report.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (713.73 PLN2009 or 165.07 €2009) is +5.6% higher than planned in the PP (675.94 PLN2009 or 156.33 €2009). This results from the combination of much higher than planned TNSUs (+11.4%) and much higher than planned terminal costs in real terms (+17.7%). According to the NSA monitoring report 2019 "No corrective measures were applied. Nevertheless, since RP3, NSA has introduced the quarterly monitoring exercise for the ANSPs."					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Poland TCZ 2. In 2019, the actual TNSUs in Poland TCZ 2 are +11.4% higher than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +6.9% (+7.4 MPLN) higher than planned. However, since the actual inflation is lower than planned (-11.7 p.p.), actual terminal costs are +17.7% (+3.4 ME2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by PANSA (+16.0%, or +2.6 ME2009), the other ANSPs (+649.4%, or +0.1 ME2009), the MET provider (+25.4%, or +0.7 ME2009) and the NSA (+14.8%, or +0.1 ME2009). A detailed analysis is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +0.4 ME2009 corresponding to a new cost item required by law. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for TCZ 2, actual TNSUs are +6.5% higher than planned, while actual costs in real terms are +2.8% higher than the determined costs (some +2.7 ME2009). As a result, the weighted average actual unit cost over RP2 (723.55 PLN2009 or 167.34€2009) is -3.5% lower than planned in the NPP (749.41 PLN2009 or 173.22 €2009).					



**POLAND - ZONE 2: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	16.0%
Other ANSPs	649.4%
METSP	25.4%
NSA	14.8%
Total	17.7%

Costs by nature at ATSP level:

Staff	11.2%
Other operating costs	21.6%
Depreciation	37.9%
Cost of capital	17.2%
Exceptional items	-
VFR exempted flights	-
Total	16.0%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	66	8	-16	59	444
	International agreements	0	0	0	0	0
by entity	ATSP	66	8	-16	59	444
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>66</b>	<b>8</b>	<b>-16</b>	<b>59</b>	<b>444</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

The terminal unit rate charged to airspace users (CUR) in 2019 is 777.20 PLN. This is -10.1% lower than the nominal DUC (864.38 PLN). The difference between these two figures (-87.18 PLN) mainly relates to:

- the inflation adjustment (-61.98 PLN), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019; and
- a traffic adjustment (-28.49 PLN), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (723.93 PLN) is -16.2% lower than the nominal DUC (864.38 PLN). The difference between these two figures (-140.45 PLN) is also mainly due to:

- the inflation adjustment (-71.11 PLN), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021; and
- a traffic adjustment (-88.75 PLN), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## POLAND: Terminal ATSP (PANSa)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	22 279	22 785	23 253	23 285	23 372
Actual costs for the ATSP	22 725	23 459	21 614	24 881	26 775
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-445	-674	1 639	-1 596	-3 403
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	115	16	-29	95	687
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-330</b>	<b>-658</b>	<b>1 610</b>	<b>-1 501</b>	<b>-2 716</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>3</b>	<b>-17</b>	<b>-9</b>	<b>-14</b>	<b>-9</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-327</b>	<b>-674</b>	<b>1 601</b>	<b>-1 515</b>	<b>-2 725</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	22 504	25 990	28 178	30 583	32 419
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	22 504	25 990	28 178	30 583	32 419
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	1 339	1 546	1 529	1 063	1 143
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.0%	6.0%	5.4%	3.5%	3.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	1 339	1 546	1 529	1 063	1 143
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 339</b>	<b>1 546</b>	<b>1 529</b>	<b>1 063</b>	<b>1 143</b>
<b>Revenue/costs for the terminal activity</b>	<b>22 279</b>	<b>22 785</b>	<b>23 253</b>	<b>23 285</b>	<b>23 372</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>6.0%</b>	<b>6.8%</b>	<b>6.6%</b>	<b>4.6%</b>	<b>4.9%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.0%</b>	<b>6.0%</b>	<b>5.4%</b>	<b>3.5%</b>	<b>3.5%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	25 319	30 172	28 524	35 742	35 737
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	25 319	30 172	28 524	35 742	35 737
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	1 506	1 795	1 548	1 242	1 260
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.0%	6.0%	5.4%	3.5%	3.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	1 506	1 795	1 548	1 242	1 260
Net ATSP gain(+)/loss(-) on terminal activity	-327	-674	1 601	-1 515	-2 725
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 179</b>	<b>1 121</b>	<b>3 149</b>	<b>-273</b>	<b>-1 465</b>
<b>Revenue/costs for the terminal activity</b>	<b>22 397</b>	<b>22 785</b>	<b>23 216</b>	<b>23 366</b>	<b>24 051</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>5.3%</b>	<b>4.9%</b>	<b>13.6%</b>	<b>-1.2%</b>	<b>-6.1%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>4.7%</b>	<b>3.7%</b>	<b>11.0%</b>	<b>-0.8%</b>	<b>-4.1%</b>

**POLAND: Terminal ATSP (PANSA)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## POLAND: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Poland: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	131 474 817	133 873 919	167 832 225	171 454 294	158 438 464																																							
Real terminal costs (EUR2009)	26 011 892	26 895 465	27 364 531	27 296 040	27 358 523																																							
Real gate-to-gate costs (EUR2009)	157 486 709	160 769 384	195 196 756	198 750 334	185 796 987																																							
En-route share (%)	83.5%	83.3%	86.0%	86.3%	85.3%																																							
<b>Poland: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	128 115 421	135 967 957	161 735 331	167 934 550	166 552 340																																							
Real terminal costs (EUR2009)	26 033 318	27 450 324	25 950 516	29 142 852	31 650 607																																							
Real gate-to-gate costs (EUR2009)	154 148 739	163 418 281	187 685 846	197 077 402	198 202 947																																							
En-route share (%)	83.1%	83.2%	86.2%	85.2%	84.0%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)																																												
in value	-3 337 970	2 648 897	-7 510 910	-1 672 931	12 405 960																																							
in %	-2.1%	1.6%	-3.8%	-0.8%	6.7%																																							
En-route share																																												
in p.p.	-0.4 p.p.	-0.1 p.p.	0.2 p.p.	-1.1 p.p.	-1.2 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +6.7% (+12.4 M€2009) higher than planned due to higher than planned en-route costs (+5.1%, or +8.1 M€2009) and terminal costs (+15.7%, or +4.3 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (84.0%) is slightly lower than planned in the PP for 2019 (85.3%). The increase in the share of en-route costs from 2017 (2017-2019 vs. 2015-2016) is related to the revision of RP2 PP which concerned only en-route ER.</p> <p>For PANSAs, the estimated gate-to-gate economic surplus in 2019 amounts to 5.3 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 3.0% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>83.5%</td> <td>16.5%</td> </tr> <tr> <td>Actual</td> <td>83.1%</td> <td>16.9%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>83.3%</td> <td>16.7%</td> </tr> <tr> <td>Actual</td> <td>83.2%</td> <td>16.8%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>86.0%</td> <td>14.0%</td> </tr> <tr> <td>Actual</td> <td>86.2%</td> <td>13.8%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>86.3%</td> <td>13.7%</td> </tr> <tr> <td>Actual</td> <td>85.2%</td> <td>14.8%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>85.3%</td> <td>14.7%</td> </tr> <tr> <td>Actual</td> <td>84.0%</td> <td>16.0%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	83.5%	16.5%	Actual	83.1%	16.9%	2016	Determined	83.3%	16.7%	Actual	83.2%	16.8%	2017	Determined	86.0%	14.0%	Actual	86.2%	13.8%	2018	Determined	86.3%	13.7%	Actual	85.2%	14.8%	2019	Determined	85.3%	14.7%	Actual	84.0%	16.0%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	83.5%	16.5%																																									
	Actual	83.1%	16.9%																																									
2016	Determined	83.3%	16.7%																																									
	Actual	83.2%	16.8%																																									
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2019	Determined	85.3%	14.7%																																									
	Actual	84.0%	16.0%																																									
<b>3. Technical notes on en-route and terminal information reported by Poland</b>																																												
<b>Note 1: Change in the scope of the Poland Terminal Charging Zone</b>																																												
<p>As of 01.01.2017 until the end of RP2, Poland decided to modify the configuration of the terminal charging zones as follows:</p> <ul style="list-style-type: none"> <li>- Poland Terminal Charging Zone 1 dedicated to Warsaw Chopin airport; and,</li> <li>- Poland Terminal Charging Zone 2 comprising 14 other airports.</li> </ul> <p>Therefore, the monitoring analysis for 2017, 2018 and 2019 is presented separately for the two terminal charging zones, which is different from the Monitoring Reports 2015-2016 when Poland had a single terminal charging zone.</p>																																												
<b>Note 2: Revision of RP2 en-route cost-efficiency targets for the years 2017 to 2019</b>																																												
<p>Poland has revised their RP2 en-route cost-efficiency targets for the years 2017 to 2019. The figures shown in this report reflect: i) the initial adopted Performance Plan (EC Decision 2015/348 of 2 March 2015) for the years 2015 and 2016; and ii) the revised Performance Plan (EC Decision 2017/2376 of 15 December 2017) for the years 2017 to 2019.</p> <p>It should be noted that the revision only refers to en-route DUC for the years 2017-2019 and <u>does not</u> affect the terminal DUC for the Polish terminal charging zones.</p>																																												



## POLAND

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: PANSA						
FAB: Baltic FAB						
Currency: PLN						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	168.5	192.4	261.6	221.6	234.1	1 078.2
Main CAPEX (in nominal M)	149.3	154.3	234.4	194.2	227.8	960.0
Inflation %	2.4%	2.5%	1.1%	1.9%	2.4%	
Inflation index (100 in 2009)	115.9	118.7	111.3	113.4	116.1	
Exchange rate 2009 (1 EUR =)	4.32383	4.32383	4.32383	4.32383	4.32383	
<b>Total CAPEX (in M €2009)</b>	<b>33.6</b>	<b>37.5</b>	<b>54.3</b>	<b>45.2</b>	<b>46.7</b>	<b>217.3</b>
Main CAPEX (in M €2009)	29.8	30.1	48.7	39.6	45.4	193.6
% Main of Total CAPEX	88.6%	80.2%	89.6%	87.6%	97.3%	89.1%
Real gate-to-gate ANSP costs (in M €2009)	139.2	141.8	174.8	178.3	165.3	799.4
Total CAPEX as % of Real gate-to-gate ANSP costs	24.2%	26.4%	31.1%	25.3%	28.2%	27.2%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	168.5	174.3	229.5	163.9	204.5	940.7
Main CAPEX (in nominal M)	122.5	149.3	192.6	129.9	153.4	747.7
Inflation %	-0.7%	-0.2%	1.6%	1.2%	2.1%	
Inflation index (100 in 2009)	110.9	110.6	112.4	113.8	116.2	
Exchange rate 2009 (1 EUR =)	4.32383	4.32383	4.32383	4.32383	4.32383	
<b>Total CAPEX (in M €2009)</b>	<b>35.1</b>	<b>36.4</b>	<b>47.2</b>	<b>33.3</b>	<b>40.7</b>	<b>192.8</b>
Main CAPEX (in M €2009)	25.6	31.2	39.6	26.4	30.5	153.3
% Main of Total CAPEX	72.7%	85.7%	83.9%	79.2%	75.0%	79.5%
Real gate-to-gate ANSP costs (in M €2009)	136.3	142.9	167.7	177.1	175.3	799.3
Total CAPEX as % of Real gate-to-gate ANSP costs	25.8%	25.5%	28.1%	18.8%	23.2%	24.1%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	0.0	-18.1	-32.1	-57.6	-29.6	-137.5
Total CAPEX (in M €2009)	1.5	-1.0	-7.1	-11.9	-5.9	-24.5
<b>Total CAPEX (in %, M €2009)</b>	<b>4.5%</b>	<b>-2.8%</b>	<b>-13.1%</b>	<b>-26.3%</b>	<b>-12.7%</b>	<b>-11.3%</b>

Year	Planned CAPEX (M €2009)	Actual CAPEX (M €2009)	Percentage Change
2015	33.6	35.1	4.5%
2016	37.5	36.4	-2.8%
2017	54.3	47.2	-13.1%
2018	45.2	33.3	-26.3%
2019	46.7	40.7	-12.7%

Note: Planned and actual inflation indices used to calculate CAPEX in real terms above, are based on the en-route Reporting Tables. Following the revision of RP2 Performance Plan these data differ from terminal Reporting Tables for the years 2017-2019. For this reason, two separate inflation indices are used to calculate the gate-to-gate ANSP costs in real terms.

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# **Annual Monitoring Report 2019**

Local level view  
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## Monitoring of SAFETY for 2019

Effectiveness of Safety Management							
			2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs					C
	at ANSP level	For Safety Culture MO					C
		For all other MOs					D
FAB level	States / Regulatory authorities	For all MOs	A	B	B	B	B
	ANSPs	For Safety Culture MO	C	C	C	C	C
	ANSPs	For all other MOs	C	B	B	C	C
Application of the severity classification of the Risk Analysis Tool (RAT)							
Ground Score			2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%		100%
	Runway Incursions (RIs)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		88%	99%	100%	99%	100%
	Runway Incursions (RIs)		95%	91%	100%	100%	100%
Overall Score			2015 Value	2016 Value	2017 Target	2018 Target	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		12%	98%	100%	81%	98%
	Runway Incursions (RIs)		26%	85%	100%	51%	100%
	ATM Specific occurrences (ATM-S)		51%	65%	97%	100%	100%

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

#### Observations

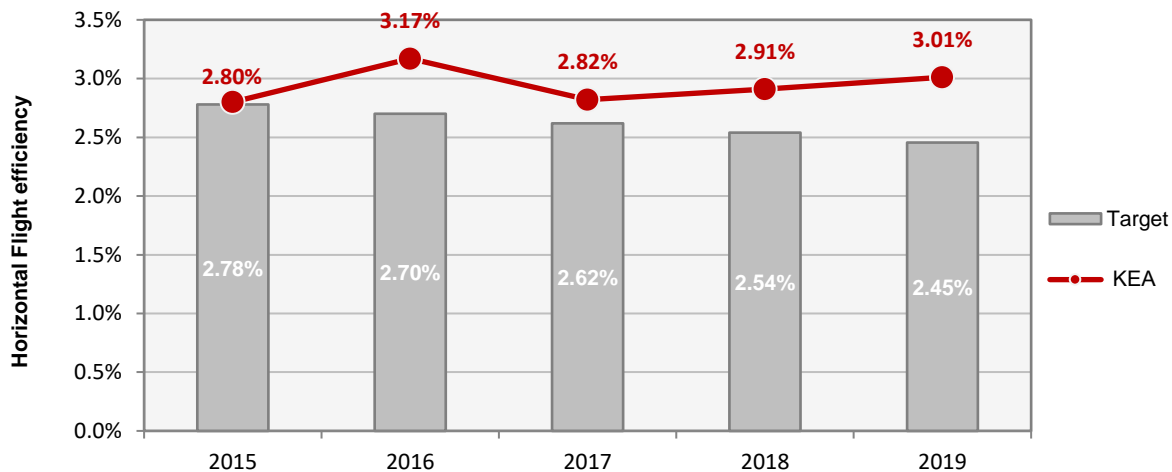
The lowest level in the EoS Components/areas of the States is Level "B" which is below the 2019 EoS target level. Safety Policy and Objectives, Safety Risk Management and Safety Assurance are already at the 2019 EoS target level.

With regards the ANSP EoS level, the minimum level is Level "C" for the group of "All other component than Safety Culture", which does not meet the target. Safety Culture met the 2019 EoS target level.

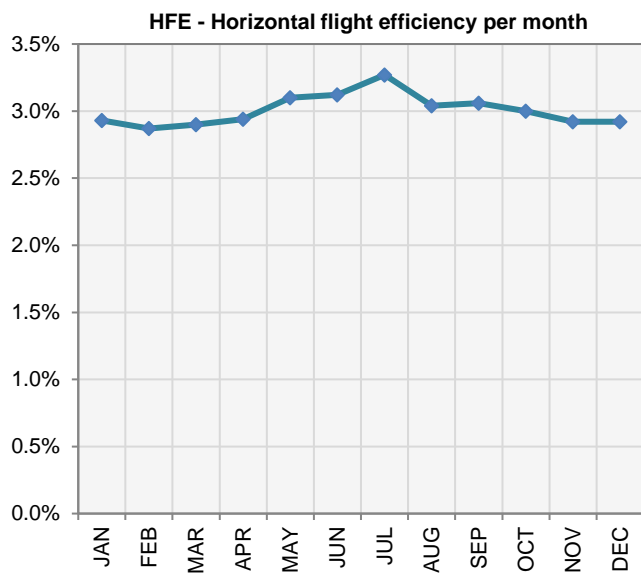
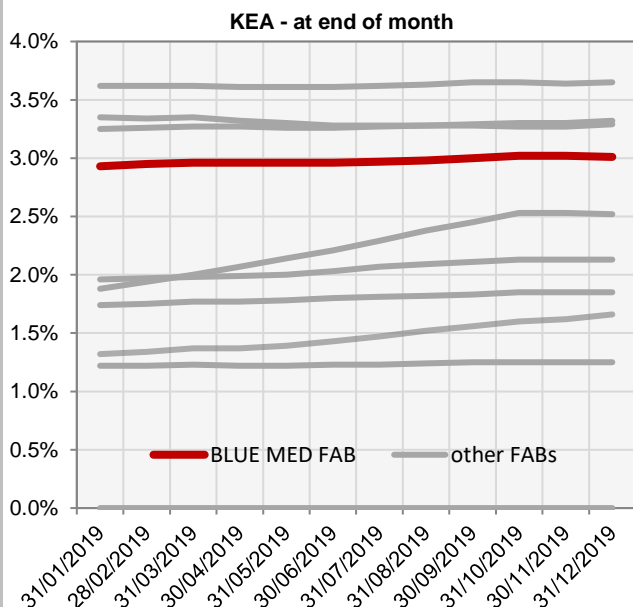
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**Monitoring of ENVIRONMENT for 2019**

KEA					
	2015	2016	2017	2018	2019
<b>FAB Target</b>	2.78%	2.70%	2.62%	2.54%	2.45%
<b>KEA Value</b>	2.80%	3.17%	2.82%	2.91%	3.01%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>KEA (at end of month)</b>	2.93%	2.95%	2.96%	2.96%	2.96%	2.96%	2.97%	2.98%	3.00%	3.02%	3.02%	3.01%
<b>HFE</b>	2.93%	2.87%	2.90%	2.94%	3.10%	3.12%	3.27%	3.04%	3.06%	3.00%	2.92%	2.92%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.

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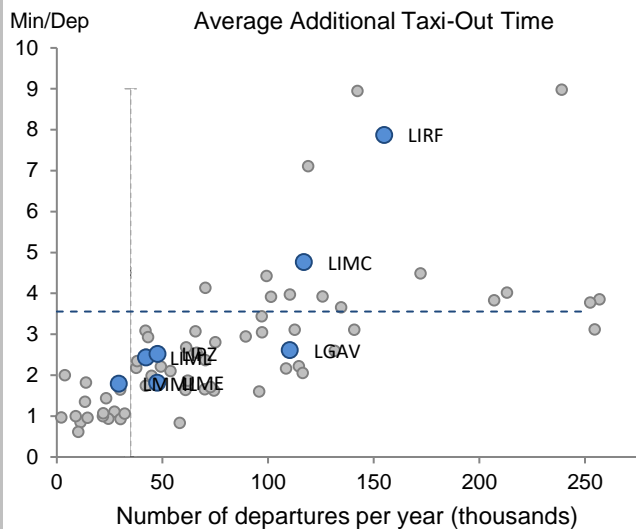
**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

The Airport Operator Data Flow (APDF) is established for 7 out of the 9 airports subject to RP2 monitoring in the Blue Med FAB, with only Cypriot airports pending the implementation. The monitoring is done on the basis of the airports submitting data.

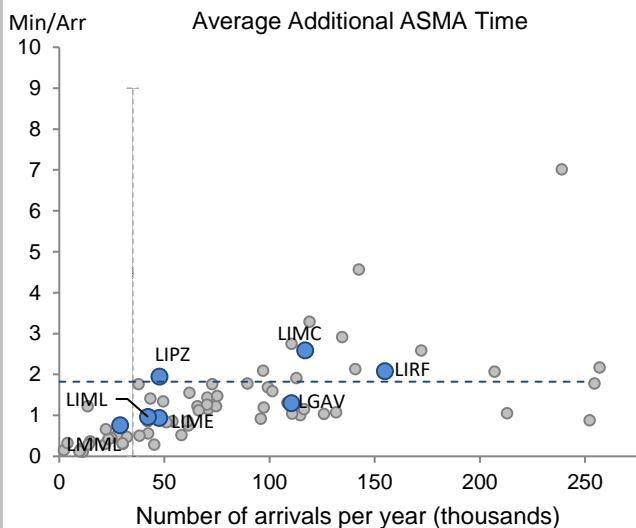
Cyprus shall empower the respective airport reporting entity to establish the airport operator data flow and/or address the remaining data issues.

**2. Additional Taxi-Out Time**



Additional taxi-out times in 2019 have increased for three of the Italian airports, with Fiumicino (LIRF) and Malpensa (LIMC) showing some of the highest additional taxi-out times in the SES area. The performance of rest of airports in the Blue Med FAB is commensurate with the traffic and below the SES average of 3.56 min/dep.

**3. Additional ASMA Time**



The observed additional ASMA times at available airports within the Blue Med FAB area are in general commensurate with their level of traffic, but drastic deteriorations are observed at Venice (LIPZ) and Malpensa (LIMC)

## BLUE MED FAB

## Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
<b>FAB Reference Value</b>	0.17	0.18	0.18	0.18	0.18	The revised Blue Med FAB en route capacity targets were presented to the Single Sky Committee in March 2019
<b>Previous FAB Target</b>	0.35	0.36	0.37	0.37	0.38	
<b>Revised FAB targets</b>	0.17	0.18	0.18	0.24	0.24	
<b>Actual performance</b>	0.64	0.13	0.23	0.35	0.32	

#### BLUE MED FAB assessment of capacity performance

Blue Med FAB did not provide any assessment of FAB capacity performance in 2019.

#### Monitoring process for capacity performance

No specific statements are made about monitoring FAB performance.

#### Application of Corrective Measures for Capacity

No statements about corrective measures at FAB level, although Cyprus reports some mitigation measures including increase in number of TAC staff, increase in sector opening times and the application of better ATFCM techniques.

#### Capacity Planning

No information is provided at FAB level, although Cyprus reports that the increase in demand made it difficult for Cyprus to improve further its capacity performance.

#### Assessment of capacity performance

Blue Med FAB failed to meet the adopted revised target of 0,24 minutes average en route ATFM delay per flight in 2019.

A 3,7% rise in traffic from 2018 levels led to average en route ATFM delays of 0,32 minute per flight, a marginal improvement from 0,35 minutes per flight in 2018. The actual delay was significantly lower than what was predicted in the NOP 2019-2024 (0.41 minutes per flight).

Traffic levels for 2019 were between the high and baseline traffic forecast provided by STATFOR in February 2014, prior to the adoption of FAB performance plans.

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	2 277		2 367		2 488		2 596		2 706		2 830	
<b>Base</b>	2 246	<b>2 282</b>	2 310	<b>2 327</b>	2 387	<b>2 371</b>	2 456	<b>2 485</b>	2 524	<b>2 662</b>	2 606	<b>2 763</b>
<b>Low</b>	2 213		2 247		2 274		2 304		2 337		2 375	

#### Delay forecast

	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.24	0.24	0.24	0.20	N/A	N/A
<b>NOP 2019 - 2024</b>	0.41	0.39	0.13 – 0.41			

#### En route Capacity Incentive Scheme

No FAB wide incentive scheme is in place. Several of the Member States have adopted national incentive schemes which are covered in the national sections.



### Result of FAB Capacity Incentive Scheme

N/A

### Update on Military dimension of the plan

#### CYPRUS

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The air navigation services in Nicosia FIR are provided with reference to the arrangements which have been established through the implementation of regulation (EC) 2150/2005 "laying down common rules for the flexible use of airspace". (see section 5, Application of FUA)

The implementation of the said Regulation has been achieved through the adoption of the "National Plan for the Implementation of FUA", signed on the 2nd of July 2009. The implementation of the National FUA plan ensures to the maximum possible extent, the most efficient use of airspace, both by civil and military users.

The activities of the National Military Authorities are predominately executed over the National airspace. The cooperation between the national Civil and Military Authorities is excellent and the effect on civil aviation is minimal.

Over the high seas however, which constitute the majority of the Nicosia FIR, a number of foreign Military authorities, most commonly the USA Navy, Israeli Air Force, British Air Force and Turkish military forces, regularly performed operational flights and exercises throughout 2018.

The activities of the British forces were coordinated with the national authorities (AMC) and there was minimal effect on ATS. Likewise, the cooperation with the Israeli authorities is also very good and the impact on ATS is minimised.

By far the biggest problem remains with the Turkish forces which do not cooperate at all with the legal authorities of the State. The Turkish air force carried out exercises and operational flights within Nicosia FIR, at times even penetrating Cyprus National airspace, in violation to ICAO procedures thus increasing the workload on ATC staff and hence having a detrimental effect on airspace capacity.

The political unrest in the South East Mediterranean region gave rise to the number of USA and Russian operational flights (OAT). These flights were rarely coordinated with the ATS authorities thus causing additional workload to ACC staff. Nevertheless, the situation in 2019 was better than previous years, as a result of better coordination with British and Israeli military authorities and fewer operations of aircraft carriers south of Cyprus.

#### GREECE:

=====

The State Level Agreement referred to establishment of Blue Med FAB includes various elements related to civil military cooperation in general and Flexible Use of Airspace in particular. A specific Committee, the Civil Military Cooperation Committee (CMCC), which includes Civil and Military components from each State, is tasked to assist the Blue Med Governing Board in Civil- Military Matters, and developing the various items of cooperation.

To understand the Blue Med FAB Civil-Military environment it is important to understand that the four member States have no territorial border in common, and the respective FIRs touch each other on high seas.

Activity of CMCC permitted to achieve a first purpose related to the Air to Air Refuelling route project with the publication of a new junction corridor between Italian and Maltese route network.

In the same way, the document "Harmonization of procedures for military operations over high seas of Blue Med Airspace" it's believed to have reached a sufficient level of maturity for CMCC approval after a final discussion, for the subsequent endorsement in the BM FAB.

Concerning the Greek FUA Working group in particular, amongst the several meetings that it has joined up so far for the subject, it is worthwhile to be mentioned that in the meeting of 16-3-2017 where all the subject experts (from civil – military domain) participated, the following had been decided:

- 1) Creation of TANAGRA TSA, LARISSA TSA & AGHIALOS TSA for supersonic flights. These have already been established and are in operation .
- 2) Agreement in FUA ANNUAL REPORT to be addressed to EC (via HCAA/D4 Regulatory division). This has already been implemented and the relevant questionnaire has been replied.
- 3) Procedure agreement for installation of LARA TOOL. The information session has already been finalised and the implementation phase is expected after the procurement of corresponding equipment.
- 4) Agreement between ATH-MAK ACCs and MILITARY Authorities, which has already been established and in operation.

### Observations on Military dimension of the plan

BLUE MED FAB provided information on the military dimension of the plan for two States. The update of information is welcomed, however, it is noted that no information is provided on how civil military coordination will provide additional capacity for general air traffic.

**Application of FUA**

Cyprus and Greece repeated the same information as provided in the annual monitoring report 2018.

**Observations of the Application of FUA**

The information from Cyprus and Greece regarding the institutional arrangements for FUA is welcomed. Information on how the BLUE MED FAB authorities determine whether or not the optimum benefit has been provided to both civil and military airspace users would be appreciated.

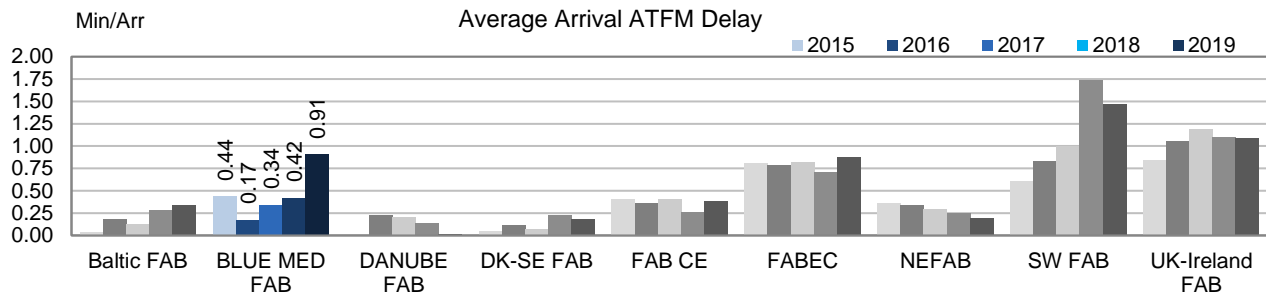
**BLUE MED FAB**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

BLUE MED FAB shows a considerable deterioration in performance in terms of arrival ATFM delays in 2019, with the corresponding impact on the airport-related ANS Capacity performance in Europe.

**2. Arrival ATFM Delay**



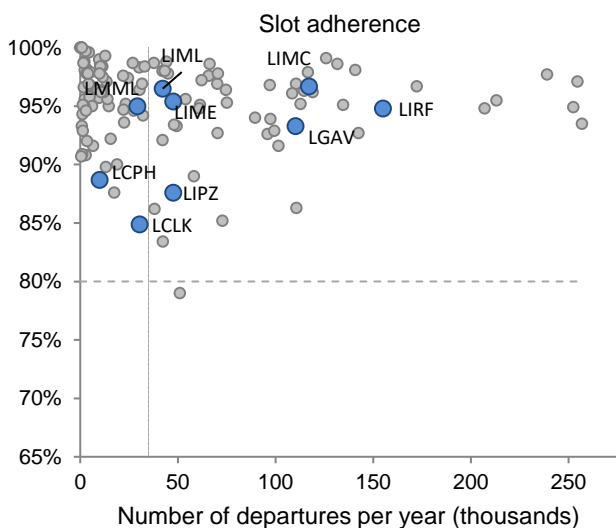
The drastic increase of arrival ATFM delay in Athens drives the aggregated trend of the BLUE MED FAB reaching 0.91 min/arr. in 2019. The FAB value is for the first time above the European average in 2019 (0.86 min/arr.)

**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

Greece, Italy and Malta have established a national target on arrival ATFM delay, while Cyprus only establishes local reference values.

Malta and Greece have not established an incentive scheme. Italy applies its incentive scheme based on CRSTMP reasons and actual performance falls within the dead band. Cyprus does not apply any penalty although the local targets are not met.

**4. ATFM Slot Adherence**



The overall performance in terms of adherence to ATFM slots remains at the same levels as in 2018 for BLUE MED FAB. Slot compliance in Cyprus (i.e. LCLK: 84.9% and LCPH: 88.7%) and Venice (LIPZ: 87.6%) remain below 90% and some of the lowest in the monitored SES airports. Milan airports (LIML and LIMC, both A-CDM) and Bergamo (LIME) show best-in-class performance, above 95% of ATFM slot compliance.

**5. ATC Pre-departure Delay**

Like in previous years, Italy is the main contributor to the average pre-departure delay performance within BLUE MED FAB and more specifically Rome Fiumicino and Venice with very high ATC pre-departure delay.

The monitoring of pre-departure delay requires the implementation of the Airport Operator Data Flow which is not yet established for Cyprus. Data quality issues prevent the calculation of the indicator in Milan Linate.

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# Annual Monitoring Report 2019

## Local level view

### Cyprus

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## CYPRUS

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	63	C	C	C	C	C
CYATS	62	C	C	C	C	C
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	0%				
Runway Incursions (RIs)	N/A	N/A				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	DCA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	6	1				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>16</b>	<b>2</b>				
CYATS	Number of questions answered					
	YES	NO				
Policy and its implementation	10	3				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	5	3				
<b>TOTAL</b>	<b>17</b>	<b>7</b>				
Observations						
All four reviewed EoSM Components/areas of the State met the target level "C"						
The ANSP failed to meet the target level "D" in All other components of EoSM than Safety Culture.						
With regard the RAT application, data received from the AST mechanism show performance below targets in the application of RAT to RI overall (State's responsibility)						

## CYPRUS

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

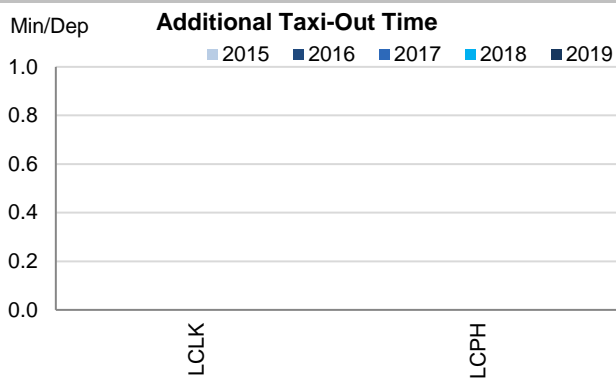
## 1. Overview

Cyprus identified two airports, Larnaca and Paphos, as subject to RP2 monitoring. However the airport operator data flow is not established for any of them and therefore the monitoring of operational ANS performance at airports in Cyprus does not cover any of the environment indicators.

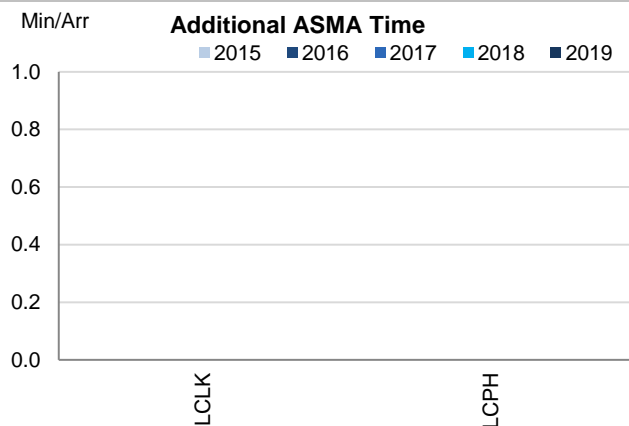
Cyprus' NSA considers Paphos should be excluded from the PP monitoring process as it has less than 70000 movements and is not the airport with the highest number of IFR air transport movements. However, being part of the Charging Zone, and as the list of monitored airports must be aligned with it, it must be included in the monitoring.

It was expected that Cyprus would establish the reporting for Larnaca in the course of 2018, however, despite many attempts from the PRU contacting the airport operator and the NSA, there has been no progress. Establishing this data flow is an absolute requirement to enable the monitoring of the environmental performance indicators. Member States shall empower the respective airport reporting entity to establish the airport operator data flow and/or address the remaining data issues.

## 2. Additional Taxi-Out Time



## 3. Additional ASMA Time



## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Larnaca	LCLK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paphos	LCPH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a



**CYPRUS**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						Observations
	2015	2016	2017	2018	2019	
National Capacity target	1.50	1.50	1.50	1.50	1.50	
Deadband +/-	?	?	?	?	?	
Actual performance	2.47	0.63	1.11	1.10	1.18	

**National capacity incentive scheme**

The Blue Med FAB monitoring report contains information regarding a national en route capacity incentive scheme applied in Cyprus. The incentive scheme applied in 2019 appears to be significantly different to the scheme applied in 2018 and different again from the scheme applied before then. The scheme applied in 2018 referred to a performance target and indicator that excludes the months of July to September. The scheme applied in 2019 refers to the entire year but contains an exclusion of flights affected by military activity or exceptional events. For both the scheme applied in 2018 and the scheme applied in 2019, Cyprus refers to a specific agreement between Cyprus and the EC from December 2018.

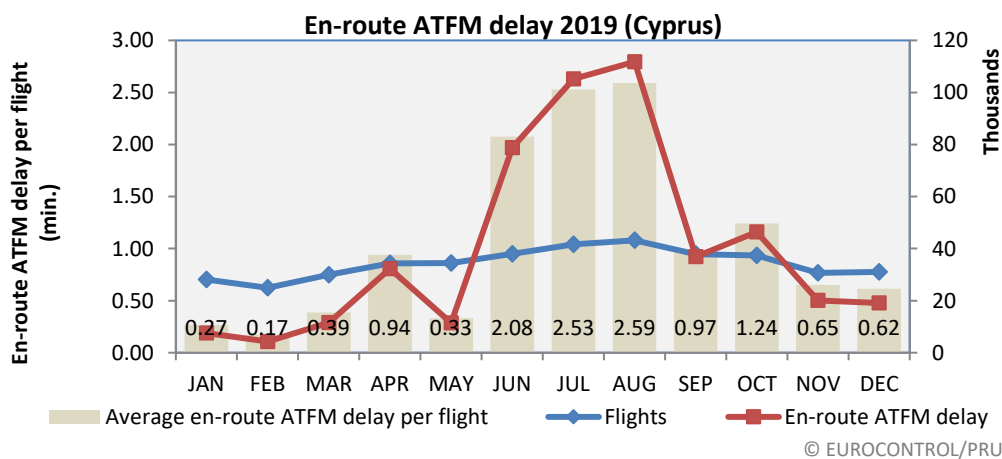
According to the scheme applied in 2019, the required target was 0.6 minutes per flight but the verified actual value achieved was 1.18. The percentage of penalties is stated as 1% of ATS turnover, however the monitoring report states "In view of the efforts of the ANSP to improve its capacity performance whilst air traffic demand kept increasing, the State will not apply any bonus or penalty."

The monitoring report also states "The NSA has verified that the ANSP took corrective measures so as to improve the capacity situation in regards to previous years (even though it was faced with an air traffic increase for the third year in a row)."

**Compliance issues relating to national capacity incentive scheme**

Despite the introduction of a (second?) alternative incentive scheme, no information has been provided to the PRB on how the new scheme is constructed. Therefore, it cannot be assessed for compliance issues.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2.65	2.32	3.54	1.62	1.59	2.16	1.91	2.47	0.63	1.11	1.10	1.18

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	304		334		358		382		405		434	
Base	298	304	323	319	340	322	356	360	371	394	391	411
Low	291		311		320		329		339		351	

The continued deterioration in en route capacity performance in Cyprus since 2016 is noted. Traffic levels in Cyprus during RP2 to date have remained within the forecast ranges made by STATFOR when the FAB performance plans and associated capacity plans were being determined.

Delay forecast - DCAC Cyprus						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	1.17	1.30	1.16	0.95	N/A	N/A
<b>NOP 2019 - 2024</b>	1.06	1.13	0.17 - 1.18			

### Planning and Effective Use of CDRs

Cyprus has previously reported that there are no CDRs within the national airspace.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
N/A	98%	98%	100%	100%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
N/A	0%	0%	0%	0%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	5%	7%	8%	10%

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## CYPRUS

## Monitoring of Airports Contribution to CAPACITY for 2019

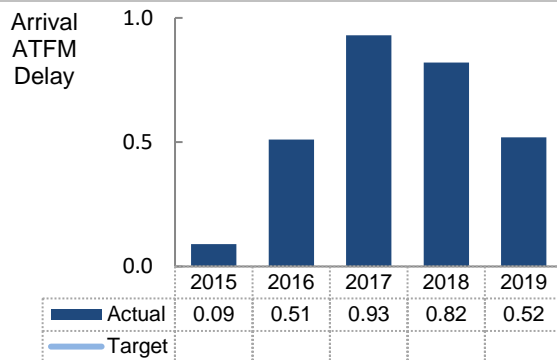
## 1. Overview

In Cyprus, Larnaca (LCLK) and Paphos (LCPH) are the two airports subject to RP2 monitoring. Traffic levels at these airports have drastically increased during RP2 (+37.9% with respect to 2015) although 2019 saw 3% less terminal traffic than the previous year. The result in terms of arrival ATFM delays is that values are much higher than those in the beginning of the reference period when there were almost no delays, but there is a clear improvement with respect to 2018 (2018: 0.82 min/arr; 2019: 0.52 min/arr).

ATFM slot adherence has improved (2015: 84.8%; 2019: 86.1%) reaching the best performance in RP2.

The monitoring of pre-departure delay is not yet feasible, as for neither of the airports the Airport Operator Data Flow is established.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Cyprus have significantly decreased with respect to the previous year (2018: 0.82 min/arr, 2019: 0.52 min/arr).

Despite the fact that Paphos only manages a third of the traffic that Larnaca does, it generates more than three times the delays at Larnaca, resulting in very high delay per flight (2019: 1.71 min/arr annual average, reaching up to 3.28 min/arr. in June).

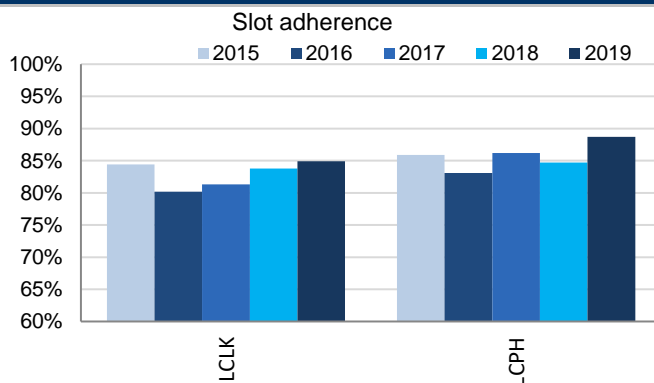
At both airports more than 95% of the arrival ATFM delays are associated to aerodrome capacity issues.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Cyprus has not established a national target on arrival ATFM delay but local reference values for the two airports, Larnaca (LCLK) and Paphos (LCPH) are provided, aiming at zero ATFM delays for arriving aircraft. These local values are not met in 2019 for either of the two airports.

In BLUE MED FAB's performance plan, Cyprus presents an incentive scheme for capacity targets, but it does not clarify to which indicator it applies. In their monitoring report, BLUE MED FAB does not apply any penalties for Cyprus concerning arrival ATFM delay.

## 4. ATFM Slot Adherence



Both airports show an adherence to ATFM slots above 85%. Although the performance is above the required minimum of 80% and has positively evolved during RP2, both airports still show values within the ten lowest performances in the SES area.

## 5. ATC Pre-departure Delay

The monitoring of pre-departure delay is not yet feasible, as the Airport Operator Data Flow is not established for either of the airports.

After an initial contact with the airport already in 2015 regarding the provision of data by Larnaca, and a more intense exchange in 2017, 2018 and 2019, unfortunately there has been no progress and it is not possible to monitor this performance indicator.

## 6. Appendix

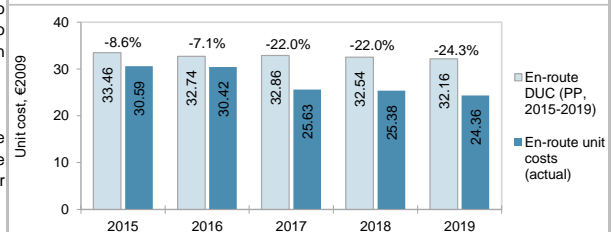
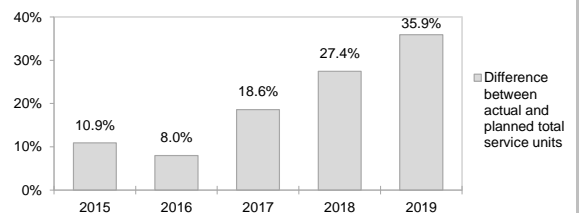
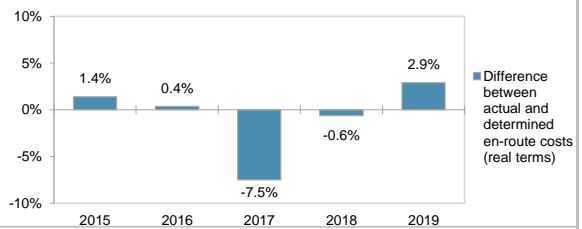
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Larnaca	LCLK	0.03	0.30	0.63	0.35	0.14	84.4%	80.2%	81.3%	83.8%	84.9%	n/a	n/a	n/a	n/a	n/a
Paphos	LCPH	0.26	1.22	2.05	2.44	1.71	85.9%	83.1%	86.2%	84.7%	88.7%	n/a	n/a	n/a	n/a	n/a

## CYPRUS: En-route charging zone

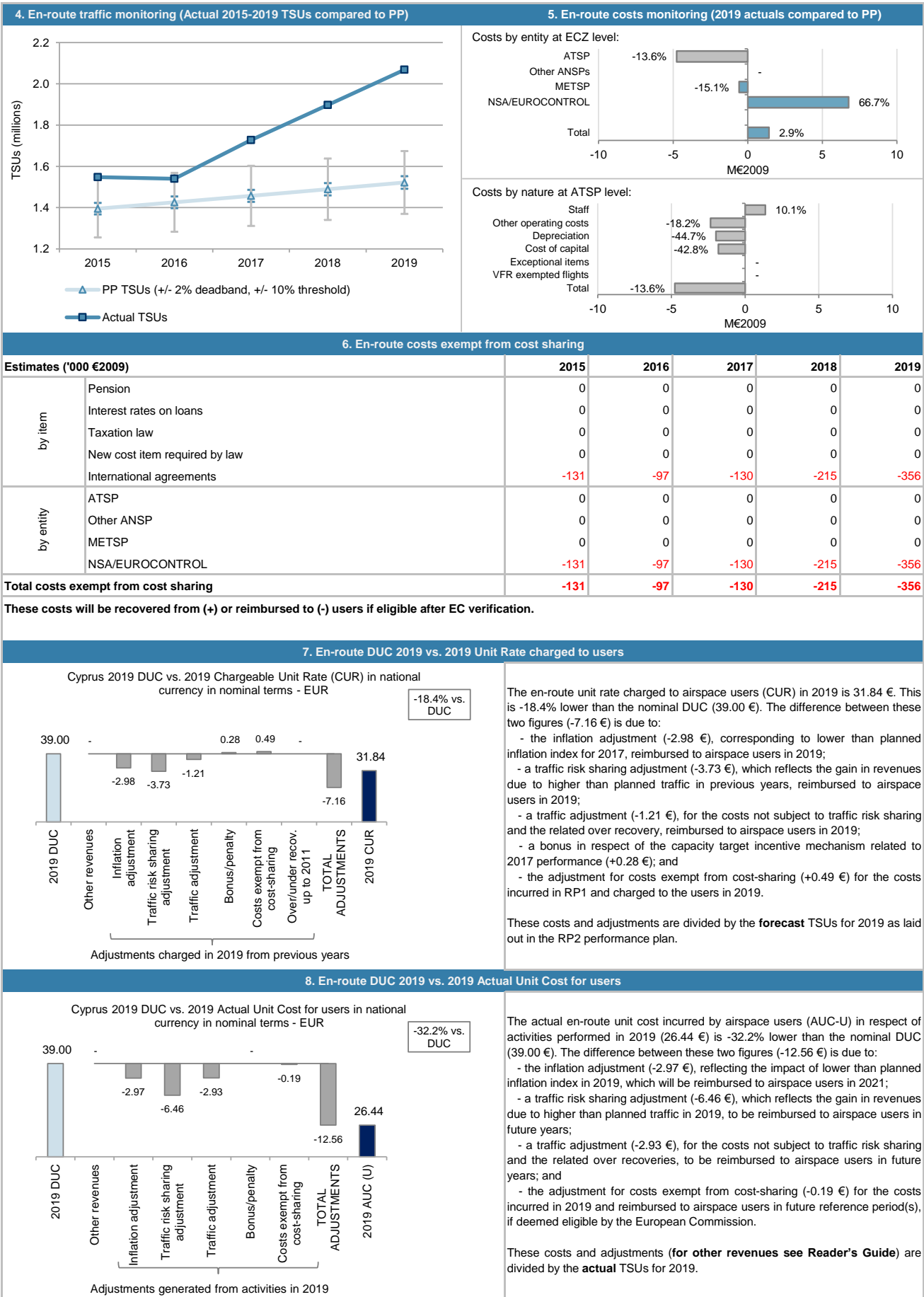
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
<ul style="list-style-type: none"> <li>Cyprus ECZ represents 0.8% of the SES en-route ANS determined costs in 2019</li> <li>ATSP: DCAC Cyprus</li> <li>FAB: BLUE MED FAB</li> <li>National currency: EUR</li> </ul>						
2. En-route DUC monitoring at Charging Zone level						
Cyprus: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)		2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)		52 708 045	53 598 493	55 916 691	57 610 277	59 360 816
Inflation %		1.6%	1.7%	1.7%	1.8%	2.0%
Inflation index (100 in 2009)		112.9	114.8	116.8	118.9	121.3
Real en-route costs (EUR2009)		46 681 639	46 676 772	47 881 610	48 459 560	48 952 987
Total en-route Service Units		1 395 081	1 425 773	1 457 140	1 489 197	1 521 959
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>33.46</b>	<b>32.74</b>	<b>32.86</b>	<b>32.54</b>	<b>32.16</b>
Cyprus: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)		51 048 657	49 919 678	47 510 052	52 087 068	54 758 068
Inflation %		-1.5%	-1.2%	0.7%	0.8%	0.5%
Inflation index (100 in 2009)		107.8	106.5	107.3	108.2	108.7
Real en-route costs (EUR2009)		47 336 521	46 851 861	44 280 357	48 160 943	50 378 720
Total en-route Service Units		1 547 646	1 540 071	1 727 958	1 897 492	2 068 170
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>30.59</b>	<b>30.42</b>	<b>25.63</b>	<b>25.38</b>	<b>24.36</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
En-route costs (nominal EUR)	in value	-1 659 388	-3 678 816	-8 406 639	-5 523 209	-4 602 748
	in %	-3.1%	-6.9%	-15.0%	-9.6%	-7.8%
Inflation %	in p.p.	-3.1 p.p.	-2.9 p.p.	-1.0 p.p.	-1.0 p.p.	-1.5 p.p.
	in p.p.	-5.1 p.p.	-8.3 p.p.	-9.5 p.p.	-10.7 p.p.	-12.6 p.p.
Real en-route costs (EUR2009)	in value	654 882	175 089	-3 601 253	-298 617	1 425 733
	in %	1.4%	0.4%	-7.5%	-0.6%	2.9%
Total en-route Service Units	in value	152 565	114 298	270 818	408 295	546 211
	in %	10.9%	8.0%	18.6%	27.4%	35.9%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-2.88</b>	<b>-2.32</b>	<b>-7.23</b>	<b>-7.16</b>	<b>-7.81</b>
	<b>in %</b>	<b>-8.6%</b>	<b>-7.1%</b>	<b>-22.0%</b>	<b>-22.0%</b>	<b>-24.3%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (24.36 €2009) is -24.3% lower than planned in the PP (32.16 €2009). This results from the combination of much higher than planned TSUs (+35.9%) and higher than planned en-route costs in real terms (+2.9%, or +1.4 M€2009).						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+35.9%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (DCAC Cyprus) retaining an amount of +1.7 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are -7.8% (-4.6 M€) lower than planned. However, since the actual inflation index is also lower than planned (-12.6 p.p.), actual en-route costs are +2.9% (+1.4 M€2009) above plans when expressed in real terms.						
The higher than planned en-route costs in real terms are driven by the NSA/EUROCONTROL (+66.7%, or +6.8 M€2009), while the costs for DCAC Cyprus (-13.6%, or -4.8 M€2009) and the MET service provider (-15.1%, or -0.6 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of -0.4 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Cyprus charging zone, actual en-route TSUs are +20.5% higher than planned, while actual costs in real terms are -0.7% lower than the determined costs (some -1.6 M€2009). As a result, the weighted average actual unit cost over RP2 (26.99 €2009) is -17.6% lower than planned in the NPP (32.74 €2009).						



CYPRUS: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



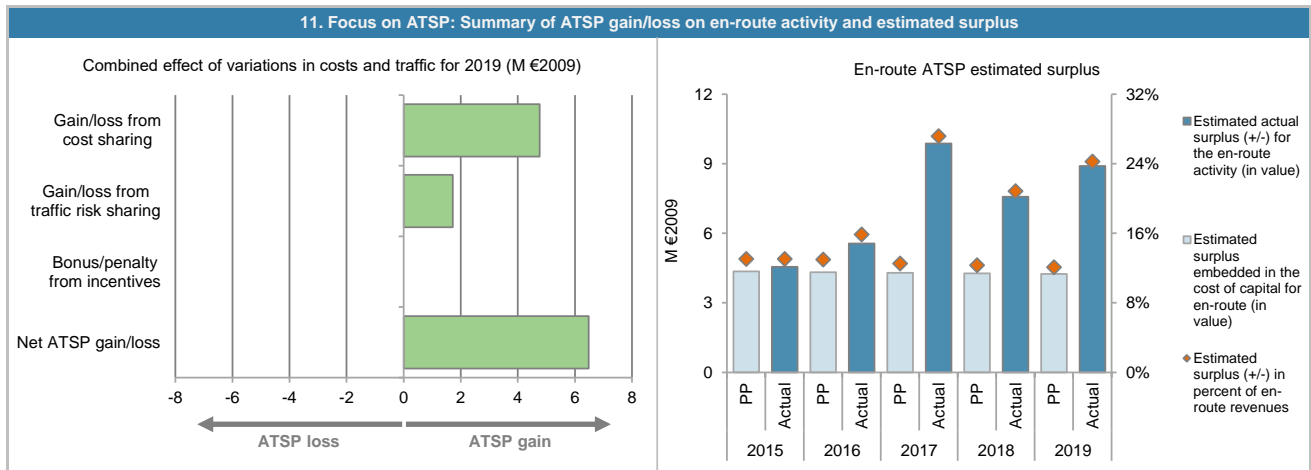
## CYPRUS: En-route ATSP (DCAC Cyprus)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity						
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019	
Determined costs for the ATSP (PP) - based on planned inflation	33 286	33 298	34 299	34 683	35 006	
Actual costs for the ATSP	33 990	32 741	29 154	31 545	30 242	
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-704	556	5 145	3 138	4 764	
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0	
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-704</b>	<b>556</b>	<b>5 145</b>	<b>3 138</b>	<b>4 764</b>	
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019	
Difference in total service units (actual vs PP) %	10.9%	8.0%	18.6%	27.4%	35.9%	
Determined costs for the ATSP (PP) - based on actual inflation	34 850	35 886	37 332	38 124	39 054	
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>1 533</b>	<b>1 365</b>	<b>1 643</b>	<b>1 677</b>	<b>1 718</b>	
Incentives ('000 €2009)	*see Note 1	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>351</b>	<b>401</b>	<b>0</b>	<b>0</b>	
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>830</b>	<b>2 273</b>	<b>7 189</b>	<b>4 816</b>	<b>6 482</b>	
10. Focus on ATSP: En-route ATSP estimated surplus *						
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.						
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P	
Total asset base	32 241	32 252	33 222	33 594	33 907	
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%	
Estimated proportion of financing through equity (in value)	32 241	32 252	33 222	33 594	33 907	
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%	
Estimated proportion of financing through debt (in value)	0	0	0	0	0	
Cost of capital pre-tax (in value)	4 353	4 323	4 301	4 276	4 242	
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%	
Interest on debt (in value)	0	0	0	0	0	
Determined RoE pre-tax rate (in %)	13.5%	13.4%	12.9%	12.7%	12.5%	
Estimated surplus embedded in the cost of capital for en-route (in value)	4 353	4 323	4 301	4 276	4 242	
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>4 353</b>	<b>4 323</b>	<b>4 301</b>	<b>4 276</b>	<b>4 242</b>	
<b>Revenue/costs for the en-route activity</b>	<b>33 286</b>	<b>33 298</b>	<b>34 299</b>	<b>34 683</b>	<b>35 006</b>	
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>13.1%</b>	<b>13.0%</b>	<b>12.5%</b>	<b>12.3%</b>	<b>12.1%</b>	
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>13.5%</b>	<b>13.4%</b>	<b>12.9%</b>	<b>12.7%</b>	<b>12.5%</b>	
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
Total asset base	27 553	24 508	20 770	21 712	19 387	
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%	
Estimated proportion of financing through equity (in value)	27 553	24 508	20 770	21 712	19 387	
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%	
Estimated proportion of financing through debt (in value)	0	0	0	0	0	
Cost of capital pre-tax (in value)	3 720	3 285	2 689	2 764	2 426	
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%	
Interest on debt (in value)	0	0	0	0	0	
Determined RoE pre-tax rate (in %)	13.5%	13.4%	12.9%	12.7%	12.5%	
Estimated surplus embedded in the cost of capital for en-route (in value)	3 720	3 285	2 689	2 764	2 426	
Net ATSP gain(+)/loss(-) on en-route activity	830	2 273	7 189	4 816	6 482	
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>4 549</b>	<b>5 558</b>	<b>9 878</b>	<b>7 579</b>	<b>8 908</b>	
<b>Revenue/costs for the en-route activity</b>	<b>34 820</b>	<b>35 014</b>	<b>36 343</b>	<b>36 361</b>	<b>36 724</b>	
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>13.1%</b>	<b>15.9%</b>	<b>27.2%</b>	<b>20.8%</b>	<b>24.3%</b>	
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>16.5%</b>	<b>22.7%</b>	<b>47.6%</b>	<b>34.9%</b>	<b>45.9%</b>	

**CYPRUS: En-route ATSP (DCAC Cyprus)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 DCAC Cyprus en-route costs vs. PP**

In 2019, DCAC Cyprus actual en-route costs are -13.6% (-4.8 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- much higher staff costs (+10.1%, or +1.4 M€2009) in real terms. However, due to much lower than planned inflation index (-12.6 p.p.), the staff costs are lower than planned in nominal terms (-1.3%, or -0.2 M€), which is explained by the "continuing austerity measures implemented in the entire Public Sector domain".
- much lower other operating costs (-18.2%, or -2.3 M€2009);
- much lower depreciation costs (-44.7%, or -2.0 M€2009), reflecting the postponement of some planned investments;
- much lower cost of capital (-42.8%, or -1.8 M€2009), mainly due to the lower than planned asset base as a result of the factors outlined above.

**DCAC Cyprus net gain/loss on en-route activity in 2019**

As shown in box 9, DCAC Cyprus generated a net gain of +6.5 M€2009 on the en-route activity. This is a combination of two elements:

- a gain of +4.8 M€2009 arising from the cost sharing mechanism; and
- a gain of +1.7 M€2009 arising from the traffic risk sharing mechanism.

If the estimated penalty stemming from the en-route capacity incentive scheme was to be included, DCAC Cyprus would have generated a net gain of +6.0 M€2009 on en-route activity in 2019. See also **Note 1** at the end of this report.

**DCAC Cyprus overall estimated surplus for the en-route activity**

Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+6.5 M€2009) and the surplus embedded in the actual cost of capital (+2.4 M€2009) amounts to +8.9 M€2009 (24.3% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 45.9%, which is much higher than the 12.5% planned in the PP. It is also noted that in 2019, the actual asset base in real terms (19.4 M€2009) is -42.8% lower than planned (33.9 M€2009).

When considering the whole of RP2 (2015-2019), DCAC Cyprus generated cumulative gains in respect of cost sharing of +12.9 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +7.9 M€2009, which reflects the fact that actual traffic was in general terms +20.5% higher than planned during RP2. Adding the gain of +0.8 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+14.9 M€2009 over RP2) leads to an overall estimated surplus of +36.5 M€2009, which corresponds to an average ex-post return on equity of 32.0% (compared to 13.0% as initially planned in the NPP).

## CYPRUS: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

## 1. Contextual economic information: terminal air navigation services

· Cyprus TCZ represents 0.7% of the SES terminal ANS determined costs in 2019	· Is this TCZ applying traffic risk sharing?	No	
· ATSP: DCAC Cyprus	· Airports with fewer than 70,000 IFRs ATMs:	2	
· National currency: EUR		· Airports with between 70,000 and 225,000 IFRs ATMs:	0
· Number of airports in charging zone in 2019: 2, of which:		· Airports with more than 225,000 IFRs ATMs:	0

## 2. Terminal DUC monitoring at Charging Zone level

Cyprus: Data from RP2 Performance Plan		2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)		8 100 923	8 207 992	8 448 984	8 697 839	8 954 830
Inflation %		1.6%	1.7%	1.7%	1.8%	2.0%
Inflation index (100 in 2009)		112.9	114.8	116.8	118.9	121.3
Real terminal costs (EUR2009)		7 174 699	7 148 010	7 234 887	7 316 289	7 384 765
Total terminal Service Units		38 900	39 200	39 400	42 000	43 100
<b>Real terminal unit cost per Service Unit (EUR2009)</b>		<b>184.44</b>	<b>182.35</b>	<b>183.63</b>	<b>174.20</b>	<b>171.34</b>
Cyprus: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)		7 317 736	6 937 913	6 790 939	7 827 184	8 154 891
Inflation %		-1.5%	-1.2%	0.7%	0.8%	0.5%
Inflation index (100 in 2009)		107.8	106.5	107.3	108.2	108.7
Real terminal costs (EUR2009)		6 785 608	6 511 543	6 329 297	7 237 201	7 502 693
Total terminal Service Units		40 399	47 274	54 225	56 668	55 808
<b>Real terminal unit cost per Service Unit (EUR2009)</b>		<b>167.96</b>	<b>137.74</b>	<b>116.72</b>	<b>127.71</b>	<b>134.44</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value	-783 187	-1 270 080	-1 658 045	-870 655	-799 939
	in %	-9.7%	-15.5%	-19.6%	-10.0%	-8.9%
Inflation %	in p.p.	-3.1 p.p.	-2.9 p.p.	-1.0 p.p.	-1.0 p.p.	-1.5 p.p.
Inflation index (100 in 2009)	in p.p.	-5.1 p.p.	-8.3 p.p.	-9.5 p.p.	-10.7 p.p.	-12.6 p.p.
Real terminal costs (EUR2009)	in value	-389 091	-636 467	-905 591	-79 089	117 928
	in %	-5.4%	-8.9%	-12.5%	-1.1%	1.6%
Total terminal Service Units	in value	1 499	8 074	14 825	14 668	12 708
	in %	3.9%	20.6%	37.6%	34.9%	29.5%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	in value	<b>-16.48</b>	<b>-44.61</b>	<b>-66.90</b>	<b>-46.48</b>	<b>-36.90</b>
	in %	<b>-8.9%</b>	<b>-24.5%</b>	<b>-36.4%</b>	<b>-26.7%</b>	<b>-21.5%</b>

## 3. Focus on terminal at State/Charging Zone level

This analysis focuses on Cyprus Terminal Charging Zone (TCZ) comprising Larnaka (LCLK) and Pafos (LCPH) international airports. See also **Note 2** at the end of this Report.

## Terminal unit cost

In 2019, the actual terminal unit cost in real terms (134.44 €2009) is -21.5% lower than planned in the PP (171.34 €2009). This results from the combination of much higher than planned TNSUs (+29.5%) and slightly higher than planned terminal costs in real terms (+1.6%, or +0.1 M€2009).

## Terminal service units

The traffic risk sharing mechanism does not apply in Cyprus TCZ. In 2019, the actual TNSUs in Cyprus TCZ are +29.5% higher than planned in the PP.

## Terminal costs

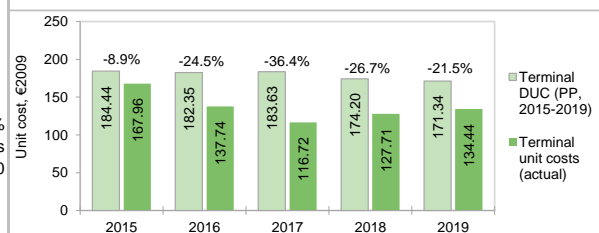
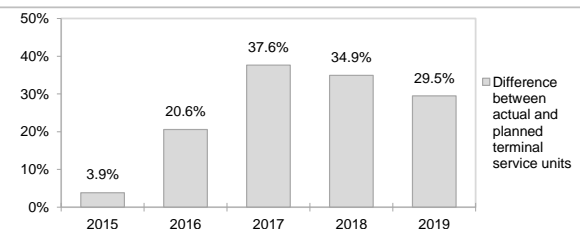
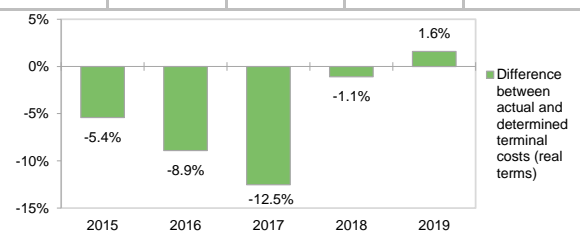
In nominal terms, actual terminal costs are -8.9% (-0.8 M€) lower than planned. However, since the actual inflation index is also lower than planned (-12.6 p.p.), actual terminal costs are +1.6% (+0.1 M€2009) above plans when expressed in real terms.

The slightly higher than planned terminal costs in real terms are driven by the NSA (+77.4%, or +1.5 M€2009), while the costs for DCAC Cyprus (-27.9%, or -1.2 M€2009) and the MET service provider (-14.8%, or -0.1 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 9.

There are no costs exempt from cost-sharing reported.

## RP2 summary

When considering the whole of RP2 (2015-2019) for Cyprus TCZ, actual TNSUs are +25.6% higher than planned, while actual costs in real terms are -5.2% lower than the determined costs (some -1.9 M€2009). As a result, the weighted average actual unit cost over RP2 (135.10 €2009) is -24.5% lower than planned in the NPP (178.97 €2009).

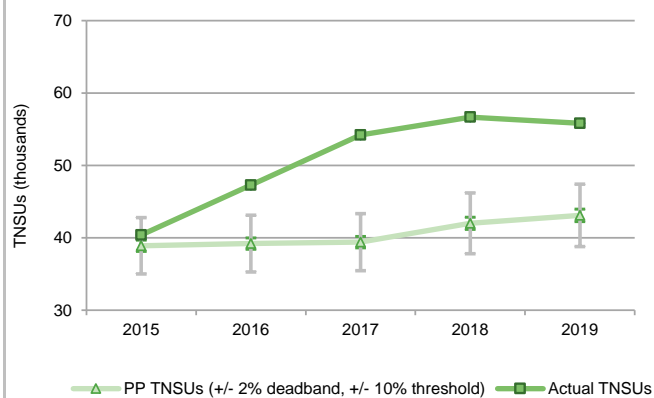




## CYPRUS: Terminal charging zone

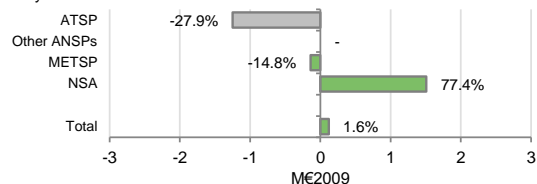
## Monitoring of terminal COST-EFFICIENCY for 2019

## 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

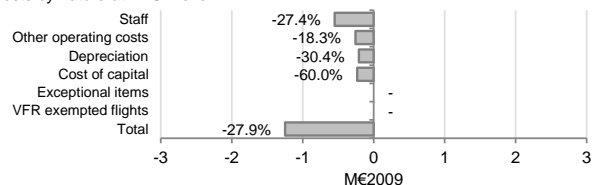


## 5. Terminal costs monitoring (2019 actuals compared to PP)

## Costs by entity at TCZ level:



## Costs by nature at ATSP level:



## 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

## 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

In 2019, Cyprus did not implement a separate terminal navigation charge (TNC) unit rate for Cyprus TCZ. See also **Note 2** at the end of this Report.

## 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

In 2019, Cyprus did not implement a separate terminal navigation charge (TNC) unit rate for Cyprus TCZ. See also **Note 2** at the end of this Report.

## 12. Focus on terminal ATSP: General conclusions (\*see Note 2)

## Actual 2019 DCAC Cyprus terminal costs vs. PP

In 2019, DCAC Cyprus actual terminal costs are -27.9% (-1.2 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much lower staff costs (-27.4%, or -0.5 M€2009), driven by the "continuing austerity measures implemented in the entire Public Sector domain";
- much lower other operating costs (-18.3%, or -0.3 M€2009);
- much lower depreciation costs (-30.4%, or -0.2 M€2009) mainly due to the fact that "some planned investments were postponed to a later years within the Reference Period";
- much lower cost of capital (-60.0%, or -0.2 M€2009) as a result of the factors outlined above;

## CYPRUS: Gate-to-gate

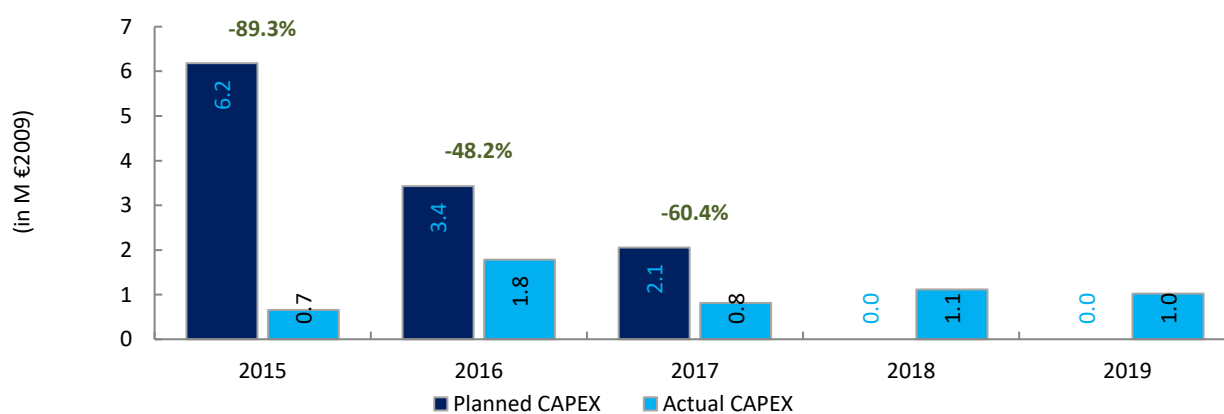
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Cyprus: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	46 681 639	46 676 772	47 881 610	48 459 560	48 952 987																																							
Real terminal costs (EUR2009)	7 174 699	7 148 010	7 234 887	7 316 289	7 384 765																																							
Real gate-to-gate costs (EUR2009)	53 856 338	53 824 782	55 116 498	55 775 849	56 337 752																																							
En-route share (%)	86.7%	86.7%	86.9%	86.9%	86.9%																																							
<b>Cyprus: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	47 336 521	46 851 861	44 280 357	48 160 943	50 378 720																																							
Real terminal costs (EUR2009)	6 785 608	6 511 543	6 329 297	7 237 201	7 502 693																																							
Real gate-to-gate costs (EUR2009)	54 122 129	53 363 404	50 609 653	55 398 144	57 881 413																																							
En-route share (%)	87.5%	87.8%	87.5%	86.9%	87.0%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)																																												
in value	265 791	-461 379	-4 506 844	-377 706	1 543 661																																							
in %	0.5%	-0.9%	-8.2%	-0.7%	2.7%																																							
En-route share																																												
in p.p.	0.8 p.p.	1.1 p.p.	0.6 p.p.	0.1 p.p.	0.1 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +2.7% (+1.5 M€2009) higher than planned due to higher than planned en-route costs (+2.9%, or +1.4 M€2009) and terminal costs (+1.6%, or +0.1 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (87.0%) is in line with that planned in the PP for 2019 (86.9%).</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>86.7%</td> <td>13.3%</td> </tr> <tr> <td>Actual</td> <td>87.5%</td> <td>12.5%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>86.7%</td> <td>13.3%</td> </tr> <tr> <td>Actual</td> <td>87.8%</td> <td>12.2%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>86.9%</td> <td>13.1%</td> </tr> <tr> <td>Actual</td> <td>87.5%</td> <td>12.5%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>86.9%</td> <td>13.1%</td> </tr> <tr> <td>Actual</td> <td>86.9%</td> <td>13.1%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>86.9%</td> <td>13.1%</td> </tr> <tr> <td>Actual</td> <td>87.0%</td> <td>13.0%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	86.7%	13.3%	Actual	87.5%	12.5%	2016	Determined	86.7%	13.3%	Actual	87.8%	12.2%	2017	Determined	86.9%	13.1%	Actual	87.5%	12.5%	2018	Determined	86.9%	13.1%	Actual	86.9%	13.1%	2019	Determined	86.9%	13.1%	Actual	87.0%	13.0%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	86.7%	13.3%																																									
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2019	Determined	86.9%	13.1%																																									
	Actual	87.0%	13.0%																																									
<b>3. Technical notes on en-route and terminal information reported by Cyprus</b>																																												
<b>Note 1: Reporting of en-route capacity incentive for 2019</b>																																												
<p>Based on the information provided in the BLUEMED FAB monitoring report for 2019, Cyprus did not achieve the en-route capacity target set out in its RP2 Performance Plan. As a result, a Cyprus is understood to be liable for a penalty equal to 1% of the ATS turnover, <i>estimated</i> at some -479 '000 € (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). See analysis provided in the capacity section of this report for more details.</p> <p>It is noted, however, that this expected penalty is not recorded in the June 2020 submission of en-route Reporting Tables or in the BLUEMED FAB monitoring report, which specifies: <i>"In view of the efforts of the ANSP to improve its capacity performance whilst air traffic demand kept increasing, the State will not apply any bonus or penalty."</i></p> <p>The inclusion of this penalty in the chargeable cost-base will be examined by the European Commission. It is also noted that the above mentioned penalty stemming from the en-route capacity incentive scheme <i>estimated</i> at -479 '000 € is <u>not included</u> in this en-route cost-efficiency monitoring analysis.</p>																																												
<b>Note 2: Government subsidies for terminal costs in Cyprus TCZ</b>																																												
<p>According to the information provided in the additional information to the June 2020 terminal Reporting Tables - <i>"As far as the terminal charging zone is concerned, for the time being no terminal charge is imposed to users. The Government currently fully subsidises terminal costs"</i>. As the TANS activities are therefore fully financed through "income from other sources", the analysis of the terminal economic surplus is void. Nevertheless, the analysis at Cyprus TCZ level still looks at the deviation between the terminal actual unit cost and the terminal DUC reported for 2019 in the RP2 PP.</p>																																												

## CYPRUS

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: DCAC Cyprus						
FAB: BLUE MED FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	7.0	3.9	2.4	0.0	0.0	13.3
Main CAPEX (in nominal M)	7.0	3.9	2.4	0.0	0.0	13.3
Inflation %	1.6%	1.7%	1.7%	1.8%	2.0%	
Inflation index (100 in 2009)	112.9	114.8	116.8	118.9	121.3	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>6.2</b>	<b>3.4</b>	<b>2.1</b>	<b>0.0</b>	<b>0.0</b>	<b>11.7</b>
Main CAPEX (in M €2009)	6.2	3.4	2.1	0.0	0.0	11.7
% Main of Total CAPEX	100.0%	100.0%	100.0%	N/A	N/A	100.0%
Real gate-to-gate ANSP costs (in M €2009)	37.6	37.6	38.7	39.1	39.5	192.6
Total CAPEX as % of Real gate-to-gate ANSP costs	16.4%	9.1%	5.3%	0.0%	0.0%	6.1%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	0.7	1.9	0.9	1.2	1.1	5.8
Main CAPEX (in nominal M)	0.0	1.3	0.9	1.0	0.8	4.0
Inflation %	-1.5%	-1.2%	0.7%	0.8%	0.5%	
Inflation index (100 in 2009)	107.8	106.5	107.3	108.2	108.7	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>0.7</b>	<b>1.8</b>	<b>0.8</b>	<b>1.1</b>	<b>1.0</b>	<b>5.4</b>
Main CAPEX (in M €2009)	0.0	1.2	0.8	0.9	0.7	3.7
% Main of Total CAPEX	5.7%	68.9%	98.4%	84.3%	70.2%	69.1%
Real gate-to-gate ANSP costs (in M €2009)	38.0	36.3	32.3	35.2	33.5	175.4
Total CAPEX as % of Real gate-to-gate ANSP costs	1.7%	4.9%	2.5%	3.2%	3.0%	3.1%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-6.3	-2.0	-1.5	1.2	1.1	-7.5
Total CAPEX (in M €2009)	-5.5	-1.7	-1.2	1.1	1.0	-6.3
<b>Total CAPEX (in %, M €2009)</b>	<b>-89.3%</b>	<b>-48.2%</b>	<b>-60.4%</b>			<b>-53.8%</b>



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# Annual Monitoring Report 2019

## Local level view

### Greece

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## GREECE

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	72	C	C	C	C	C
HANSP	75	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	N/A	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	HCAA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	4	3				
Occurrence reporting and Investigation	0	2				
<b>TOTAL</b>	<b>12</b>	<b>6</b>				
HANSP	Number of questions answered					
	YES	NO				
Policy and its implementation	11	2				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>21</b>	<b>3</b>				
Observations						
All safety targets have been met.						

**GREECE**

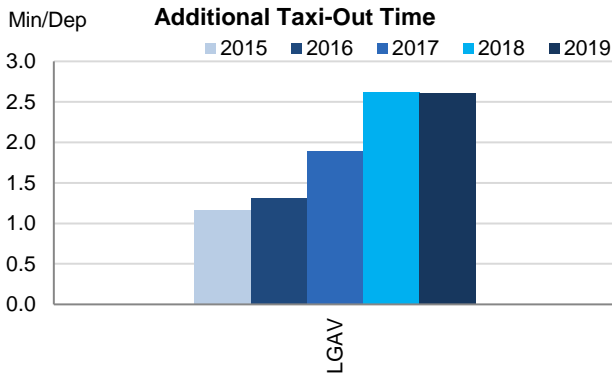
**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

Operational ANS performance at airports is monitored for one airport in Greece (i.e. Athens (LGAV)), the only airport subject to RP2 monitoring. Traffic has increased moderately at this airport in the last year (+4%) and drastically since the beginning of RP2 (2019 vs 2015: +30%)

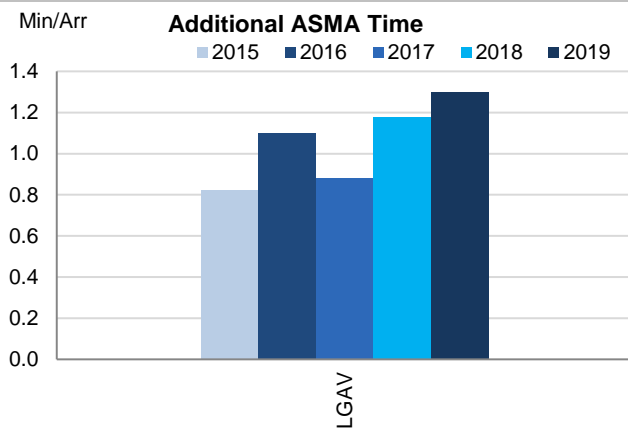
Both additional taxi-out and ASMA times have increased significantly since the beginning of the reference period, however Athens still shows lower additional times than the RP2 averages or than other airports with the same level of traffic.

**2. Additional Taxi-Out Time**



Additional taxi-out times at Athens (LGAV) remain at the same level as in 2018, after 3 years increasing. Additional taxi-out times are more than double than at the beginning of RP2 (LGAV: 2015: 1.16 min/dep.; 2019: 2.61 min/dep.) The highest additional taxi-out times in 2019 are observed from May to August.

**3. Additional ASMA Time**



Additional ASMA times at Athens (LGAV), with the exception of 2017, have also progressively increased since the beginning of RP2, in line with the traffic growth and the capacity constraints.

**4. Appendix**

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Athens	LGAV	1.16	1.31	1.89	2.62	2.61	0.82	1.10	0.88	1.18	1.30



**GREECE**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.70	1.40	1.00	0.60	0.50	The monitoring report refers to actual delay in Greece being 0.44 minute per flight in 2019, based on the ACCs rather than the FIR. However, as in previous years, the PRB reports according to FIR which results in 0.42 minutes per flight.
Deadband +/-	N/A	N/A	N/A	N/A	N/A	
Actual performance	0.95	0.14	0.21	0.53	0.42	

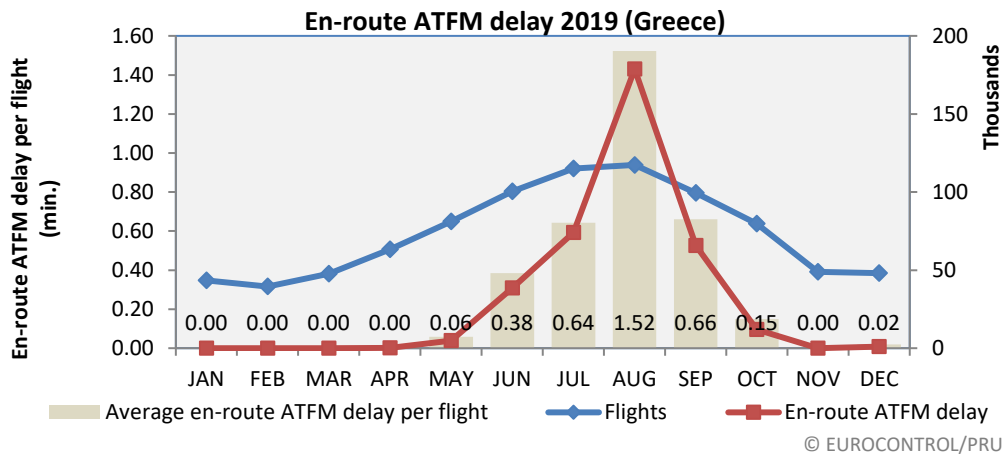
**National capacity incentive scheme**

No national incentive scheme

**Compliance issues relating to national capacity incentive scheme**

Greece did not apply an incentive scheme for en route capacity. This was raised in the PRB assessment of the BLUE MED performance plan but was not addressed in the BLUE MED annual monitoring report.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1.47	1.12	1.00	2.95	0.15	0.06	0.41	0.95	0.14	0.21	0.53	0.42

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	653		681		714		746		777		814	
Base	644	678	666	713	689	700	710	745	730	832	756	884
Low	635		649		659		670		681		695	

The PRB notes an improvement in capacity performance from 0.53 minutes per flight in 2018 to 0.42 minutes per flight in 2019 with a 6% increase in traffic to levels above those forecast back in 2014. The actual delay in 2019 is significantly lower than predicted in the NOP 2019 - 2024.

Delay forecast - HCAA						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.19	0.16	0.16	0.13	N/A	N/A
NOP 2019 - 2024	0.70	0.56	0.24 - 0.60			

### Planning and Effective Use of CDRs

Greece did not provide any data on these indicators.

### Observations on Planning and Effective Use of CDRs

It is noted that Greece like many other States, is having difficulties in monitoring the planning and effective use of CDRs. The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
83%	94%	94%	94%	99%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
N/A	6%	6%	6%	N/A

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	100%	N/A	N/A	100%

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

**GREECE**

**Monitoring of Airports Contribution to CAPACITY for 2019**

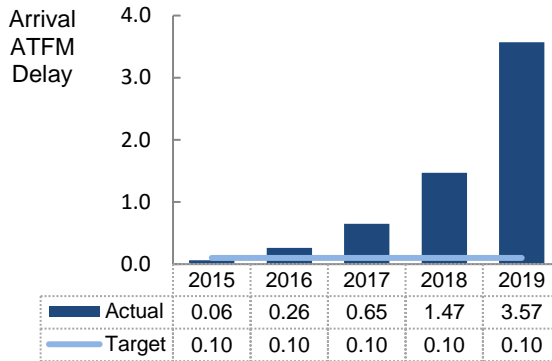
**1. Overview**

In Greece, Athens (LGAV) is the only airport subject to RP2 monitoring. The national target on arrival ATFM delay coincides with the local reference value of Athens airport.

Athens shows a very important traffic growth during RP2 (+30.0% traffic with respect to 2015), and the arrival ATFM delays have observed a dramatic increase every year of RP2, ending up in the third highest delay per flight in all SES area.

ATFM slot adherence has improved (2015: 91.3%; 2019: 93.3%) and shows in 2019 the best value of the reference period.

**2. Arrival ATFM Delay**



During 2019, and as every year in RP2, the arrival ATFM delays in Athens are drastically increasing, reaching the annual average of 3.57 min/arr. But in fact these delays are very much concentrated in the summer months when in July they averaged more than 11 minutes per arrival.

82% of these delays are attributed to ATC capacity, and in May there was also a significant contribution to delays due to aerodrome capacity.

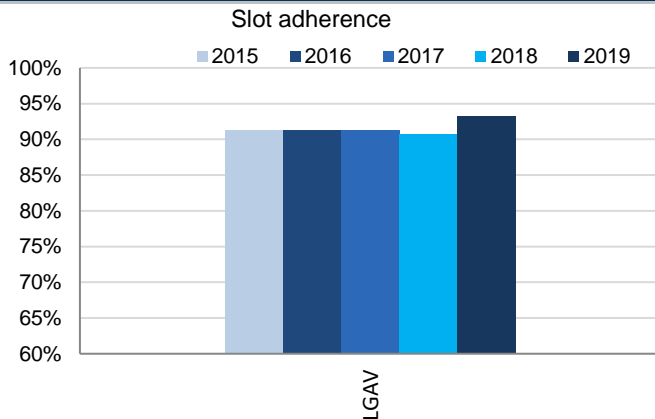
Athens is recruiting new controllers to solve or reduce the ATC capacity issue, that could start in 2020/2021.

Airspace users report in the Network Operations Report of 2019 multiple issues with the airport layout and operations.

**3. Arrival ATFM Delay – National Target and Incentive Scheme**

Greece established an ambitious local value for Athens (LGAV) of 0.10 min/arr. that was only met in 2015. Greece does not present an incentive scheme for terminal air navigation services.

**4. ATFM Slot Adherence**



Athens (LGAV) shows a stable performance in terms of compliance with ATFM slots and a 2.5% improvement in the last year.

**5. ATC Pre-departure Delay**

Pre-departure delay at Athens has also deteriorated along RP2 (2015:0.54 min/dep.; 2019:0.97 min/dep.), related to the heavy capacity constraints at the airport.

**6. Appendix**

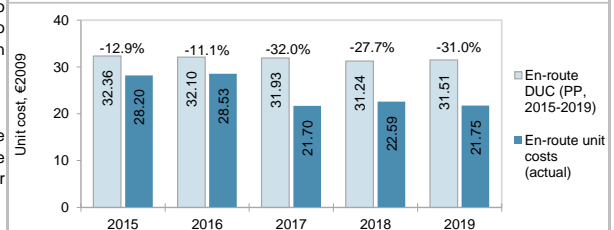
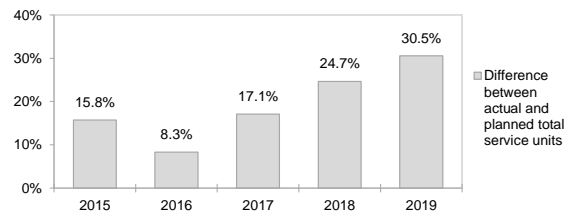
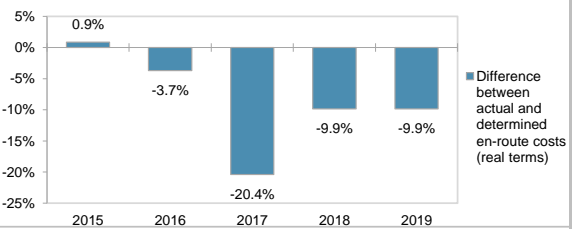
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Athens	LGAV	0.06	0.26	0.65	1.47	3.57	91.3%	91.3%	91.2%	90.7%	93.3%	0.54	0.75	0.67	n/a	0.97

## GREECE: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· Greece ECZ represents 2.4% of the SES en-route ANS determined costs in 2019						
· ATSP: HCAA						
· FAB: BLUE MED FAB						
· National currency: EUR						
2. En-route DUC monitoring at Charging Zone level						
Greece: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)		2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)		147 841 464	151 226 557	155 317 991	156 939 780	164 629 376
Inflation %		0.3%	1.1%	1.2%	1.3%	1.6%
Inflation index (100 in 2009)		107.9	109.1	110.4	111.8	113.6
Real en-route costs (EUR2009)		136 958 572	138 630 543	140 635 901	140 350 008	144 936 752
Total en-route Service Units		4 231 888	4 318 281	4 404 929	4 492 622	4 599 834
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>32.36</b>	<b>32.10</b>	<b>31.93</b>	<b>31.24</b>	<b>31.51</b>
Greece: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)		145 550 899	140 632 309	119 231 966	135 813 107	140 959 155
Inflation %		-1.1%	0.0%	1.1%	0.8%	0.5%
Inflation index (100 in 2009)		105.4	105.4	106.5	107.4	107.9
Real en-route costs (EUR2009)		138 146 953	133 478 564	111 935 532	126 490 065	130 629 708
Total en-route Service Units		4 898 818	4 678 399	5 158 194	5 600 105	6 004 800
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>28.20</b>	<b>28.53</b>	<b>21.70</b>	<b>22.59</b>	<b>21.75</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
En-route costs (nominal EUR)	in value	-2 290 565	-10 594 248	-36 086 026	-21 126 673	-23 670 221
	in %	-1.5%	-7.0%	-23.2%	-13.5%	-14.4%
Inflation %	in p.p.	-1.4 p.p.	-1.1 p.p.	-0.1 p.p.	-0.5 p.p.	-1.1 p.p.
Inflation index (100 in 2009)	in p.p.	-2.6 p.p.	-3.7 p.p.	-3.9 p.p.	-4.4 p.p.	-5.7 p.p.
Real en-route costs (EUR2009)	in value	1 188 381	-5 151 979	-28 700 369	-13 859 943	-14 307 044
	in %	0.9%	-3.7%	-20.4%	-9.9%	-9.9%
Total en-route Service Units	in value	666 930	360 118	753 265	1 107 483	1 404 966
	in %	15.8%	8.3%	17.1%	24.7%	30.5%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	in value	<b>-4.16</b>	<b>-3.57</b>	<b>-10.23</b>	<b>-8.65</b>	<b>-9.75</b>
	in %	<b>-12.9%</b>	<b>-11.1%</b>	<b>-32.0%</b>	<b>-27.7%</b>	<b>-31.0%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (21.75 €2009) is -31.0% lower than planned in the PP (31.51 €2009). This results from the combination of much higher than planned TSUs (+30.5%) and lower than planned en-route costs in real terms (-9.9%, or -14.3 M€2009).						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+30.5%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (HCAA) retaining an amount of +5.9 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are -14.4% (-23.7 M€) lower than planned. However, since the actual inflation index is also lower than planned (-5.7 p.p.), actual en-route costs are -9.9% (-14.3 M€2009) below plans when expressed in real terms. The lower than planned en-route costs in real terms are driven by HCAA (-9.4%, or -12.1 M€2009) and the NSA/EUROCONTROL (-32.9%, or -3.4 M€2009), while the costs for the MET service provider (+19.8%, or +1.2 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of -3.7 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Greece charging zone, actual en-route TSUs are +19.5% higher than planned, while actual costs in real terms are -8.7% lower than the determined costs (some -60.8 M€2009). As a result, the weighted average actual unit cost over RP2 (24.32 €2009) is -23.6% lower than planned in the NPP (31.82 €2009).						



GREECE: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



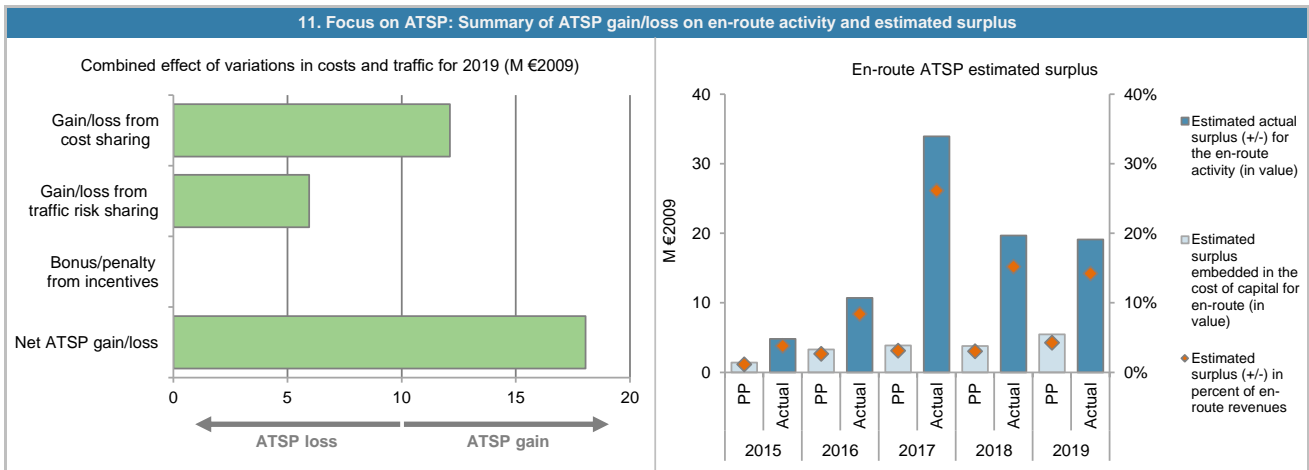
## GREECE: En-route ATSP (HCAA)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	120 824	122 261	124 133	123 747	128 286
Actual costs for the ATSP	121 884	117 535	96 393	111 133	116 175
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-1 060	4 727	27 741	12 615	12 111
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-1 060</b>	<b>4 727</b>	<b>27 741</b>	<b>12 615</b>	<b>12 111</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	15.8%	8.3%	17.1%	24.7%	30.5%
Determined costs for the ATSP (PP) - based on actual inflation	123 791	126 586	128 703	128 876	135 038
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>5 447</b>	<b>4 939</b>	<b>5 663</b>	<b>5 671</b>	<b>5 942</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>4 387</b>	<b>9 666</b>	<b>33 404</b>	<b>18 285</b>	<b>18 052</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	15 891	36 938	43 733	42 692	61 610
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	15 891	36 938	43 733	42 692	61 610
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	1 413	3 284	3 888	3 795	5 477
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	8.9%	8.9%	8.9%	8.9%	8.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 413	3 284	3 888	3 795	5 477
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 413</b>	<b>3 284</b>	<b>3 888</b>	<b>3 795</b>	<b>5 477</b>
<b>Revenue/costs for the en-route activity</b>	<b>120 824</b>	<b>122 261</b>	<b>124 133</b>	<b>123 747</b>	<b>128 286</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>1.2%</b>	<b>2.7%</b>	<b>3.1%</b>	<b>3.1%</b>	<b>4.3%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	4 983	11 770	5 929	15 621	11 699
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	4 983	11 770	5 929	15 621	11 699
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	443	1 046	527	1 389	1 040
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	8.9%	8.9%	8.9%	8.9%	8.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	443	1 046	527	1 389	1 040
Net ATSP gain(+)/loss(-) on en-route activity	4 387	9 666	33 404	18 285	18 052
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>4 830</b>	<b>10 712</b>	<b>33 931</b>	<b>19 674</b>	<b>19 092</b>
<b>Revenue/costs for the en-route activity</b>	<b>126 271</b>	<b>127 201</b>	<b>129 796</b>	<b>129 418</b>	<b>134 227</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.8%</b>	<b>8.4%</b>	<b>26.1%</b>	<b>15.2%</b>	<b>14.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>96.9%</b>	<b>91.0%</b>	<b>572.3%</b>	<b>125.9%</b>	<b>163.2%</b>

**GREECE: En-route ATSP (HCAA)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 HCAA en-route costs vs. PP**

In 2019, HCAA actual en-route costs are -9.4% (-12.1 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- slightly higher staff costs (+2.0%, or +2.0 M€2009) in real terms. However, due to much lower than planned inflation index (-5.7 p.p.), the staff costs are lower than planned in nominal terms (-3.1%, or -3.4 M€);
- much lower other operating costs (-25.0%, or -4.7 M€2009);
- much lower depreciation costs (-59.3%, or -4.9 M€2009);
- much lower cost of capital (-81.0%, or -4.4 M€2009) reflecting much lower than planned total asset base (-81.0%, or -49.9 M€2009).

**HCAA net gain/loss on en-route activity in 2019**

As shown in box 9, HCAA generated a net gain of +18.1 M€2009 on the en-route activity. This is a combination of two elements:

- a gain of +12.1 M€2009 arising from the cost sharing mechanism; and
- a gain of +5.9 M€2009 arising from the traffic risk sharing mechanism.

**HCAA overall estimated surplus for the en-route activity**

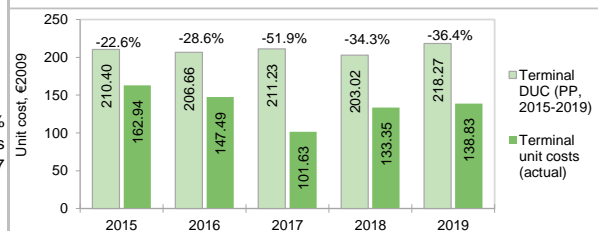
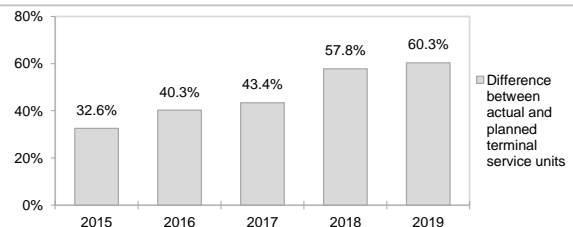
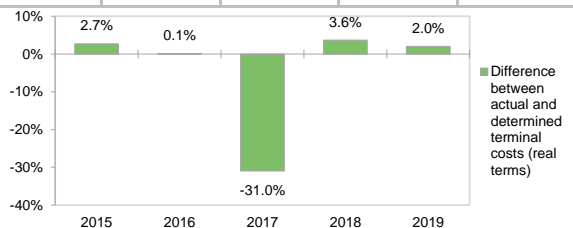
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+18.1 M€2009) and the surplus embedded in the actual cost of capital (+1.0 M€2009) amounts to +19.1 M€2009 (14.2% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 163.2%, which is much higher than the 8.9% planned in the PP. It is also noted that in 2019, the actual asset in real terms (11.7 M€2009) is -81.0% lower than planned (61.6 M€2009)

When considering the whole of RP2 (2015-2019), HCAA generated cumulative gains in respect of cost sharing of +56.1 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +27.7 M€2009, which reflects the fact that actual traffic was in general terms +19.5% higher than planned during RP2. Adding the loss of +0.00 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+4.4 M€2009 over RP2) leads to an overall estimated surplus of +88.2 M€2009, which corresponds to an average ex-post return on equity of 176.5% (compared to 8.9% as initially planned in the NPP).

## GREECE: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services						
Greece TCZ represents 1.7% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		No		
ATSP:	HCAA	Airports with fewer than 70,000 IFRs ATMs:		0		
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		1		
Number of airports in charging zone in 2019:	1,	of which:	Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level						
Greece: Data from RP2 Performance Plan						
	2015D	2016D	2017D	2018D	2019D	
Terminal costs (nominal EUR)	17 173 869	17 398 050	18 378 066	18 168 294	20 342 644	
Inflation %	0.3%	1.1%	1.2%	1.3%	1.6%	
Inflation index (100 in 2009)	107.9	109.1	110.4	111.8	113.6	
Real terminal costs (EUR2009)	15 909 668	15 948 926	16 640 801	16 247 762	17 909 299	
Total terminal Service Units	75 618	77 174	78 781	80 031	82 050	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>210.40</b>	<b>206.66</b>	<b>211.23</b>	<b>203.02</b>	<b>218.27</b>	
Greece: Actual data from Reporting Tables						
	2015A	2016A	2017A	2018A	2019A	
Terminal costs (nominal EUR)	17 209 550	16 828 787	12 233 143	18 080 344	19 707 434	
Inflation %	-1.1%	0.0%	1.1%	0.8%	0.5%	
Inflation index (100 in 2009)	105.4	105.4	106.5	107.4	107.9	
Real terminal costs (EUR2009)	16 334 127	15 972 733	11 484 533	16 839 198	18 263 279	
Total terminal Service Units	100 249	108 300	113 003	126 275	131 553	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>162.94</b>	<b>147.49</b>	<b>101.63</b>	<b>133.35</b>	<b>138.83</b>	
Difference between Actuals and Planned						
	2015	2016	2017	2018	2019	
Terminal costs (nominal EUR)	in value	35 681	-569 263	-6 144 923	-87 950	-635 210
	in %	0.2%	-3.3%	-33.4%	-0.5%	-3.1%
Inflation %	in p.p.	-1.4 p.p.	-1.1 p.p.	-0.1 p.p.	-0.5 p.p.	-1.1 p.p.
Inflation index (100 in 2009)	in p.p.	-2.6 p.p.	-3.7 p.p.	-3.9 p.p.	-4.4 p.p.	-5.7 p.p.
Real terminal costs (EUR2009)	in value	424 460	23 808	-5 156 269	591 437	353 980
	in %	2.7%	0.1%	-31.0%	3.6%	2.0%
Total terminal Service Units	in value	24 631	31 126	34 222	46 244	49 503
	in %	32.6%	40.3%	43.4%	57.8%	60.3%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	in value	<b>-47.46</b>	<b>-59.18</b>	<b>-109.60</b>	<b>-69.66</b>	<b>-79.44</b>
	in %	<b>-22.6%</b>	<b>-28.6%</b>	<b>-51.9%</b>	<b>-34.3%</b>	<b>-36.4%</b>
3. Focus on terminal at State/Charging Zone level						
This analysis focuses on Greece Terminal Charging Zone (TCZ) comprising only Athens/Eleftherios Venizelos international airport (LGAV).						
<b>Terminal unit cost</b>						
In 2019, the actual terminal unit cost in real terms (138.83 €2009) is -36.4% lower than planned in the PP (218.27 €2009). This results from the combination of much higher than planned TNSUs (+60.3%) and slightly higher than planned terminal costs in real terms (+2.0%, or +0.4 M€2009).						
<b>Terminal service units</b>						
The traffic risk sharing mechanism does not apply in Greece TCZ. In 2019, the actual TNSUs in Greece TCZ are +60.3% higher than planned in the PP.						
<b>Terminal costs</b>						
In nominal terms, actual terminal costs are -3.1% (-0.64 M€) lower than planned. However, since the actual inflation index is also lower than planned (-5.7 p.p.), actual terminal costs are +2.0% (+0.4 M€2009) above plans when expressed in real terms.						
The slightly higher than planned terminal costs in real terms are driven by HCAA (+2.0%, or +0.3 M€2009) and the MET service provider (+12.7%, or +0.02 M€2009), while the costs for the NSA (-14.4%, or -0.02 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.						
There are no costs exempt from cost-sharing reported.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for Greece TCZ, actual TNSUs are +47.2% higher than planned, while actual costs in real terms are -4.6% lower than the determined costs (some -3.8 M€2009). As a result, the weighted average actual unit cost over RP2 (136.17 €2009) is -35.1% lower than planned in the NPP (209.97 €2009).						





GREECE: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	2.0%
Other ANSPs	-
METSP	12.7%
NSA	-14.4%
Total	2.0%

Costs by nature at ATSP level:

Staff	13.0%
Other operating costs	46.3%
Depreciation	-95.9%
Cost of capital	-96.9%
Exceptional items	-
VFR exempted flights	5.3%
Total	2.0%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Greece 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

It is noted that Greece applied two different chargeable terminal unit rates in 2019:

- 174.5 € for the period from 1st of January until 31st of July
- 120.00 € for the period of the 1st of August until the 31st of December

The figure for the terminal unit rate charged to airspace users (CUR) in 2019 shown in the chart (150.80 €) reflects the average chargeable unit rate throughout 2019. This is -39.2% lower than the nominal DUC (247.93 €). The difference between these two figures (-97.13 €) relates to:

- the deduction of other revenues (-23.71 €), reflecting a subsidy provided by the Greek Government (see **Note 1**);
- the inflation adjustment (-7.95 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019; and
- a traffic adjustment (-65.47 €), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Greece 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (123.20 €) is -50.3% lower than the nominal DUC (247.93 €). As explained in the box 7 above, the values provided in this chart also reflect the average terminal unit cost incurred by airspace users throughout 2019. The difference between these two figures (-124.73 €) is mainly due to:

- the deduction of other revenues (-23.71 €), reflecting a subsidy provided by the Greek Government (see **Note 1**);
- the inflation adjustment (-7.73 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021; and
- a traffic adjustment (-93.30 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

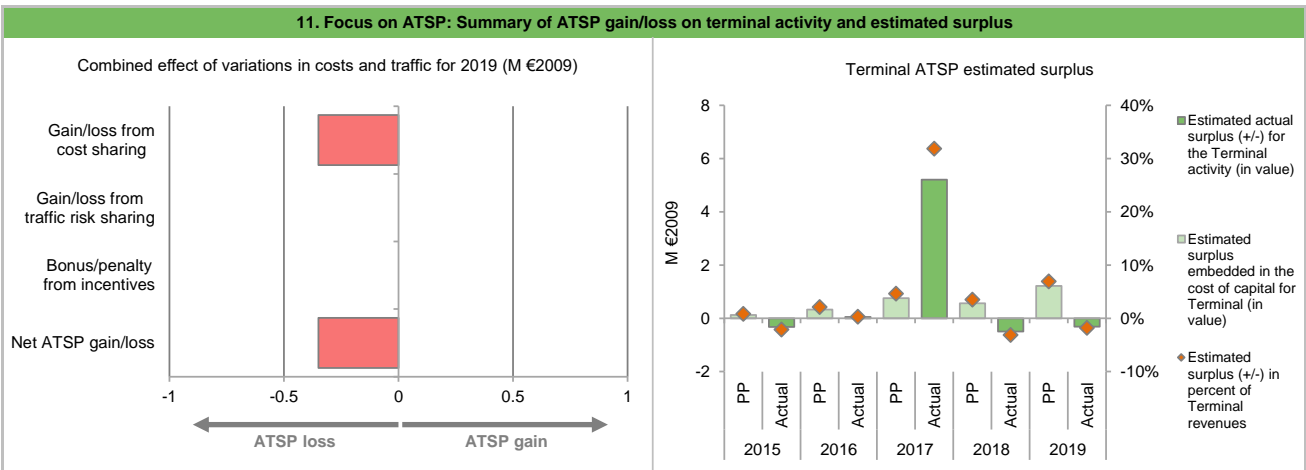
## GREECE: Terminal ATSP (HCAA)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	15 602	15 645	16 340	15 951	17 617
Actual costs for the ATSP	15 928	15 599	11 133	16 495	17 967
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-326	46	5 208	-544	-350
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-326</b>	<b>46</b>	<b>5 208</b>	<b>-544</b>	<b>-350</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-326</b>	<b>46</b>	<b>5 208</b>	<b>-544</b>	<b>-350</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	1 448	3 745	8 513	6 297	13 724
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	1 448	3 745	8 513	6 297	13 724
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	129	333	757	560	1 220
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	8.9%	8.9%	8.9%	8.9%	8.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	129	333	757	560	1 220
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>129</b>	<b>333</b>	<b>757</b>	<b>560</b>	<b>1 220</b>
<b>Revenue/costs for the terminal activity</b>	<b>15 602</b>	<b>15 645</b>	<b>16 340</b>	<b>15 951</b>	<b>17 617</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>0.8%</b>	<b>2.1%</b>	<b>4.6%</b>	<b>3.5%</b>	<b>6.9%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	0	0	0	504	430
Estimated proportion of financing through equity (in %)	-	-	-	100.0%	100.0%
Estimated proportion of financing through equity (in value)	0	0	0	504	430
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	0	0	0	45	38
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	-	-	-	8.9%	8.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	0	0	0	45	38
Net ATSP gain(+)/loss(-) on terminal activity	-326	46	5 208	-544	-350
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>-326</b>	<b>46</b>	<b>5 208</b>	<b>-499</b>	<b>-311</b>
<b>Revenue/costs for the terminal activity</b>	<b>15 602</b>	<b>15 645</b>	<b>16 340</b>	<b>15 951</b>	<b>17 617</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>-2.1%</b>	<b>0.3%</b>	<b>31.9%</b>	<b>-3.1%</b>	<b>-1.8%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-99.1%</b>	<b>-72.5%</b>

**GREECE: Terminal ATSP (HCAA)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 HCAA terminal costs vs. PP**

In 2019, HCAA actual terminal costs are +2.0% (+0.3 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much higher staff costs (+13.0%, or +1.4 M€2009);
- much higher other operating costs (+46.3%, or +1.8 M€2009), reflecting the "payments of obligations of previous years";
- much lower depreciation costs (-95.9%, or -1.7 M€2009);
- much lower cost of capital (-96.9%, or -1.2 M€2009), which reflects "the implementation of investment plan". To that end, it is noted that the actual total terminal asset base for Greece TCZ in 2019 was -96.9%, or -13.3 M€2009 lower than planned in the NPP.

**HCAA net gain/loss on terminal activity in 2019**

As shown in box 9, HCAA generated a net loss of -0.3 M€2009 on the terminal activity arising from the cost sharing mechanism.

**HCAA overall estimated surplus for the terminal activity**

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-0.3 M€2009) and the surplus embedded in the actual cost of capital (+0.04 M€2009) amounts to -0.31 M€2009 (1.8% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -72.5%, which indicates that the surplus embedded in the cost of capital (8.9%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019), HCAA generated cumulative gains in respect of cost sharing of +4.0 M€2009, as actual total costs for RP2 were lower than planned. The TCZ is not subject to traffic risk sharing. Adding the estimated surplus embedded in the terminal cost of capital (+0.1 M€2009 over RP2) leads to an overall estimated surplus of +4.1 M€2009, which corresponds to an average ex-post return on equity of 441.1% (compared to 8.9% as initially planned in the NPP).

## GREECE: Gate-to-gate

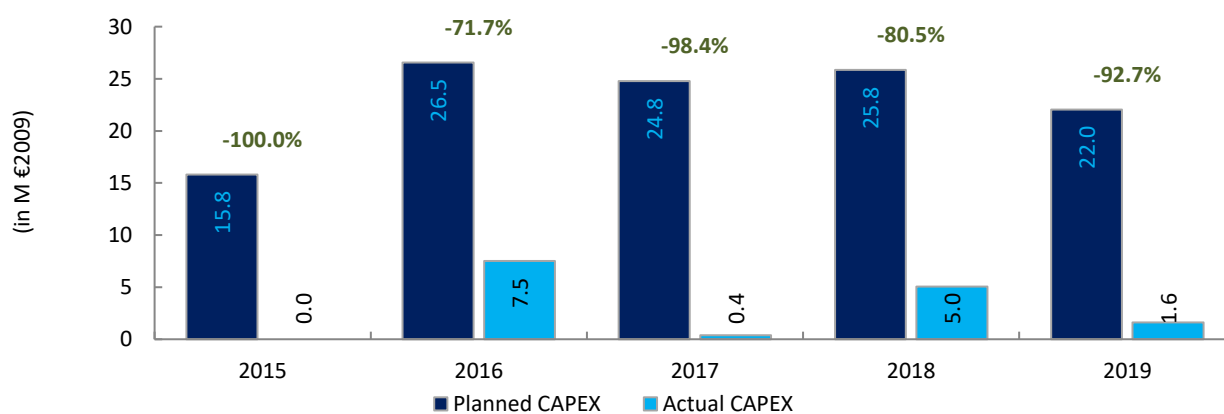
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Greece: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	136 958 572	138 630 543	140 635 901	140 350 008	144 936 752																																							
Real terminal costs (EUR2009)	15 909 668	15 948 926	16 640 801	16 247 762	17 909 299																																							
Real gate-to-gate costs (EUR2009)	152 868 239	154 579 468	157 276 702	156 597 770	162 846 051																																							
En-route share (%)	89.6%	89.7%	89.4%	89.6%	89.0%																																							
<b>Greece: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	138 146 953	133 478 564	111 935 532	126 490 065	130 629 708																																							
Real terminal costs (EUR2009)	16 334 127	15 972 733	11 484 533	16 839 198	18 263 279																																							
Real gate-to-gate costs (EUR2009)	154 481 080	149 451 297	123 420 064	143 329 264	148 892 987																																							
En-route share (%)	89.4%	89.3%	90.7%	88.3%	87.7%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	1 612 840	-5 128 172	-33 856 638	-13 268 506	-13 953 064																																							
in %	1.1%	-3.3%	-21.5%	-8.5%	-8.6%																																							
En-route share in p.p.	-0.2 p.p.	-0.4 p.p.	1.3 p.p.	-1.4 p.p.	-1.3 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are -8.6% (-14.0 M€2009) lower than planned due to lower than planned en-route costs (-9.9%, or -14.3 M€2009) while terminal costs are higher than planned (+2.0%, or +0.4 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (87.7%) is slightly lower than planned in the PP for 2019 (89.0%).</p> <p>For HCAA, the estimated gate-to-gate economic surplus in 2019 amounts to 18.8 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 12.4% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Category</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>89.6%</td> <td>10.4%</td> </tr> <tr> <td>Actual</td> <td>89.4%</td> <td>10.6%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>89.7%</td> <td>10.3%</td> </tr> <tr> <td>Actual</td> <td>89.3%</td> <td>10.7%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>89.4%</td> <td>10.6%</td> </tr> <tr> <td>Actual</td> <td>90.7%</td> <td>9.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>89.6%</td> <td>10.4%</td> </tr> <tr> <td>Actual</td> <td>88.3%</td> <td>11.7%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>89.0%</td> <td>11.0%</td> </tr> <tr> <td>Actual</td> <td>87.7%</td> <td>12.3%</td> </tr> </tbody> </table>						Year	Category	En-route (%)	Terminal (%)	2015	Determined	89.6%	10.4%	Actual	89.4%	10.6%	2016	Determined	89.7%	10.3%	Actual	89.3%	10.7%	2017	Determined	89.4%	10.6%	Actual	90.7%	9.3%	2018	Determined	89.6%	10.4%	Actual	88.3%	11.7%	2019	Determined	89.0%	11.0%	Actual	87.7%	12.3%
Year	Category	En-route (%)	Terminal (%)																																									
2015	Determined	89.6%	10.4%																																									
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2018	Determined	89.6%	10.4%																																									
	Actual	88.3%	11.7%																																									
2019	Determined	89.0%	11.0%																																									
	Actual	87.7%	12.3%																																									
<b>3. Technical notes on en-route and terminal information reported by Greece</b>																																												
<b>Note 1: Terminal unit rates applicable in Greece TCZ during 2019</b>																																												
<p>the additional information to the June 2020 terminal Reporting Tables indicates that two separate unit rates were applied in the Greek TCZ during 2019: "unit rate applicable for the period of the 1st of January until the 31st of July was €174.5 and as of the 1st of August 2019 the unit rate applicable is € 120.00."</p> <p>This subsidy granted by the Greek Government resulted in a reduced terminal unit rate charged to the airspace users at Athens International Airport.</p>																																												

## GREECE

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: HCAA						
FAB: BLUE MED FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	17.1	29.0	27.4	28.9	25.0	127.3
Main CAPEX (in nominal M)	17.1	29.0	27.4	28.9	25.0	127.3
Inflation %	0.3%	1.1%	1.2%	1.3%	1.6%	
Inflation index (100 in 2009)	107.9	109.1	110.4	111.8	113.6	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>15.8</b>	<b>26.5</b>	<b>24.8</b>	<b>25.8</b>	<b>22.0</b>	<b>115.0</b>
Main CAPEX (in M €2009)	15.8	26.5	24.8	25.8	22.0	115.0
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	136.4	137.9	140.5	139.7	145.9	700.4
Total CAPEX as % of Real gate-to-gate ANSP costs	11.6%	19.3%	17.6%	18.5%	15.1%	16.4%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	0.0	7.9	0.4	5.4	1.7	15.5
Main CAPEX (in nominal M)	0.0	6.6	0.4	5.4	1.7	14.1
Inflation %	-1.1%	0.0%	1.1%	0.8%	0.5%	
Inflation index (100 in 2009)	105.4	105.4	106.5	107.4	107.9	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>0.0</b>	<b>7.5</b>	<b>0.4</b>	<b>5.0</b>	<b>1.6</b>	<b>14.6</b>
Main CAPEX (in M €2009)	0.0	6.2	0.4	5.0	1.6	13.3
% Main of Total CAPEX		82.7%	100.0%	100.0%	100.0%	91.1%
Real gate-to-gate ANSP costs (in M €2009)	137.8	133.1	107.5	127.6	134.1	640.2
Total CAPEX as % of Real gate-to-gate ANSP costs	0.0%	5.6%	0.4%	4.0%	1.2%	2.3%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-17.1	-21.0	-26.9	-23.5	-23.3	-111.8
Total CAPEX (in M €2009)	-15.8	-19.0	-24.4	-20.8	-20.4	-100.4
<b>Total CAPEX (in %, M €2009)</b>	<b>-100.0%</b>	<b>-71.7%</b>	<b>-98.4%</b>	<b>-80.5%</b>	<b>-92.7%</b>	<b>-87.3%</b>



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# Annual Monitoring Report 2019

## Local level view

### Italy

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## ITALY

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	74	C	D	D	C	B
ENAV	75	D	D	D	D	C
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	ENAV					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	5	2				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>15</b>	<b>3</b>				
ENAV	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
<p>The State did not reach the RP2 target in 2019 by only one question in the EoS Component/area of Safety Culture, out of 36 questions. That question was self-assessed and not reviewed by EASA.</p> <p>All other safety targets have been met.</p>						

## ITALY

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

Italy identified five airports as subject to RP2 monitoring. In 2016 the APDF was finally correctly established and the environmental indicators can be analysed since then for all five airports.

Traffic increase at the Italian airports under monitoring has moderately increased since the beginning of RP2 (+9% with respect to 2015)

Most additional times at Italian airports have increase in 2019 and Rome Fiumicino (LIRF) shows the third highest additional taxi-out times in the SES area. Performance at Malpensa (LIMC) is very much impacted by the closure of Linate (LIML) from the 27th of July to the 26th of October 2019 when traffic was primarily redirected to Malpensa.

## 2. Additional Taxi-Out Time



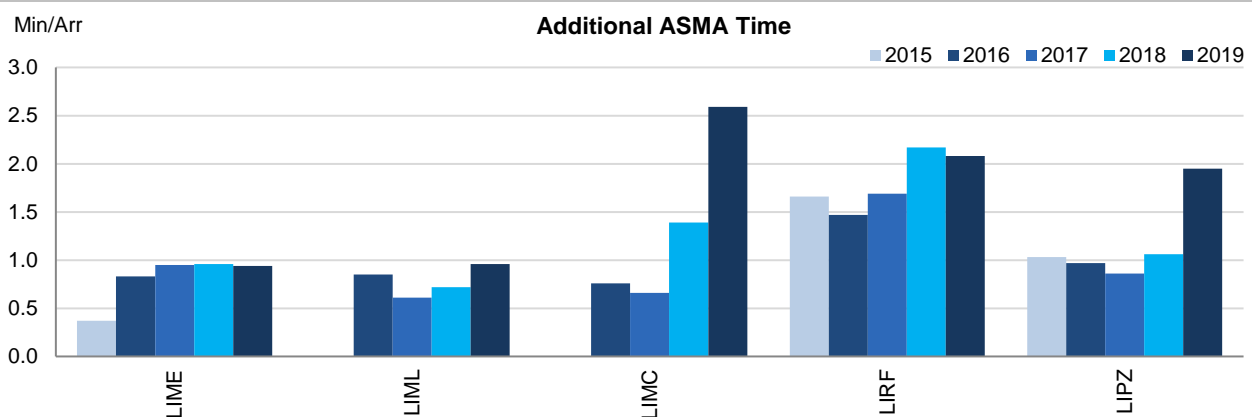
Rome Fiumicino, the main driver for Italian performance, has once more increased its additional TXOT (i.e. LIRF: 2018: 7.19 min/dep. vs 2019: 7.87 min/dep.) and it remains as the airport with the third highest additional taxi-out times in the SES area. These additional times are especially long in summer, reaching up to 9.59 min/dep. in July.

The deterioration at Malpensa (LIMC; 2018: 3.86 min/dep.; 2019:4.76 min/dep.) is observed in January-February and mainly in the period of Linate's closure from August to October.

Venice (LIPZ) experimented a significant increase of the additional taxi-out times in the period April-June, due to works (closure of RWY 04R/22L and related taxiways) .

Additional taxi-out times at the other Italian airports under monitoring have not observed major deterioration during RP2, and remain below the SES average (3.56 min/dep.).

## 3. Additional ASMA Time



Additional ASMA times at Malpensa have drastically deteriorated in 2019 (LIMC; 2018: 1.39 min/arr.; 2019: 2.59 min/arr.). The closure of Linate had a major impact due to the traffic increase at Malpensa, but also the rest of the year the observed performance was worse than in 2018, with many months averaging more than 2 min/arr. The implementation of trombone approaches also contributed to this increase of times in the approach in April and May.

The other very serious increase in additional ASMA times is observed at Venice (LIPZ; 2018: 1.06 min/arr.; 2019: 1.95 min/arr.) The closure of RWY 04R/22L between April and June with the resulting capacity reduction impacted the additional ASMA times heavily, reaching up to 4 min/arr. in May.

#### 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bergamo	LIME	1.06	1.84	2.27	2.44	1.81	0.37	0.83	0.95	0.96	0.94
Milan/ Linate	LIML	n/a	2.31	2.48	2.51	2.43	n/a	0.85	0.61	0.72	0.96
Milan/ Malpensa	LIMC	n/a	3.27	3.37	3.86	4.76	n/a	0.76	0.66	1.39	2.59
Rome/Fiumicino	LIRF	7.06	6.58	6.13	7.19	7.87	1.66	1.47	1.69	2.17	2.08
Venice	LIPZ	1.50	1.75	1.89	2.18	2.52	1.03	0.97	0.86	1.06	1.95

**ITALY**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.09	0.10	0.11	0.11	0.11	Although the revised FAB targets are 35% lower than previously, the national target for Italy (on which the incentive is based) has not been amended accordingly.
Deadband +/-	Nil	Nil	Nil	Nil	Nil	
Actual performance	0.01	0.00	0.01	0.03	0.02	

**National capacity incentive scheme**

The revised BLUEMED performance plan dated July 2015 contained details of an en route capacity incentive scheme for Italy.

The BLUEMED monitoring report does not contain information about the national incentive scheme applied in Italy. The information provided comes from the reporting tables provided by Italy. No specific justification for the 2019 result is provided by Italy.

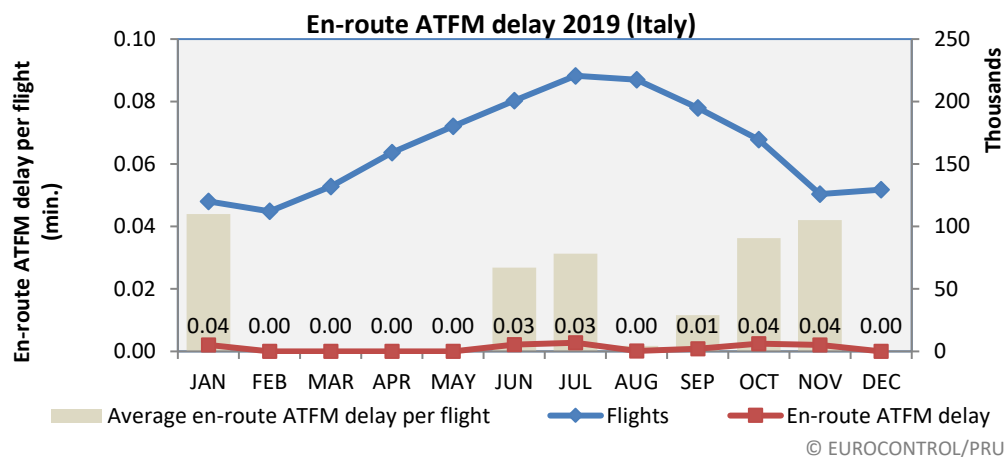
Bonus for performance €6 990 587

**Compliance issues relating to national capacity incentive scheme**

Previously, the PRB noted several compliance issues relating to the en route capacity incentive schemes proposed in the BLUEMED revised performance plan, some relating directly to Italy, in the assessment of the RP2 FAB Performance Plans BLUEMED. One compliance issue concerned the fact that FAB performance was not a specific criterion and another referred to the fact that the incentive scheme proposed by Italy uses capacity targets without supporting evidence to show how they are consistent with the required FAB performance, and therefore they could not be considered as fostering a high level of FAB performance.

The BLUEMED monitoring report contained no information as to how the previous raised compliance issues had been addressed.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.05	0.01	0.01	0.01	0.00	0.00	0.02	0.01	0.00	0.01	0.03	0.02

EUROCONTROL 7 year traffic forecast February 2014										
	2014	2015	2016	2017	2018	2019				
	actual	actual	actual	actual	actual	actual				
High	1 683	1 746	1 831	1 903	1 978	2 058				
Base	1 661	1 680	1 706	1 757	1 786	1 880	1 897	1 962		
Low	1 638	1 661	1 674	1 690	1 708	1 728				

En route capacity performance improved in Italy during 2019. Traffic levels increased by 4% but remained within the ranges forecast by STATFOR when the FAB performance plans, and associated capacity plans were being determined. The actual delay was less than half of what was predicted in the NOP 2019-2024.

Delay forecast - ENAV						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.05	0.08	0.03 - 0.06			

### Planning and Effective Use of CDRs

Italy did not provide any data on this indicator.

### Observations on Planning and Effective Use of CDRs

It is noted that Italy, like many other States, is unable to monitor the planning and effective use of CDRs. The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
51%	55%	56%	48%	46%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
0%	0%	0%	0%	0%

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## ITALY

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

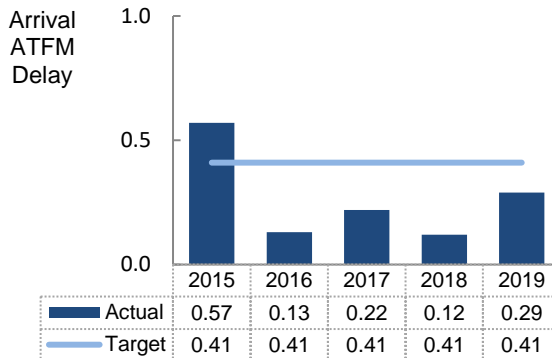
A total of 5 Italian airports are subject to RP2 monitoring. A national target is set for all causes with a local breakdown for all the airports.

Traffic levels at these airports have moderately increased during RP2 (+9.1% with respect to 2015). Milan Linate airport closed from the 27th of July to the 26th of October 2019 to undergo several works including the refurbishment of the runway, impacting the annual traffic (-26% with respect to 2018). Traffic was primarily redirected to Malpensa that observed 20% more traffic than in 2018 as well as an important increase in arrival ATFM delay during that period.

However, the most notable increase in delays is observed at Venice with 150% more delays than in 2018, mainly due to aerodrome capacity.

ATFM slot adherence has improved in RP2 (2015: 92.9%; 2019: 94.5%). In terms of ATC pre-departure delay, Italian airports show low performance compared to the rest of Europe.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Italy have moderately increased with respect to the previous year (2018: 0.12 min/arr, 2019: 0.29 min/arr), driven by the delays at Venice (LIPZ) and the increase also at Malpensa during Linate's closure.

Venice showed in 2019 the worst delays for arrivals at Italian airports reaching 1.10 min/arr. This is the result of severe aerodrome capacity related delays in the months of June and September, reaching in June delays of more than 4.5 min/arr. Besides aerodrome capacity (63% of the annual delays), weather related delays mainly in February, May and October contributed to the high delays in Venice (36%).

Rome Fiumicino (LIRF) shows a slight increase in their arrival ATFM delays (2018: 0.10 min/arr; 2019: 0.16 min/arr) but still shows best in class performance compared to most airports with similar number of movements.

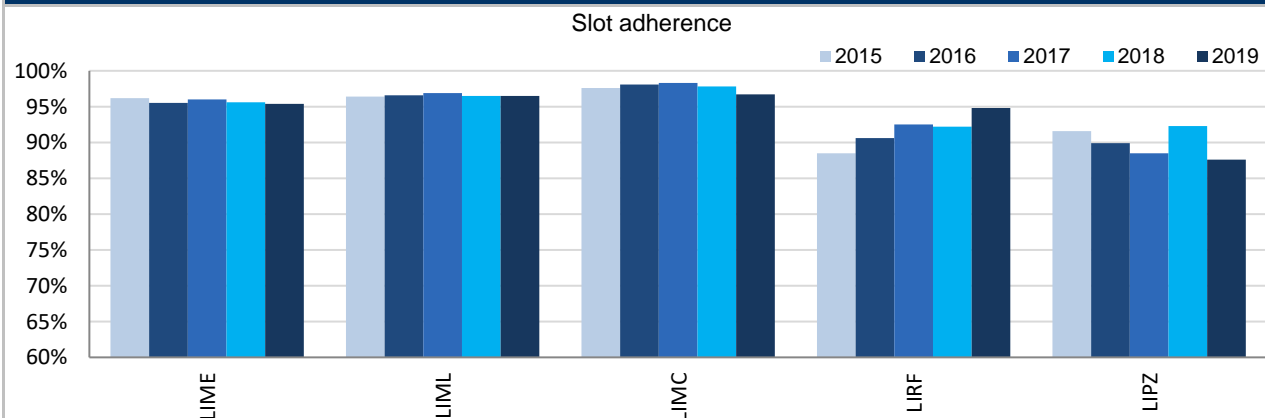
## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The actual national performance on arrival ATFM delay (0.12 min/arr.) meets the established national target of 0.41 min/arr. in 2019.

At local level LIPZ, LIMC and LIME do not meet their respective local reference values.

Italy presents an incentive scheme based on the arrival ATFM delay per flight including only CRSTMP causes. The target for reasons attributable to ENAV is 0.02 min/flight, which was just met with a result of 0.02 min/arr as reported in the reasons for regulations. This falls within the dead band, so no penalties nor bonuses shall apply.

## 4. ATFM Slot Adherence



Adherence to ATFM slots in all Italian airports subject to RP2 monitoring is good and nearly reaching 95%.

Rome Fiumicino has improved the adherence by more than 2 points, while Venice's compliance with ATFM slots has deteriorated and is the only Italian airport below 90%.

Milan airports and Bergamo show best-in-class performance, above 95% of ATFM slot compliance.

## 5. ATC Pre-departure Delay

The monitoring of pre-departure delay is enabled at all Italian airports and is based exclusively on data reported by the airports through the Airport Operator Data Flow.

Pre-departure delay at Rome/Fiumicino has improved every year in RP2 reaching 1.47 min/dep. in 2019. Despite this improvement Fiumicino remains, together with Venice, amongst the airports in the SES performance scheme with the highest pre-departure delay.

Pre-departure delay at Linate (LIML) is not available in 2018 and 2019 due to insufficient data quality for the calculation of the indicator. Milan Linate is encouraged to increase the data quality concerning delay reporting within the Airport Operator Data Flow.

## 6. Appendix

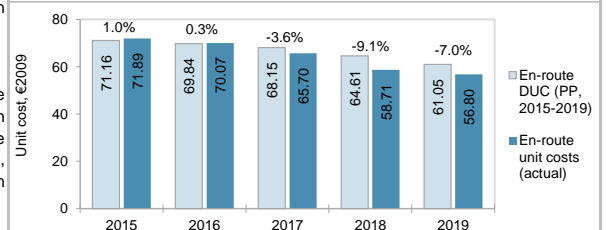
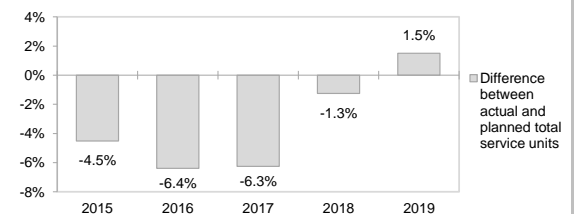
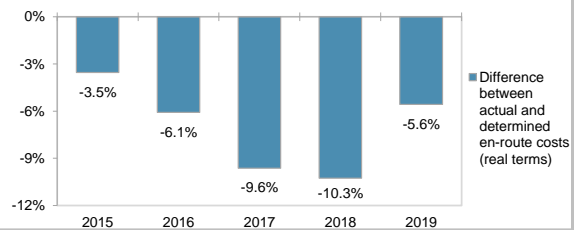
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bergamo	LIME	0.03	0.01	0.05	0.07	0.04	96.2%	95.5%	96.0%	95.6%	95.4%	0.73	0.74	0.98	0.89	0.99
Milan/ Linate	LIML	0.06	0.02	0.10	0.04	0.04	96.4%	96.6%	96.9%	96.5%	96.5%	n/a	0.39	0.27	n/a	n/a
Milan/ Malpensa	LIMC	0.02	0.02	0.03	0.09	0.33	97.6%	98.1%	98.3%	97.8%	96.7%	n/a	0.48	0.58	0.65	0.87
Rome/Fiumicino	LIRF	1.22	0.23	0.36	0.10	0.16	88.5%	90.6%	92.5%	92.2%	94.8%	3.03	2.35	1.79	1.57	1.47
Venice	LIPZ	0.39	0.27	0.45	0.44	1.10	91.6%	89.9%	88.5%	92.3%	87.6%	1.57	1.54	1.77	1.32	1.75

## ITALY: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

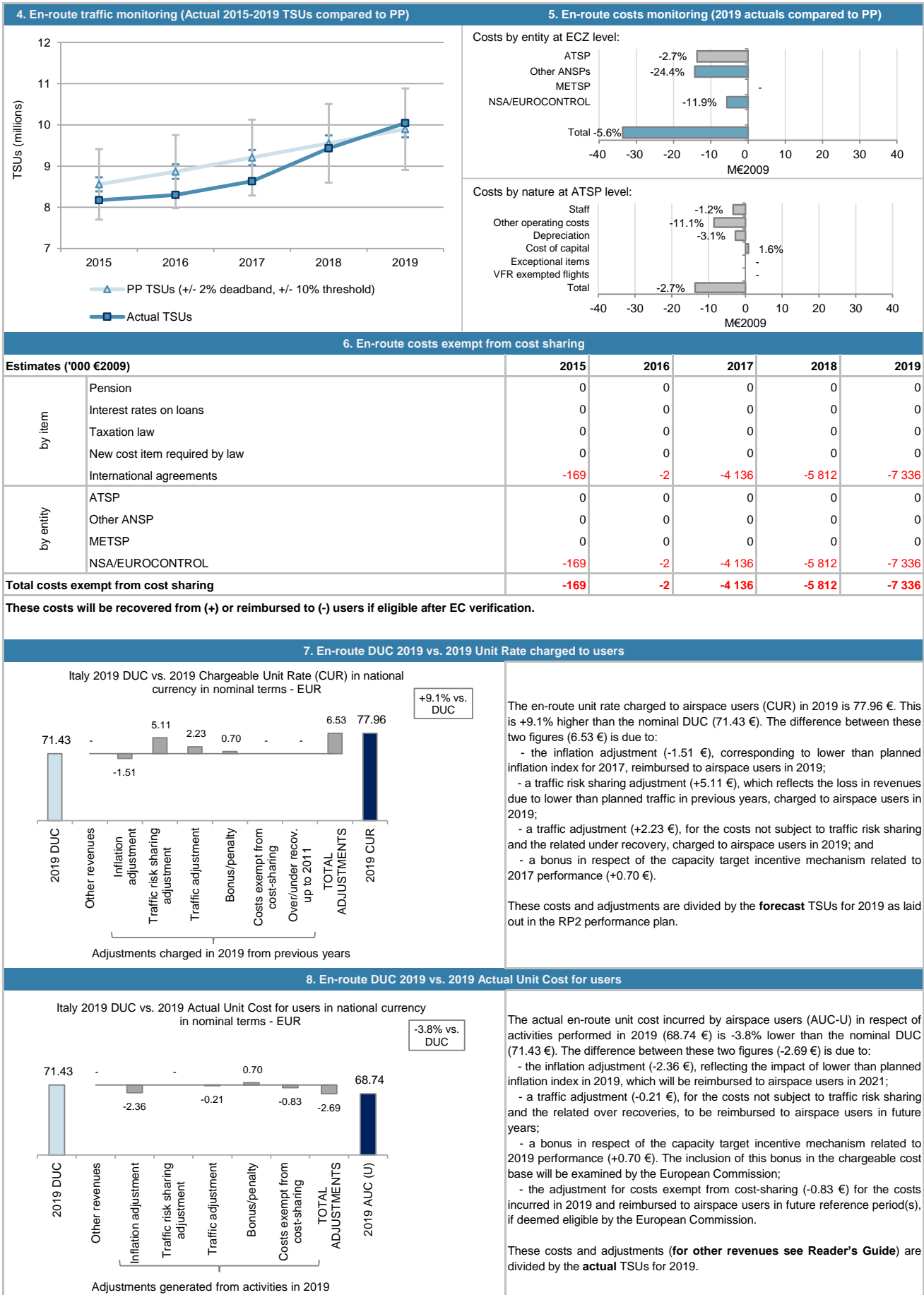
1. Contextual economic information: en-route air navigation services						
<ul style="list-style-type: none"> <li>Italy ECZ represents 10.0% of the SES en-route ANS determined costs in 2019</li> <li>ATSP: ENAV</li> <li>FAB: BLUE MED FAB</li> <li>National currency: EUR</li> </ul>						
2. En-route DUC monitoring at Charging Zone level						
Italy: Data from RP2 Performance Plan (EC Decision 2016/599 of 15 April 2016)	2015D	2016D	2017D	2018D	2019D	
En-route costs (nominal EUR)	674 742 285	693 557 255	711 992 044	710 883 664	707 016 612	
Inflation %	1.0%	1.1%	1.3%	1.5%	1.6%	
Inflation index (100 in 2009)	110.8	112.0	113.5	115.2	117.0	
Real en-route costs (EUR2009)	609 005 804	619 176 790	627 477 336	617 241 895	604 216 765	
Total en-route Service Units	8 557 964	8 866 051	9 207 393	9 553 591	9 897 521	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>71.16</b>	<b>69.84</b>	<b>68.15</b>	<b>64.61</b>	<b>61.05</b>	
Italy: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
En-route costs (nominal EUR)	644 872 816	637 727 794	629 970 988	622 647 895	645 281 021	
Inflation %	0.1%	-0.1%	1.3%	1.2%	0.6%	
Inflation index (100 in 2009)	109.8	109.7	111.1	112.4	113.1	
Real en-route costs (EUR2009)	587 471 424	581 543 938	567 098 230	553 859 684	570 568 959	
Total en-route Service Units	8 171 509	8 299 670	8 631 816	9 433 866	10 045 778	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>71.89</b>	<b>70.07</b>	<b>65.70</b>	<b>58.71</b>	<b>56.80</b>	
Difference between Actuals and Planned	2015	2016	2017	2018	2019	
En-route costs (nominal EUR)	-29 869 469	-55 829 462	-82 021 055	-88 235 769	-61 735 592	
in value						
in %	-4.4%	-8.0%	-11.5%	-12.4%	-8.7%	
Inflation %	-0.9 p.p.	-1.2 p.p.	0.0 p.p.	-0.3 p.p.	-1.0 p.p.	
in p.p.						
Inflation index (100 in 2009)	-1.0 p.p.	-2.4 p.p.	-2.4 p.p.	-2.8 p.p.	-3.9 p.p.	
in p.p.						
Real en-route costs (EUR2009)	-21 534 381	-37 632 852	-60 379 106	-63 382 210	-33 647 807	
in value						
in %	-3.5%	-6.1%	-9.6%	-10.3%	-5.6%	
Total en-route Service Units	-386 455	-566 380	-575 577	-119 725	148 257	
in value						
in %	-4.5%	-6.4%	-6.3%	-1.3%	1.5%	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>0.73</b>	<b>0.23</b>	<b>-2.45</b>	<b>-5.90</b>	<b>-4.25</b>	
in value						
in %	<b>1.0%</b>	<b>0.3%</b>	<b>-3.6%</b>	<b>-9.1%</b>	<b>-7.0%</b>	
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (56.80 €2009) is -7.0% lower than planned in the PP (61.05 €2009). This results from the combination of slightly higher than planned TSUs (+1.5%) and lower than planned en-route costs in real terms (-5.6%, or -33.6 M€2009).						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+1.5%) falls inside the ±2% dead band foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues (+7.5 M€2009) is therefore fully retained by the main ATSP (ENAV).						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are -8.7% (-61.7 M€) lower than planned. However, since the actual inflation index is also lower than planned (-3.9 p.p.), actual en-route costs are -5.6% (-33.6 M€2009) below plans when expressed in real terms.						
The lower than planned en-route costs in real terms are driven by ENAV (-2.7%, or -13.7 M€2009), ITAF (-24.4%, or -14.3 M€2009) and the NSA/EUROCONTROL (-11.9%, or -5.6 M€2009). A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of -7.3 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Italy charging zone, actual en-route TSUs are -3.3% lower than planned, while actual costs in real terms are also -7.0% lower than the determined costs (some -216.6 M€2009). To that end it should be noted that, with the exception of 2019, the TSUs were consistently below plans for Italy throughout RP2. As a result, the weighted average actual unit cost over RP2 (64.16 €2009) is -3.9% lower than planned in the NPP (66.77 €2009).						





ITALY: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



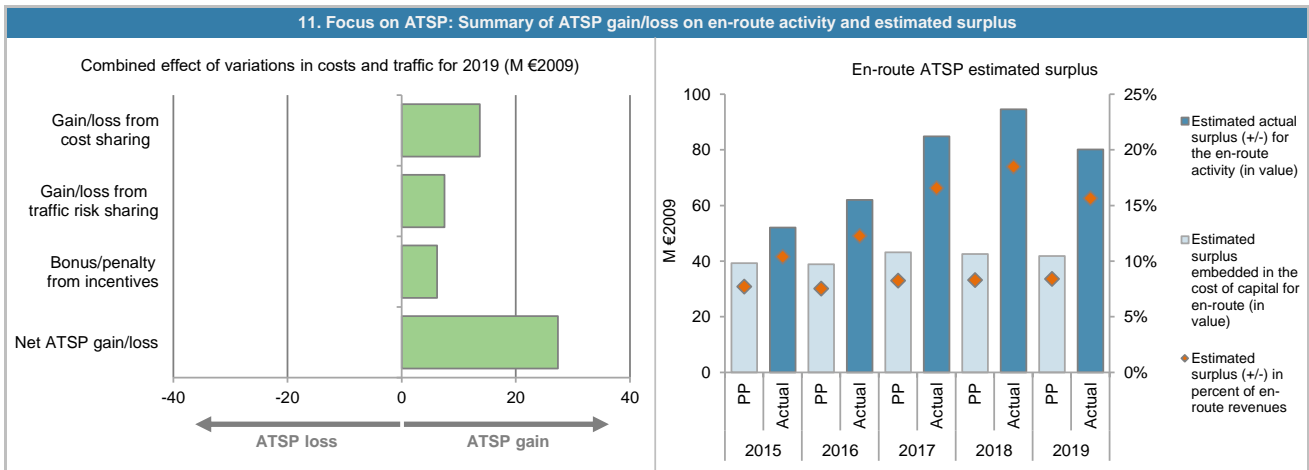
## ITALY: En-route ATSP (ENAV)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	508 717	516 644	523 252	511 500	497 949
Actual costs for the ATSP	487 764	482 739	473 875	463 157	484 273
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	20 953	33 905	49 377	48 343	13 675
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>20 953</b>	<b>33 905</b>	<b>49 377</b>	<b>48 343</b>	<b>13 675</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-4.5%	-6.4%	-6.3%	-1.3%	1.5%
Determined costs for the ATSP (PP) - based on actual inflation	500 771	514 683	521 266	511 069	502 475
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-13 795</b>	<b>-17 069</b>	<b>-17 073</b>	<b>-6 405</b>	<b>7 527</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>5 260</b>	<b>5 418</b>	<b>5 640</b>	<b>6 101</b>	<b>6 181</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>12 418</b>	<b>22 253</b>	<b>37 944</b>	<b>48 039</b>	<b>27 383</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	973 075	962 488	950 136	936 095	921 353
Estimated proportion of financing through equity (in %)	70.0%	70.0%	70.0%	70.0%	70.0%
Estimated proportion of financing through equity (in value)	681 153	673 742	665 095	655 266	644 947
Estimated proportion of financing through debt (in %)	30.0%	30.0%	30.0%	30.0%	30.0%
Estimated proportion of financing through debt (in value)	291 923	288 746	285 041	280 828	276 406
Cost of capital pre-tax (in value)	49 984	49 440	53 558	52 766	51 935
Average interest on debt (in %)	3.7%	3.7%	3.7%	3.7%	3.7%
Interest on debt (in value)	10 655	10 539	10 404	10 250	10 089
Determined RoE pre-tax rate (in %)	5.8%	5.8%	6.5%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	39 329	38 901	43 154	42 516	41 846
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>39 329</b>	<b>38 901</b>	<b>43 154</b>	<b>42 516</b>	<b>41 846</b>
<b>Revenue/costs for the en-route activity</b>	<b>508 717</b>	<b>516 644</b>	<b>523 252</b>	<b>511 500</b>	<b>497 949</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>7.7%</b>	<b>7.5%</b>	<b>8.2%</b>	<b>8.3%</b>	<b>8.4%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>5.8%</b>	<b>5.8%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	982 145	983 128	802 883	717 817	813 480
Estimated proportion of financing through equity (in %)	70.0%	70.0%	90.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	687 502	688 190	722 595	717 817	813 480
Estimated proportion of financing through debt (in %)	30.0%	30.0%	10.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	294 644	294 939	80 288	0	0
Cost of capital pre-tax (in value)	50 450	50 501	48 900	46 574	52 781
Average interest on debt (in %)	3.7%	3.7%	2.5%	0.0%	0.0%
Interest on debt (in value)	10 754	10 765	2 015	0	0
Determined RoE pre-tax rate (in %)	5.8%	5.8%	6.5%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	39 696	39 735	46 884	46 574	52 781
Net ATSP gain(+)/loss(-) on en-route activity	12 418	22 253	37 944	48 039	27 383
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>52 114</b>	<b>61 989</b>	<b>84 828</b>	<b>94 614</b>	<b>80 165</b>
<b>Revenue/costs for the en-route activity</b>	<b>500 182</b>	<b>504 993</b>	<b>511 819</b>	<b>511 196</b>	<b>511 657</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>10.4%</b>	<b>12.3%</b>	<b>16.6%</b>	<b>18.5%</b>	<b>15.7%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>7.6%</b>	<b>9.0%</b>	<b>11.7%</b>	<b>13.2%</b>	<b>9.9%</b>

ITALY: En-route ATSP (ENAV)

Monitoring of en-route COST-EFFICIENCY for 2019



12. Focus on en-route ATSP: General conclusions

Actual 2019 ENAV en-route costs vs. PP

In 2019, ENAV actual en-route costs are -2.7% (-13.7 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- slightly lower staff costs (-1.2%, or -3.3 M€2009), explained by "headcount management through the reduction in new hiring and increase of the number of ceased staff, changes in the remuneration mix as a result of terminations and new hires, reduction of the operational overtime, reduction of business trips costs, reduction of costs for accrued and unused holidays, reduction of costs related to bonuses and professional progression."
- much lower other operating costs (-11.1%, or -8.5 M€2009), which are understood to result from "cost containment actions have interested mainly operational telecommunications costs reflecting the decrease in costs connected with the E-NET1 network, thanks to the discount obtained from the supplier in the contract for the migration to the new E-NET2 network, and a reduction in costs for utilities as a result of the cancellation of debtor positions and the settlement of a dispute with a supplier; costs for goods and maintenance; costs for business trips and meal vouchers, costs for professional services and operational support costs."
- lower depreciation costs (-3.1%, or -2.7 M€2009), driven by: i) "effects of the cost containment actions put in place in the first three years of the Reference Period (2015-2017)", and ii) "reduction on costs for the implementation activities of plants and equipment for air traffic control from the supplier companies".
- slightly higher cost of capital (+1.6%, or +0.8 M€2009) in real terms, resulting from the combined effect of lower than planned actual total asset base and higher than planned average rate of cost of capital. Concerning the latter, it is noted that the higher than planned weighted average cost of capital results from a different gearing between equity and debt compared to the plan (actual capital entirely financed through equity, whereas the share of financing through debt was planned in the PP).

ENAV net gain/loss on en-route activity in 2019

As shown in box 9, ENAV generated a net gain of +27.4 M€2009 on the en-route activity. This is a combination of three elements:

- a gain of +13.7 M€2009 arising from the cost sharing mechanism;
- a gain of +7.5 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +6.2 M€2009 (or +7.0 M€ in nominal terms), corresponding to a bonus as part of the en-route capacity target incentive mechanism. This amount corresponds to some 1.1% of ENAV en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

ENAV overall estimated surplus for the en-route activity

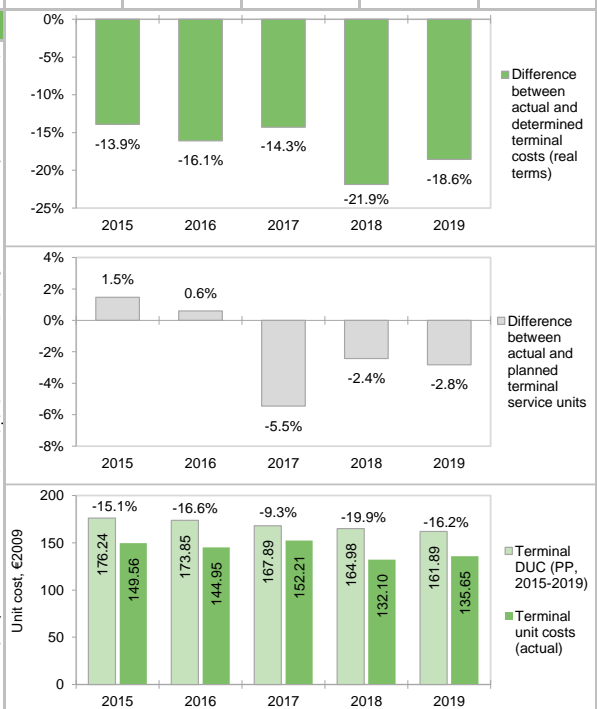
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+27.4 M€2009) and the surplus embedded in the actual cost of capital (+52.8 M€2009) amounts to +80.2 M€2009 (15.7% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 9.9%, which is higher than the 6.5% planned in the PP.

When considering the whole of RP2 (2015-2019), ENAV generated cumulative gains in respect of cost sharing of +166.3 M€2009, as actual total costs for RP2 were consistently lower than planned. The traffic risk sharing generated a loss of -46.8 M€2009, which reflects the fact that actual traffic was in general terms -3.3% lower than planned during RP2. Adding the gain of +28.6 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+225.7 M€2009 over RP2) leads to an overall estimated surplus of +373.7 M€2009, which corresponds to an average ex-post return on equity of 10.3% (compared to 6.2% as initially planned in the NPP).

**ITALY - ZONE 1: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services					
· Italy - Zone 1 TCZ represents 3.6% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP:	ENAV	· Airports with fewer than 70,000 IFRs ATMs:		0	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019:	1,	of which:	· Airports with more than 225,000 IFRs ATMs:	1	
2. Terminal DUC monitoring at Charging Zone level					
Italy - Zone 1: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	42 696 901	43 687 670	43 890 827	44 785 896	45 542 237
Inflation %	1.0%	1.1%	1.3%	1.5%	1.6%
Inflation index (100 in 2009)	110.8	112.0	113.5	115.2	117.0
Real terminal costs (EUR2009)	38 537 174	39 002 391	38 680 909	38 886 435	38 920 419
Total terminal Service Units	218 658	224 343	230 401	235 700	240 414
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>176.24</b>	<b>173.85</b>	<b>167.89</b>	<b>164.98</b>	<b>161.89</b>
Italy - Zone 1: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	36 422 803	35 874 570	36 830 898	34 156 485	35 842 542
Inflation %	0.1%	-0.1%	1.3%	1.2%	0.6%
Inflation index (100 in 2009)	109.8	109.7	111.1	112.4	113.1
Real terminal costs (EUR2009)	33 180 738	32 714 019	33 155 078	30 382 982	31 692 613
Total terminal Service Units	221 862	225 695	217 830	229 992	233 630
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>149.56</b>	<b>144.95</b>	<b>152.21</b>	<b>132.10</b>	<b>135.65</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value -6 274 098	in value -7 813 100	in value -7 059 929	in value -10 629 411	in value -9 699 695
	in % -14.7%	in % -17.9%	in % -16.1%	in % -23.7%	in % -21.3%
Inflation %	in p.p. -0.9 p.p.	in p.p. -1.2 p.p.	in p.p. 0.0 p.p.	in p.p. -0.3 p.p.	in p.p. -1.0 p.p.
Inflation index (100 in 2009)	in p.p. -1.0 p.p.	in p.p. -2.4 p.p.	in p.p. -2.4 p.p.	in p.p. -2.8 p.p.	in p.p. -3.9 p.p.
Real terminal costs (EUR2009)	in value -5 356 436	in value -6 288 373	in value -5 525 831	in value -8 503 453	in value -7 227 806
	in % -13.9%	in % -16.1%	in % -14.3%	in % -21.9%	in % -18.6%
Total terminal Service Units	in value 3 203	in value 1 352	in value -12 570	in value -5 708	in value -6 784
	in % 1.5%	in % 0.6%	in % -5.5%	in % -2.4%	in % -2.8%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -26.69</b>	<b>in value -28.90</b>	<b>in value -15.68</b>	<b>in value -32.88</b>	<b>in value -26.24</b>
	<b>in % -15.1%</b>	<b>in % -16.6%</b>	<b>in % -9.3%</b>	<b>in % -19.9%</b>	<b>in % -16.2%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Italy - Terminal Charging Zone 1 (TCZ 1) comprising only Roma Fiumicino (LIRF) airport. An analysis of TCZ 2 comprising other 4 airports is provided separately.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (135.65 €2009) is -16.2% lower than planned in the PP (161.89 €2009). This results from the combination of lower than planned TNSUs (-2.8%) and much lower than planned terminal costs in real terms (-18.6%, or -7.2 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Italy TCZ 1. The difference between actual and planned TNSUs (-2.8%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (ENAV) bearing a loss of -0.8 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -21.3% (-9.7 M€) lower than planned. However, since the actual inflation index is also lower than planned (-3.9 p.p.), actual terminal costs are -18.6% (-7.2 M€2009) below plans when expressed in real terms.					
The lower than planned terminal costs in real terms are driven by ENAV (-18.7%, or -7.2 M€2009), while the costs for the NSA are slightly higher (+1.3%) than planned. A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Italy TCZ 1, actual TNSUs are -1.8% lower than planned, while actual costs in real terms are also -17.0% lower than the determined costs (some -32.9 M€2009). As a result, the weighted average actual unit cost over RP2 (142.71 €2009) is -15.4% lower than planned in the NPP (168.79 €2009).					



ITALY - ZONE 1: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	-18.7%
Other ANSPs	-
METSP	-
NSA	1.3%
<b>Total</b>	<b>-18.6%</b>

Costs by nature at ATSP level:

Staff	-19.2%
Other operating costs	-30.0%
Depreciation	-17.9%
Cost of capital	-2.8%
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>-18.7%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

The terminal unit rate charged to airspace users (CUR) in 2019 is 190.69 €. This is +0.7% higher than the nominal DUC (189.43 €). The difference between these two figures (1.26 €) relates to:

- the inflation adjustment (-3.83 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (+4.07 €), which reflects the loss in revenues due to lower than planned traffic in previous years, charged to airspace users in 2019;
- a traffic adjustment (+0.68 €), for the costs not subject to traffic risk sharing and the related under recovery, charged to airspace users in 2019; and
- a bonus in respect of the capacity target incentive mechanism related to 2017 performance (+0.34 €).

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (185.13 €) is -2.3% lower than the nominal DUC (189.43 €). The difference between these two figures (-4.30 €) is mainly due to:

- the inflation adjustment (-6.53 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic risk sharing adjustment (+1.03 €), which reflects the loss in revenues due to lower than planned traffic in 2019, to be charged to airspace users in future years;
- a traffic adjustment (+0.43 €), for the costs not subject to traffic risk sharing and the related under recoveries, to be charged to airspace users in future years; and
- a bonus in respect of the capacity target incentive mechanism related to 2019 performance (+0.76 €). The inclusion of this bonus in the chargeable cost-base will be examined by the European Commission (see **Note 1** at the end of this Report).

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## ITALY: Terminal ATSP (ENAV) Italy - Zone 1

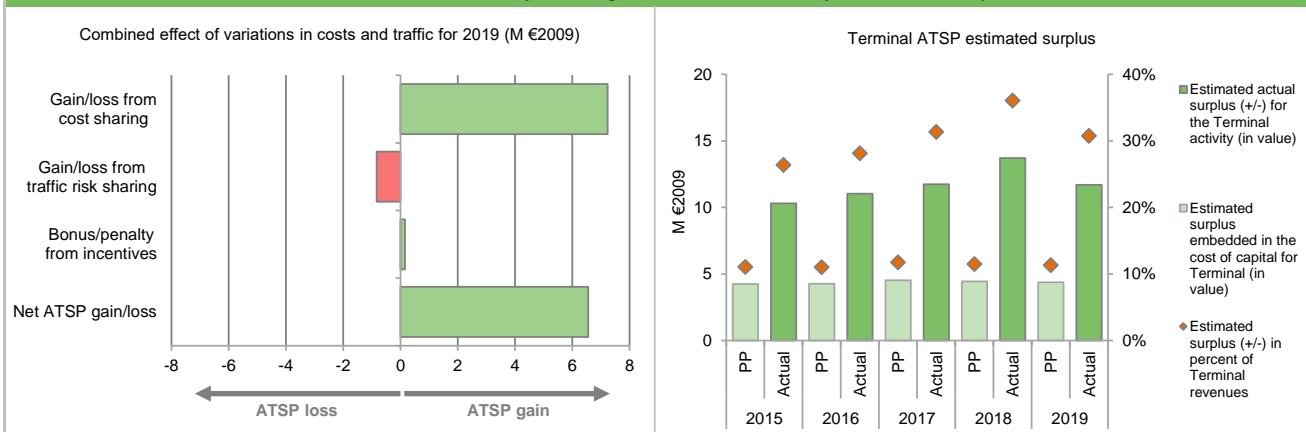
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity						
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019	
Determined costs for the ATSP (PP) - based on planned inflation	38 350	38 813	38 489	38 694	38 729	
Actual costs for the ATSP	32 992	32 523	32 964	30 192	31 499	
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	5 357	6 290	5 526	8 502	7 230	
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0	
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>5 357</b>	<b>6 290</b>	<b>5 526</b>	<b>8 502</b>	<b>7 230</b>	
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019	
Difference in total service units (actual vs PP) %	1.5%	0.6%	-5.5%	-2.4%	-2.8%	
Determined costs for the ATSP (PP) - based on actual inflation	35 838	36 707	36 401	36 703	37 101	
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>525</b>	<b>221</b>	<b>-1 105</b>	<b>-781</b>	<b>-833</b>	
Incentives ('000 €2009)	*see Note 1	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>		<b>126</b>	<b>154</b>	<b>74</b>	<b>76</b>	<b>157</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>		<b>6 008</b>	<b>6 666</b>	<b>4 494</b>	<b>7 798</b>	<b>6 554</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *						
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.						
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P	
Total asset base	79 306	78 443	80 342	79 154	77 908	
Estimated proportion of financing through equity (in %)	70.0%	70.0%	70.0%	70.0%	70.0%	
Estimated proportion of financing through equity (in value)	55 514	54 910	56 239	55 408	54 536	
Estimated proportion of financing through debt (in %)	30.0%	30.0%	30.0%	30.0%	30.0%	
Estimated proportion of financing through debt (in value)	23 792	23 533	24 103	23 746	23 372	
Cost of capital pre-tax (in value)	4 964	5 219	5 457	5 376	5 291	
Average interest on debt (in %)	3.0%	4.0%	3.9%	3.9%	3.9%	
Interest on debt (in value)	714	941	940	926	912	
Determined RoE pre-tax rate (in %)	7.7%	7.8%	8.0%	8.0%	8.0%	
Estimated surplus embedded in the cost of capital for terminal (in value)	4 250	4 278	4 517	4 450	4 380	
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>4 250</b>	<b>4 278</b>	<b>4 517</b>	<b>4 450</b>	<b>4 380</b>	
<b>Revenue/costs for the terminal activity</b>	<b>38 350</b>	<b>38 813</b>	<b>38 489</b>	<b>38 694</b>	<b>38 729</b>	
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>11.1%</b>	<b>11.0%</b>	<b>11.7%</b>	<b>11.5%</b>	<b>11.3%</b>	
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>7.7%</b>	<b>7.8%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
Total asset base	80 045	80 125	100 360	73 512	64 062	
Estimated proportion of financing through equity (in %)	70.0%	70.0%	90.0%	100.0%	100.0%	
Estimated proportion of financing through equity (in value)	56 031	56 087	90 324	73 512	64 062	
Estimated proportion of financing through debt (in %)	30.0%	30.0%	10.0%	0.0%	0.0%	
Estimated proportion of financing through debt (in value)	24 013	24 037	10 036	0	0	
Cost of capital pre-tax (in value)	5 010	5 331	7 506	5 904	5 145	
Average interest on debt (in %)	3.0%	4.0%	2.5%	0.0%	0.0%	
Interest on debt (in value)	720	961	252	0	0	
Determined RoE pre-tax rate (in %)	7.7%	7.8%	8.0%	8.0%	8.0%	
Estimated surplus embedded in the cost of capital for terminal (in value)	4 290	4 370	7 254	5 904	5 145	
Net ATSP gain(+)/loss(-) on terminal activity	6 008	6 666	4 494	7 798	6 554	
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>10 298</b>	<b>11 035</b>	<b>11 748</b>	<b>13 702</b>	<b>11 698</b>	
<b>Revenue/costs for the terminal activity</b>	<b>39 000</b>	<b>39 189</b>	<b>37 458</b>	<b>37 990</b>	<b>38 052</b>	
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>26.4%</b>	<b>28.2%</b>	<b>31.4%</b>	<b>36.1%</b>	<b>30.7%</b>	
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>18.4%</b>	<b>19.7%</b>	<b>13.0%</b>	<b>18.6%</b>	<b>18.3%</b>	

## ITALY: Terminal ATSP (ENAV) Italy - Zone 1

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 ENAV terminal costs in TCZ 1 vs. PP

In 2019, ENAV actual terminal costs in TCZ 1 are -18.7% (-7.2 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much lower staff costs (-19.2%, or -3.6 M€2009), resulting from measures adopted in "the headcount management through the reduction in new hiring and increase of the number of ceased staff, changes in the remuneration mix as a result of terminations and new hires, reduction of the operational overtime, reduction of business trips costs, reduction of costs for accrued and unused holidays, reduction of costs related to bonuses and professional progression."
- much lower other operating costs (-30.0%, or -2.1 M€2009), undersood to result from "cost containment actions have interested mainly operational telecommunications costs reflecting the decrease in costs connected with the E-NET1 network, thanks to the discount obtained from the supplier in the contract for the migration to the new E-NET2 network, and a reduction in costs for utilities as a result of the cancellation of debtor positions and the settlement of a dispute with a supplier; costs for goods and maintenance; costs for business trips and meal vouchers, costs for professional services and operational support costs."
- much lower depreciation costs (-17.9%, or -1.4 M€2009) driven by: i) "effects of the cost containment actions put in place in the first three years of the Reference Period (2015-2017)", and ii) "reduction on costs for the implementation activities of plants and equipment for air traffic control from the supplier companies".
- lower cost of capital (-2.8%, or -0.1 M€2009) due to the combination of lower than planned actual asset base and higher than planned weighted average rate of cost of capital. It is noted that the weighted average rate of cost of capital is higher than planned due to a different gearing between equity and debt in 2019 as compared to the plan (increased proportion of financing through equity).

No description of the main drivers for the deviation between actual and determined costs is provided individually for each TCZ in the additional information to June 2020 terminal Reporting Tables. Only a consolidated description for the variation in costs for ENAV, aggregating both TCZs, is reported in the additional information to June 2020 terminal Reporting Tables. The drivers noted above are therefore not necessarily directly related to the activity of ENAV in this particular TCZ.

## ENAV net gain/loss on terminal activity in 2019

As shown in box 9, ENAV generated a net gain of +6.6 M€2009 on the terminal activity in TCZ 1. This is a combination of three elements:

- a gain of +7.2 M€2009 arising from the cost sharing mechanism;
- a loss of -0.8 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +0.2 M€2009 (or 177 '000€ in nominal terms), corresponding to a bonus for ENAV as part of the terminal capacity target incentive mechanism for 2019. The inclusion of this bonus in the chargeable cost-base will be examined by the European Commission. See also **Note 1** at the end of this Report.

If the bonus noted above stemming from terminal capacity incentive scheme was to be excluded, ENAV would have generated a net gain of +6.4 M€2009 on terminal activity in TCZ 1 in 2019.

## ENAV overall estimated surplus for the terminal activity.

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity in TCZ 1 mentioned above (+6.6 M€2009) and the surplus embedded in the actual cost of capital (+5.1 M€2009) amounts to +11.7 M€2009 (30.7% of the 2019 terminal revenues in TCZ 1). The resulting ex-post rate of return on equity is 18.3%, which is much higher than the 8.0% planned in the PP for TCZ 1.

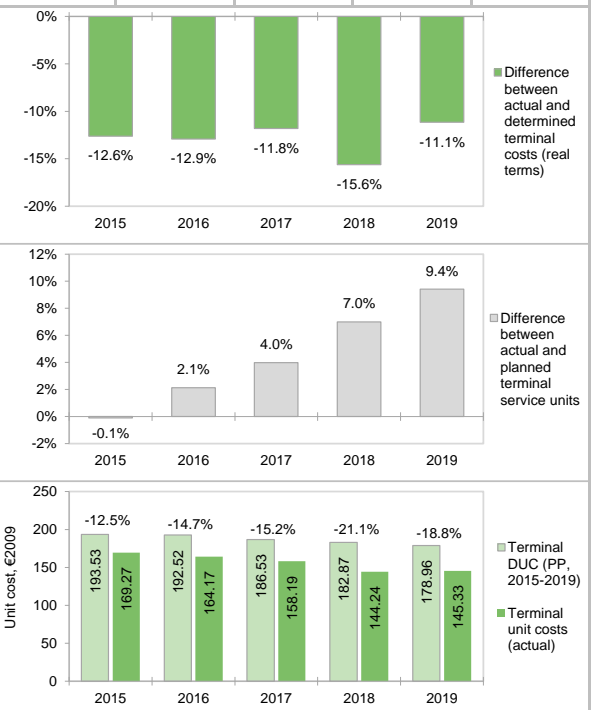
It is also noted that the actual gearing between equity and debt financing reported by ENAV in 2019 differs from the ratio planned in the PP for the year 2019. As already indicated in the analysis on cost of capital above, due to this change, the actual weighted average cost of capital (8.0%) is higher than foreseen in the PP (6.8%).

For TCZ 1, when considering the whole of RP2 (2015-2019), ENAV generated cumulative gains in respect of cost sharing of +32.9 M€2009, as actual total costs for RP2 were consistently much lower than planned. The traffic risk sharing generated a loss of -2.0 M€2009, which reflects the fact that actual traffic was in general terms -1.8% lower than planned during RP2. Adding the gain of +0.6 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+27.0 M€2009 over RP2) leads to an overall estimated surplus of +58.5 M€2009, which corresponds to an average ex-post return on equity of 17.2% (compared to 7.9% as initially planned in the NPP).

## ITALY - ZONE 2: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

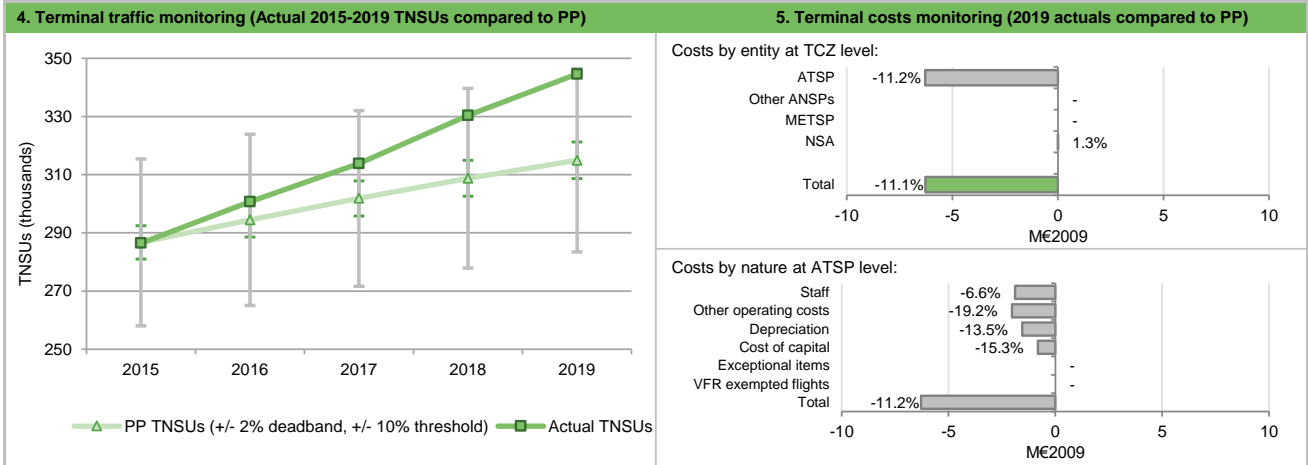
1. Contextual economic information: terminal air navigation services					
· Italy - Zone 2 TCZ represents 5.3% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No	
· ATSP:	ENAV	· Airports with fewer than 70,000 IFRs ATMs:		0	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		4	
· Number of airports in charging zone in 2019:	4,	of which:		· Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Italy - Zone 2: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	61 479 947	63 501 025	63 881 934	65 032 915	65 952 563
Inflation %	1.03%	1.1%	1.3%	1.5%	1.6%
Inflation index (100 in 2009)	110.8	112.0	113.5	115.2	117.0
Real terminal costs (EUR2009)	55 490 290	56 690 865	56 299 036	56 466 398	56 363 094
Total terminal Service Units	286 726	294 467	301 829	308 771	314 947
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>193.53</b>	<b>192.52</b>	<b>186.53</b>	<b>182.87</b>	<b>178.96</b>
Italy - Zone 2: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	53 228 033	54 136 477	55 151 947	53 570 380	56 637 027
Inflation %	0.10%	-0.1%	1.3%	1.2%	0.6%
Inflation index (100 in 2009)	109.8	109.7	111.1	112.4	113.1
Real terminal costs (EUR2009)	48 490 101	49 367 051	49 647 638	47 652 091	50 079 467
Total terminal Service Units	286 465	300 714	313 846	330 374	344 594
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>169.27</b>	<b>164.17</b>	<b>158.19</b>	<b>144.24</b>	<b>145.33</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value -8 251 914	in value -9 364 547	in value -8 729 987	in value -11 462 535	in value -9 315 536
	in % -13.4%	in % -14.7%	in % -13.7%	in % -17.6%	in % -14.1%
Inflation %	in p.p. -0.9 p.p.	in p.p. -1.2 p.p.	in p.p. 0.0 p.p.	in p.p. -0.3 p.p.	in p.p. -1.0 p.p.
Inflation index (100 in 2009)	in p.p. -1.0 p.p.	in p.p. -2.4 p.p.	in p.p. -2.4 p.p.	in p.p. -2.8 p.p.	in p.p. -3.9 p.p.
Real terminal costs (EUR2009)	in value -7 000 188	in value -7 323 814	in value -6 651 398	in value -8 814 307	in value -6 283 628
	in % -12.6%	in % -12.9%	in % -11.8%	in % -15.6%	in % -11.1%
Total terminal Service Units	in value -261	in value 6 247	in value 12 016	in value 21 603	in value 29 647
	in % -0.1%	in % 2.1%	in % 4.0%	in % 7.0%	in % 9.4%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -24.26</b>	<b>in value -28.35</b>	<b>in value -28.33</b>	<b>in value -38.64</b>	<b>in value -33.63</b>
	<b>in % -12.5%</b>	<b>in % -14.7%</b>	<b>in % -15.2%</b>	<b>in % -21.1%</b>	<b>in % -18.8%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Italy - Terminal Charging Zone 2 (TCZ 2) comprising Milano/Malpensa (LIMC), Bergamo/Orio al Serio (LIME), Milano/Linate (LIML) and Venezia/Tessera (LIPZ) airports.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (145.33 €2009) is -18.8% lower than planned in the PP (178.96 €2009). This results from the combination of higher than planned TNSUs (+9.4%) and much lower than planned terminal costs in real terms (-11.1%, or -6.3 ME2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Italy TCZ 2. In 2019, the actual TNSUs in TCZ 2 are +9.4% higher than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -14.1% (-9.3 ME) lower than planned. However, since the actual inflation is also lower than planned (-3.9 p.p.), actual terminal costs are -11.1% (-6.3 ME2009) below plans when expressed in real terms.					
The lower than planned terminal costs in real terms are driven by ENAV (-11.2%, or -6.3 ME2009), while the costs for the NSA are higher (+1.3%) than planned. A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Italy TCZ 2, actual TNSUs are +4.6% higher than planned, while actual costs in real terms are -12.8% lower than than the determined costs (some -36.1 ME2009). As a result, the weighted average actual unit cost over RP2 (155.61 €2009) is -16.7% lower than planned in the NPP (186.70 €2009).					





ITALY - ZONE 2: Terminal charging zone

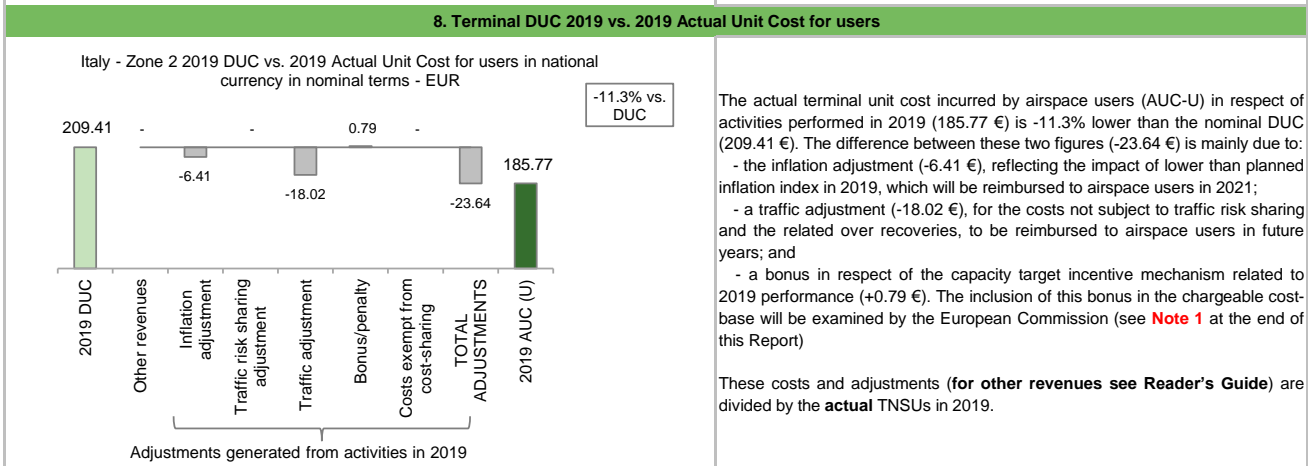
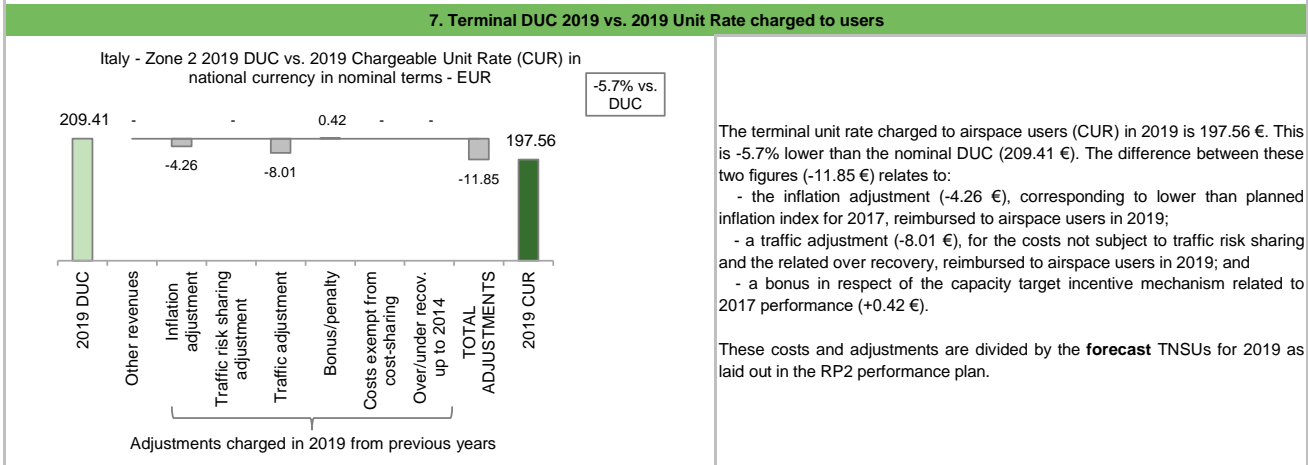
Monitoring of terminal COST-EFFICIENCY for 2019



#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.



## ITALY: Terminal ATSP (ENAV) Italy - Zone 2

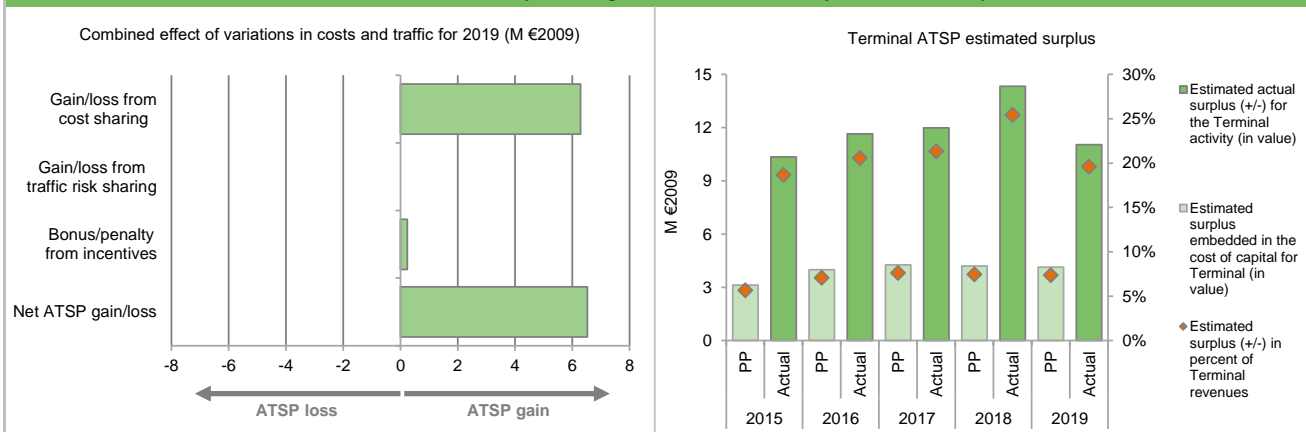
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity						
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019	
Determined costs for the ATSP (PP) - based on planned inflation	55 198	56 396	56 001	56 167	56 065	
Actual costs for the ATSP	48 197	49 070	49 350	47 354	49 778	
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	7 002	7 327	6 651	8 813	6 288	
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0	
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>7 002</b>	<b>7 327</b>	<b>6 651</b>	<b>8 813</b>	<b>6 288</b>	
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019	
	Not Applicable					
	Not Applicable					
Incentives ('000 €2009)	*see Note 1	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>		<b>178</b>	<b>239</b>	<b>118</b>	<b>119</b>	<b>240</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>		<b>7 180</b>	<b>7 566</b>	<b>6 769</b>	<b>8 931</b>	<b>6 527</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *						
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.						
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P	
Total asset base	104 216	103 082	105 578	104 018	102 380	
Estimated proportion of financing through equity (in %)	70.0%	70.0%	70.0%	70.0%	70.0%	
Estimated proportion of financing through equity (in value)	72 951	72 158	73 905	72 812	71 666	
Estimated proportion of financing through debt (in %)	30.0%	30.0%	30.0%	30.0%	30.0%	
Estimated proportion of financing through debt (in value)	31 265	30 925	31 673	31 205	30 714	
Cost of capital pre-tax (in value)	4 068	5 226	5 498	5 416	5 331	
Average interest on debt (in %)	3.0%	4.0%	3.9%	3.9%	3.9%	
Interest on debt (in value)	938	1 237	1 235	1 217	1 198	
Determined RoE pre-tax rate (in %)	4.3%	5.5%	5.8%	5.8%	5.8%	
Estimated surplus embedded in the cost of capital for terminal (in value)	3 130	3 989	4 262	4 199	4 133	
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>3 130</b>	<b>3 989</b>	<b>4 262</b>	<b>4 199</b>	<b>4 133</b>	
<b>Revenue/costs for the terminal activity</b>	<b>55 198</b>	<b>56 396</b>	<b>56 001</b>	<b>56 167</b>	<b>56 065</b>	
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>5.7%</b>	<b>7.1%</b>	<b>7.6%</b>	<b>7.5%</b>	<b>7.4%</b>	
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>4.3%</b>	<b>5.5%</b>	<b>5.8%</b>	<b>5.8%</b>	<b>5.8%</b>	
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
Total asset base	105 188	105 293	100 360	93 560	78 297	
Estimated proportion of financing through equity (in %)	70.0%	70.0%	90.0%	100.0%	100.0%	
Estimated proportion of financing through equity (in value)	73 631	73 705	90 324	93 560	78 297	
Estimated proportion of financing through debt (in %)	30.0%	30.0%	10.0%	0.0%	0.0%	
Estimated proportion of financing through debt (in value)	31 556	31 588	10 036	0	0	
Cost of capital pre-tax (in value)	4 105	5 338	5 461	5 396	4 516	
Average interest on debt (in %)	3.0%	4.0%	2.5%	0.0%	0.0%	
Interest on debt (in value)	947	1 264	252	0	0	
Determined RoE pre-tax rate (in %)	4.3%	5.5%	5.8%	5.8%	5.8%	
Estimated surplus embedded in the cost of capital for terminal (in value)	3 159	4 074	5 209	5 396	4 516	
Net ATSP gain(+)/loss(-) on terminal activity	7 180	7 566	6 769	8 931	6 527	
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>10 339</b>	<b>11 640</b>	<b>11 979</b>	<b>14 327</b>	<b>11 043</b>	
<b>Revenue/costs for the terminal activity</b>	<b>55 376</b>	<b>56 635</b>	<b>56 119</b>	<b>56 286</b>	<b>56 305</b>	
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>18.7%</b>	<b>20.6%</b>	<b>21.3%</b>	<b>25.5%</b>	<b>19.6%</b>	
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>14.0%</b>	<b>15.8%</b>	<b>13.3%</b>	<b>15.3%</b>	<b>14.1%</b>	

## ITALY: Terminal ATSP (ENAV) Italy - Zone 2

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 ENAV terminal costs in TCZ 2 vs. PP

In 2019, ENAV actual terminal costs in TCZ 2 are -11.2% (-6.3 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- lower staff costs (-6.6%, or -1.9 M€2009), resulting from measures adopted in "the headcount management through the reduction in new hiring and increase of the number of ceased staff, changes in the remuneration mix as a result of terminations and new hires, reduction of the operational overtime, reduction of business trips costs, reduction of costs for accrued and unused holidays, reduction of costs related to bonuses and professional progression."
- much lower other operating costs (-19.2%, or -2.0 M€2009), undersood to result from "cost containment actions have interested mainly operational telecommunications costs reflecting the decrease in costs connected with the E-NET1 network, thanks to the discount obtained from the supplier in the contract for the migration to the new E-NET2 network, and a reduction in costs for utilities as a result of the cancellation of debtor positions and the settlement of a dispute with a supplier; costs for goods and maintenance; costs for business trips and meal vouchers, costs for professional services and operational support costs."
- much lower depreciation costs (-13.5%, or -1.5 M€2009) driven by: i) "effects of the cost containment actions put in place in the first three years of the Reference Period (2015-2017)", and ii) "reduction on costs for the implementation activities of plants and equipment for air traffic control from the supplier companies".
- much lower cost of capital (-15.3%, or -0.8 M€2009) due to the combination of lower than planned actual asset base and higher than planned weighted average rate of cost of capital. It is noted that the weighted average rate of cost of capital is higher than planned due to a different gearing between equity and debt in 2019 as compared to the plan (increased proportion of financing through equity).

No description of the main drivers for the deviation between actual and determined costs is provided individually for each TCZ in the additional information to June 2020 terminal Reporting Tables. Only a consolidated description for the variation in costs for ENAV, aggregating both TCZs, is reported in the additional information to June 2020 terminal Reporting Tables. The drivers noted above are therefore not necessarily directly related to the activity of ENAV in this particular TCZ.

## ENAV 2019 net gain/loss on terminal activity in TCZ 2

As shown in box 9, ENAV generated a net gain of +6.5 M€2009 on the terminal activity in TCZ 2. This is a combination of two elements:

- a gain of +6.3 M€2009 as a result of the cost sharing mechanism; and,
- a gain of +0.2 M€2009 (or 271 '000€ in nominal terms), corresponding to a bonus for ENAV as part of the terminal capacity target incentive mechanism. The inclusion of this bonus in the chargeable cost base will be examined by the European Commission. See also **Note 1** at the end of this Report.

If the bonus noted above stemming from terminal capacity incentive scheme was to be excluded, ENAV would have generated a net gain of +6.3 M€2009 on terminal activity in TCZ 2 in 2019.

## ENAV overall estimated surplus for the terminal activity in TCZ 2

Ex-post, the overall estimated surplus taking into account the net gain from the terminal activity in TCZ 2 mentioned above (+6.5 M€2009) and the surplus embedded in the cost of capital (+4.5 M€2009) amounts to +11.0 M€2009 (approximately 19.6% of the 2019 terminal revenues in TCZ 2). The resulting ex-post rate of return on equity is 14.1%, which is much higher than the 5.8% planned in the PP for the TCZ 2.

It is also noted that the actual gearing between equity and debt financing reported by ENAV in 2019 differs from the ratio planned in the PP for the year 2019. As already indicated in the analysis on cost of capital above, due to this change, the actual weighted average cost of capital (5.8%) is higher than foreseen in the PP (5.2%).

For TCZ 2, when considering the whole of RP2 (2015-2019), ENAV generated cumulative gains in respect of cost sharing of +36.0 M€2009, as actual total costs for RP2 were consistently much lower than planned. Adding the gain of +0.9 M€2009 to be retained by ENAV in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+22.4 M€2009 over RP2) leads to an overall estimated surplus of +59.3 M€2009, which corresponds to an average ex-post return on equity of 14.5% (compared to 5.4% as initially planned in the NPP).

## ITALY: Gate-to-gate

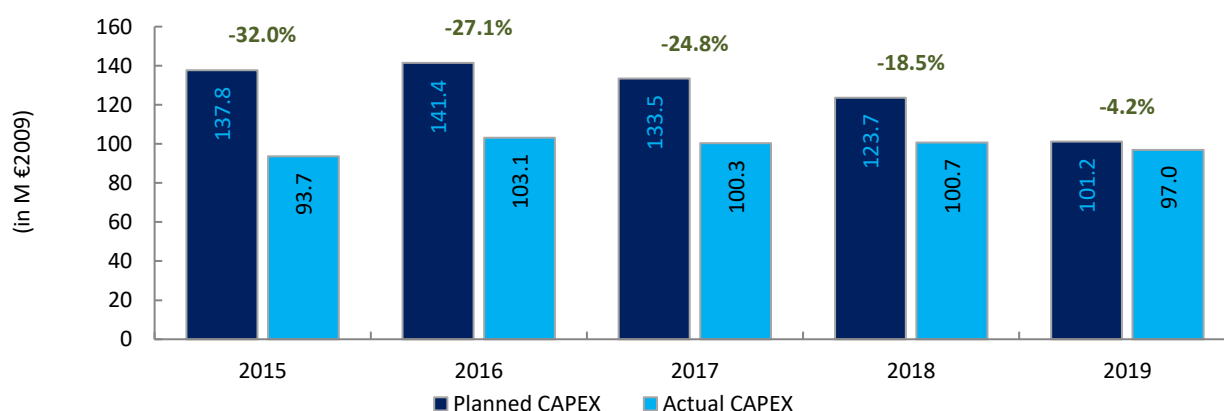
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Italy: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	609 005 804	619 176 790	627 477 336	617 241 895	604 216 765																																							
Real terminal costs (EUR2009)	94 027 463	95 693 256	94 979 945	95 352 833	95 283 514																																							
Real gate-to-gate costs (EUR2009)	703 033 268	714 870 046	722 457 281	712 594 727	699 500 279																																							
En-route share (%)	86.6%	86.6%	86.9%	86.6%	86.4%																																							
<b>Italy: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	587 471 424	581 543 938	567 098 230	553 859 684	570 568 959																																							
Real terminal costs (EUR2009)	81 670 839	82 081 069	82 802 716	78 035 073	81 772 079																																							
Real gate-to-gate costs (EUR2009)	669 142 263	663 625 007	649 900 946	631 894 757	652 341 038																																							
En-route share (%)	87.8%	87.6%	87.3%	87.7%	87.5%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)	in value	-33 891 005	-51 245 039	-72 556 335	-80 699 970	-47 159 241																																						
	in %	-4.8%	-7.2%	-10.0%	-11.3%	-6.7%																																						
En-route share	in p.p.	1.2 p.p.	1.0 p.p.	0.4 p.p.	0.0 p.p.	1.1%																																						
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are -6.7% (-47.2 M€2009) lower than planned due to lower than planned en-route costs (-5.6%, or -33.6 M€2009) and terminal costs (-14.2%, or -13.5 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (87.5%) is slightly higher than planned in the PP for 2019 (86.4%).</p> <p>For ENAV, the estimated gate-to-gate economic surplus in 2019 amounts to 102.9 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 17.0% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>86.6%</td> <td>13.4%</td> </tr> <tr> <td>Actual</td> <td>87.8%</td> <td>12.2%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>86.6%</td> <td>13.4%</td> </tr> <tr> <td>Actual</td> <td>87.6%</td> <td>12.4%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>86.9%</td> <td>13.1%</td> </tr> <tr> <td>Actual</td> <td>87.3%</td> <td>12.7%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>86.6%</td> <td>13.4%</td> </tr> <tr> <td>Actual</td> <td>87.7%</td> <td>12.3%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>86.4%</td> <td>13.6%</td> </tr> <tr> <td>Actual</td> <td>87.5%</td> <td>12.5%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	86.6%	13.4%	Actual	87.8%	12.2%	2016	Determined	86.6%	13.4%	Actual	87.6%	12.4%	2017	Determined	86.9%	13.1%	Actual	87.3%	12.7%	2018	Determined	86.6%	13.4%	Actual	87.7%	12.3%	2019	Determined	86.4%	13.6%	Actual	87.5%	12.5%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	86.6%	13.4%																																									
	Actual	87.8%	12.2%																																									
2016	Determined	86.6%	13.4%																																									
	Actual	87.6%	12.4%																																									
2017	Determined	86.9%	13.1%																																									
	Actual	87.3%	12.7%																																									
2018	Determined	86.6%	13.4%																																									
	Actual	87.7%	12.3%																																									
2019	Determined	86.4%	13.6%																																									
	Actual	87.5%	12.5%																																									
<b>3. Technical notes on en-route and terminal information reported by Italy</b>																																												
<b>Note 1: Reporting of incentives for local terminal capacity targets in Italy TCZ 1 and TCZ 2 in 2019</b>																																												
<p>Bonuses of 177 '000€ for TCZ 1 and 271 '000€ for TCZ 2 for achieving the respective local terminal ANS capacity targets are reported for ENAV in the BLUEMED FAB 2019 Monitoring Report and in the submission of June 2020 terminal Reporting Tables. These amounts correspond to 0.2% of ENAV terminal revenues for both TCZ 1 and TCZ 2 (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs).</p> <p>These terminal incentive amounts are based on the reported CRSTMP performance of 0.00 min/arrival, while the actual CRSTMP performance in 2019 as per NM data is 0.02 min/arrival. Based on the latter information no bonus/penalty should apply based on the description of the TANS capacity incentive scheme contained in the annex to the BLUEMED Performance Plan (provided in June 2015). See airport capacity section of this report for more details.</p> <p>The inclusion of these bonuses in the chargeable cost-bases will be examined by the European Commission.</p>																																												

## ITALY

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: ENAV						
FAB: BLUE MED FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	152.6	158.4	151.4	142.4	118.4	723.3
Main CAPEX (in nominal M)	41.6	75.4	75.7	60.2	40.3	293.2
Inflation %	1.0%	1.1%	1.3%	1.5%	1.6%	
Inflation index (100 in 2009)	110.8	112.0	113.5	115.2	117.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>137.8</b>	<b>141.4</b>	<b>133.5</b>	<b>123.7</b>	<b>101.2</b>	<b>637.5</b>
Main CAPEX (in M €2009)	37.6	67.3	66.7	52.2	34.5	258.3
% Main of Total CAPEX	27.3%	47.6%	50.0%	42.2%	34.1%	40.5%
Real gate-to-gate ANSP costs (in M €2009)	602.3	611.9	617.7	606.4	592.7	3 031.0
Total CAPEX as % of Real gate-to-gate ANSP costs	22.9%	23.1%	21.6%	20.4%	17.1%	21.0%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	102.8	113.1	111.4	113.2	109.7	550.2
Main CAPEX (in nominal M)	38.9	53.7	50.0	50.1	43.4	236.1
Inflation %	0.1%	-0.1%	1.3%	1.2%	0.6%	
Inflation index (100 in 2009)	109.8	109.7	111.1	112.4	113.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>93.7</b>	<b>103.1</b>	<b>100.3</b>	<b>100.7</b>	<b>97.0</b>	<b>494.8</b>
Main CAPEX (in M €2009)	35.5	48.9	45.0	44.6	38.4	212.4
% Main of Total CAPEX	37.9%	47.5%	44.8%	44.3%	39.6%	42.9%
Real gate-to-gate ANSP costs (in M €2009)	569.0	564.3	556.2	540.7	565.6	2 795.7
Total CAPEX as % of Real gate-to-gate ANSP costs	16.5%	18.3%	18.0%	18.6%	17.1%	17.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-49.8	-45.3	-40.0	-29.2	-8.7	-173.1
Total CAPEX (in M €2009)	-44.1	-38.3	-33.2	-22.9	-4.2	-142.7
<b>Total CAPEX (in %, M €2009)</b>	<b>-32.0%</b>	<b>-27.1%</b>	<b>-24.8%</b>	<b>-18.5%</b>	<b>-4.2%</b>	<b>-22.4%</b>



Note: Italy updated the actual capex figures for the year 2015, with an increase of +19.7 M€ in actual total capex with respect to what was initially reported in the NSA Monitoring reports of previous years.

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# Annual Monitoring Report 2019

Local level view

Malta

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## MALTA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	59	C	C	C	B	C
MATS	86	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	N/A	N/A				
Runway Incursions (RIs)	N/A	N/A				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	Transport Malta					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	9	0				
Legal/Judiciary	7	0				
Occurrence reporting and Investigation	1	1				
<b>TOTAL</b>	<b>17</b>	<b>1</b>				
MATS	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	3	0				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>24</b>	<b>0</b>				
Observations						
The State did not reach the RP2 target in 2019 by only one question in the EoS Component/area of Safety Promotion, out of 36 questions.						
All other safety targets have been met.						

## MALTA

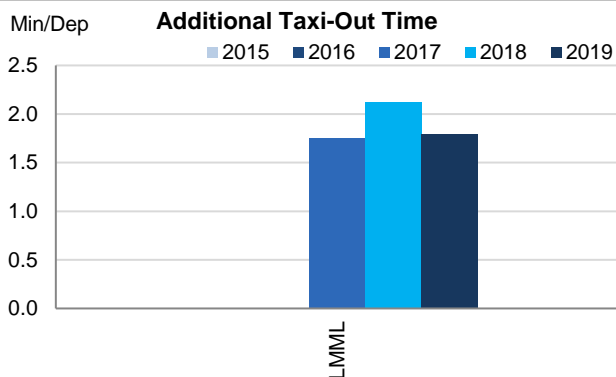
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

In Malta (LMML), where traffic has drastically increased since the beginning of RP2 (+38% with respect to 2015) environmental indicators have improved in 2019, although additional taxi-out times show an overall deterioration in the reference period 2.

The performance does not seem affected by the seasonality of the airport.

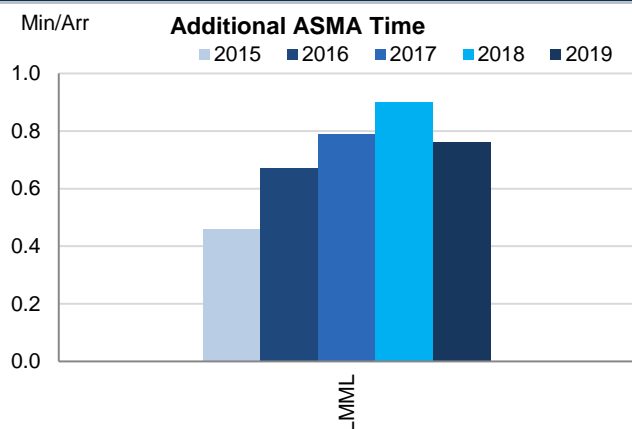
## 2. Additional Taxi-Out Time



The average additional taxi-out time in Malta have significantly decreased in 2019 (-16%) and performance remains commensurate with the level of traffic.

Taxi out times are quite stable along the year, with April showing the lowest additional TXOT.

## 3. Additional ASMA Time



After 3 years of steady increase, additional times in the sequence and metering area (ASMA) at Malta decreased in 2019 for the first time in RP2. The performance from month to month varies significantly, going from zero (June) to 1.62 min/arr. (November)

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Malta	LMML	n/a	n/a	1.75	2.12	1.79	0.46	0.67	0.79	0.90	0.76

**MALTA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.01	0.02	0.02	0.02	0.02	
Deadband +/-	N/A	N/A	N/A	N/A	N/A	
Actual performance	0.00	0.00	0.00	0.00	0.00	

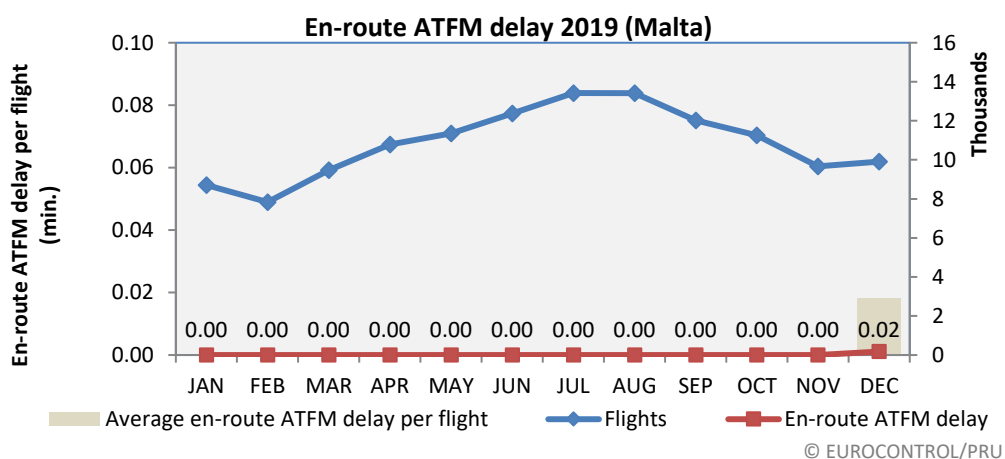
**National capacity incentive scheme**

Malta did not present an en route capacity incentive scheme in the BLUEMED performance plan.

**Compliance issues relating to national capacity incentive scheme**

N/A

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
High	120		130		140		149		159		171	
Base	118	102	126	102	133	110	139	116	145	125	152	130
Low	116		122		125		129		132		136	

En route capacity performance in Malta in 2019 resulted in negligible ATFM delay for airspace users, continuing the excellent performance for previous years. It is noted that the traffic evolution for Malta has been lower than initially forecast by STATFOR when the FAB performance plans and associated capacity plans were being determined.

Delay forecast - MATS						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.01	0.01	0.01	0.01	N/A	N/A
NOP 2019 - 2024	0.01	0.01	0.01			

**Planning and Effective Use of CDRs**

Malta has previously that there are no CDR's in Maltese airspace.

**Observations on Planning and Effective Use of CDRs**

Observations on Planning and Effective Use of CDRs The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

**Effective booking procedures**

Malta does not have defence aircraft. Furthermore the territory of Malta is small and no airspace dedicated to the military exists. FUA principles apply over the high seas with foreign military forces either through direct coordination or through established agreements. The Commission confirmed on 27.09.2013 that Article 4 (1) of Regulation EC No 2150/2005 is not applicable to states that do not have defence aircraft.

**Observations on Effective booking procedures**

Historically, Malta has stated that military operations and training does not impact either ATC capacity or available route options for GAT traffic.

## MALTA

## Monitoring of Airports Contribution to CAPACITY for 2019

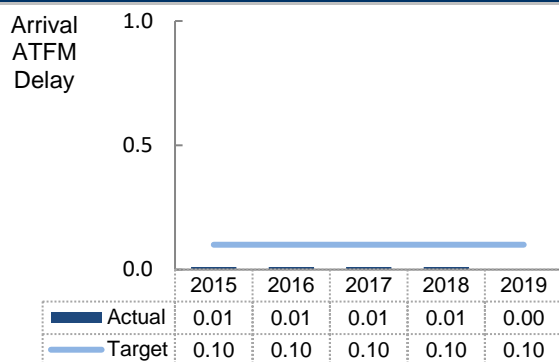
## 1. Overview

Malta (LMML) is the only airport subject to RP2 monitoring. Traffic levels at Malta airport have drastically increased during RP2 (+38% with respect to 2015). Despite this fact, arrival ATFM delays have remained close to zero, meeting the national target and even reducing to zero in 2019.

At the same time, LMML ranges in the group of best-in-class with an ATFM slot adherence of 95%. Pre-departure delay has slightly decreased in 2019 reaching 0.24 min/dep.

Malta contributes adequately to the BLUE MED FAB and European performance.

## 2. Arrival ATFM Delay



Once again, Malta shows a constant performance in terms of arrival ATFM delay during RP2 with a slight improvement in 2019, when no delays at all have been observed.

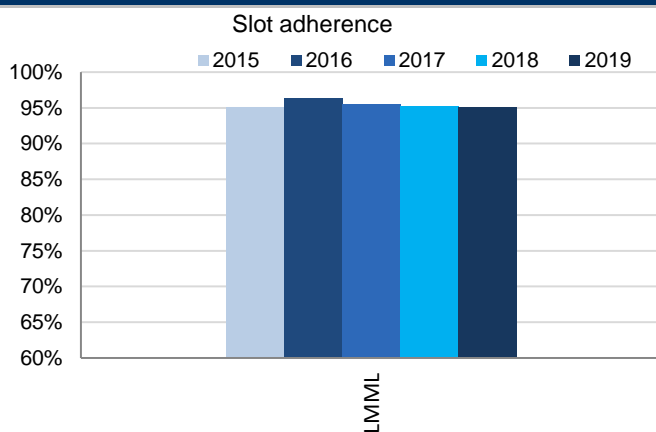
The actual performance ranges well below the established national target (i.e. 0.10 min/arr., constant across RP2).

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Within BLUE MED FAB, Malta has established a constant national target on arrival ATFM delay that has been fully met each year in RP2.

This target is in line with the historical performance observed before the start of RP2 and allows for operational variability. Malta has not established an incentive scheme for the national target on arrival ATFM delay.

## 4. ATFM Slot Adherence



Although there is a slight decrease of ATFM slot adherence, Malta remains within best-in-class, with 95% compliance.

## 5. ATC Pre-departure Delay

ATC pre-departure delay at Malta airport in 2018 has slightly decreased in 2019 and accounts for 0.24 min/dep.

## 6. Appendix

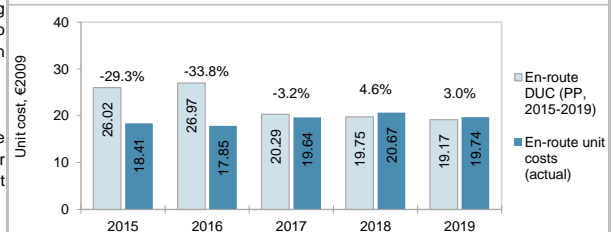
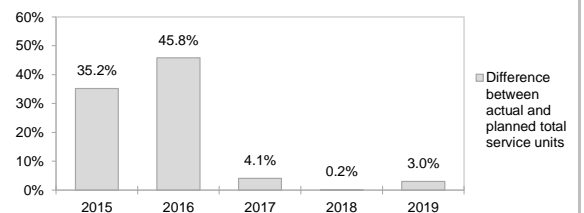
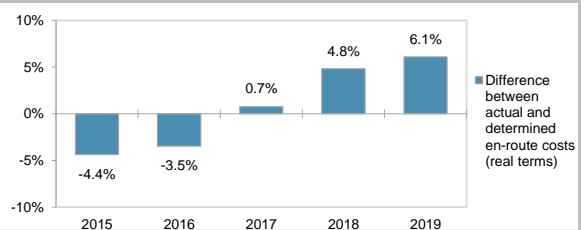
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Malta	LMML	0.01	0.01	0.01	0.01	0.00	95.1%	96.3%	95.5%	95.2%	95.0%	0.08	0.16	0.17	0.28	0.24

## MALTA: En-route charging zone

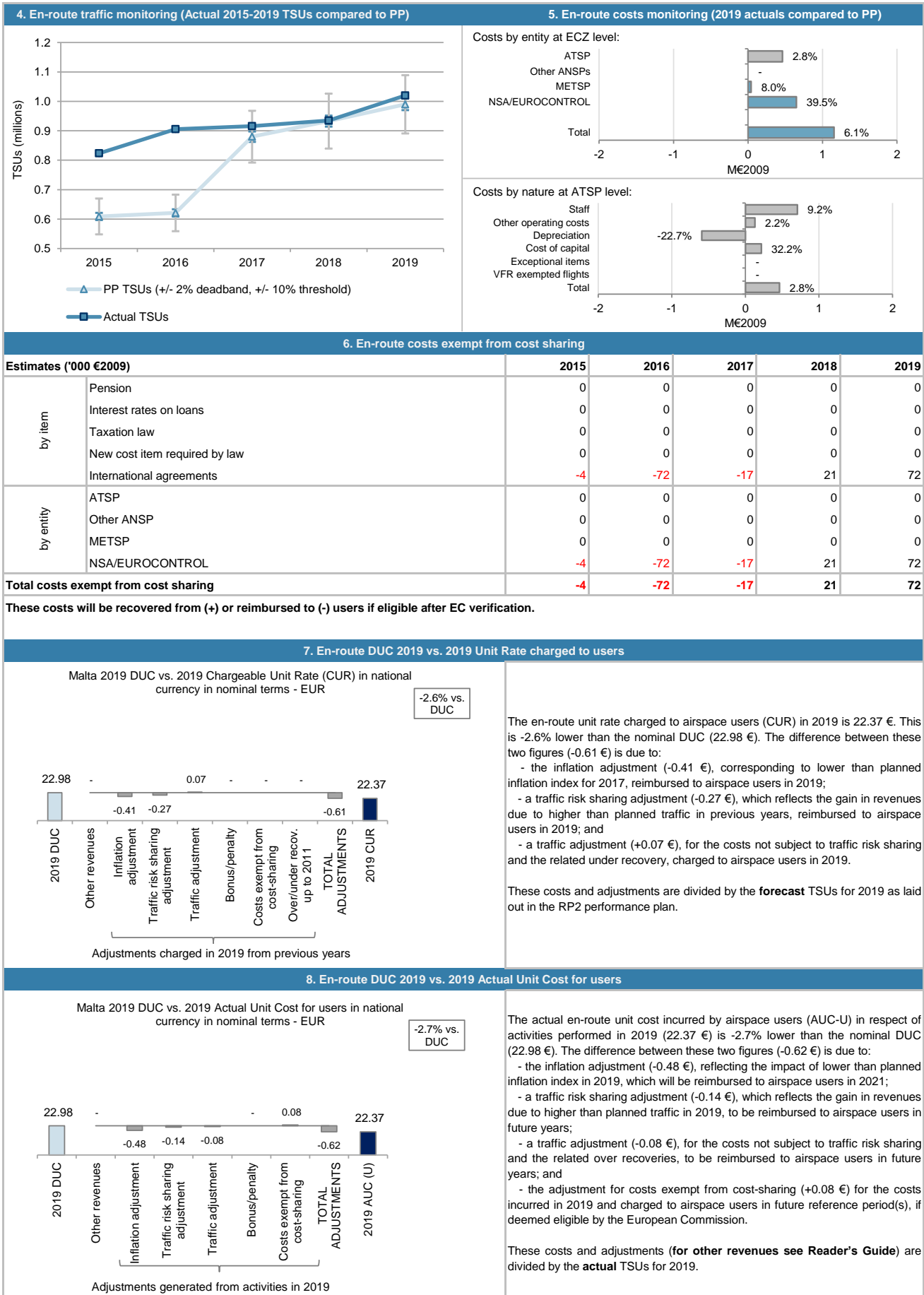
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
<ul style="list-style-type: none"> <li>Malta ECZ represents 0.3% of the SES en-route ANS determined costs in 2019</li> <li>ATSP: MATS</li> <li>FAB: BLUE MED FAB</li> <li>National currency: EUR</li> </ul>						
2. En-route DUC monitoring at Charging Zone level						
Malta: Data from RP2 Performance Plan (EC Decision 2017/2376 of 15 December 2017)		2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)		17 736 060	19 082 057	20 694 940	21 720 523	22 752 314
Inflation %		1.7%	1.8%	1.7%	1.7%	1.7%
Inflation index (100 in 2009)		111.9	114.0	115.9	117.9	119.9
Real en-route costs (EUR2009)		15 844 908	16 745 957	17 857 802	18 429 483	18 982 242
Total en-route Service Units		609 000	621 000	880 000	933 000	990 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>26.02</b>	<b>26.97</b>	<b>20.29</b>	<b>19.75</b>	<b>19.17</b>
Malta: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)		16 845 837	18 130 096	20 442 642	22 321 466	23 618 433
Inflation %		1.2%	0.9%	1.3%	1.7%	1.5%
Inflation index (100 in 2009)		111.2	112.2	113.6	115.6	117.3
Real en-route costs (EUR2009)		15 153 971	16 163 775	17 991 619	19 316 792	20 137 119
Total en-route Service Units		823 344	905 497	915 945	934 710	1 019 977
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>18.41</b>	<b>17.85</b>	<b>19.64</b>	<b>20.67</b>	<b>19.74</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
En-route costs (nominal EUR)	in value	-890 223	-951 961	-252 298	600 943	866 119
	in %	-5.0%	-5.0%	-1.2%	2.8%	3.8%
Inflation %	in p.p.	-0.5 p.p.	-0.9 p.p.	-0.4 p.p.	0.0 p.p.	-0.2 p.p.
	in p.p.	-0.8 p.p.	-1.8 p.p.	-2.3 p.p.	-2.3 p.p.	-2.6 p.p.
Real en-route costs (EUR2009)	in value	-690 937	-582 183	133 817	887 308	1 154 877
	in %	-4.4%	-3.5%	0.7%	4.8%	6.1%
Total en-route Service Units	in value	214 344	284 497	35 945	1 710	29 977
	in %	35.2%	45.8%	4.1%	0.2%	3.0%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-7.61</b>	<b>-9.12</b>	<b>-0.65</b>	<b>0.91</b>	<b>0.57</b>
	<b>in %</b>	<b>-29.3%</b>	<b>-33.8%</b>	<b>-3.2%</b>	<b>4.6%</b>	<b>3.0%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (19.74 €2009) is +3.0% higher than planned in the PP (19.17 €2009). This results from the combination of higher than planned TSUs (+3.0%) and higher than planned en-route costs in real terms (+6.1%, or +1.2 M€2009). See also <b>Note 1</b> at the end of this Report.						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+3.0%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (MATS) retaining an amount of +0.4 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are +3.8% (+0.9 M€) higher than planned. However, since the actual inflation index is lower than planned (-2.6 p.p.), actual en-route costs are +6.1% (+1.2 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by MATS (+2.8%, or +0.5 M€2009), the MET service provider (+8.0%, or +0.04 M€2009) and the NSA/EUROCONTROL (+39.5%, or +0.7 M€2009). A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +0.07 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Malta charging zone, actual en-route TSUs are +14.0% higher than planned, while actual costs in real terms are also +1.0% higher than the determined costs (some +0.9 M€2009). As a result, the weighted average actual unit cost over RP2 (19.30 €2009) is -11.4% lower than planned in the NPP (21.79 €2009).						



**MALTA: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## MALTA: En-route ATSP (MATS)

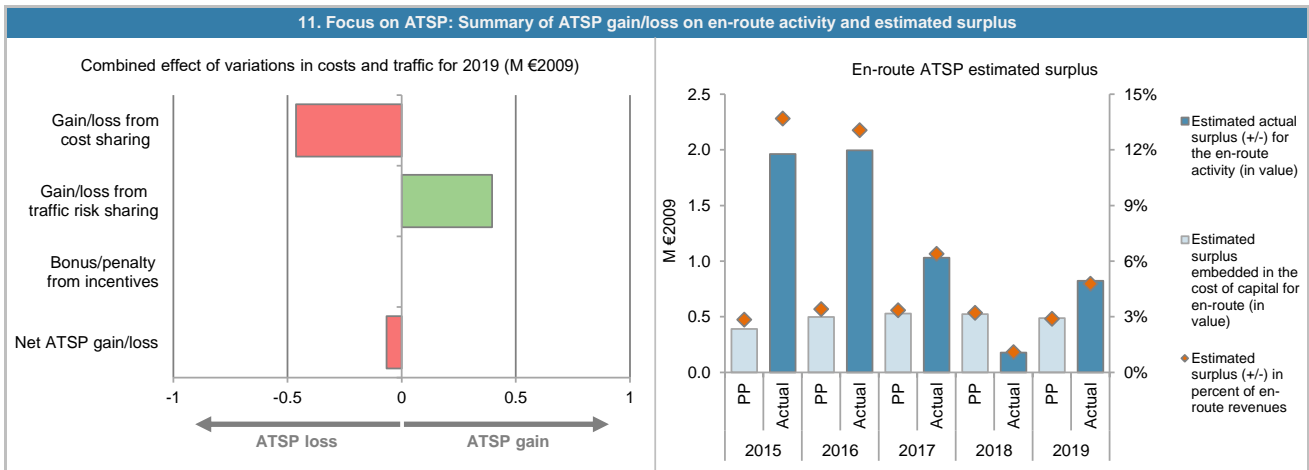
## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	13 734	14 616	15 712	16 272	16 809
Actual costs for the ATSP	13 120	14 061	15 887	16 969	17 272
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	614	555	-174	-698	-463
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>614</b>	<b>555</b>	<b>-174</b>	<b>-698</b>	<b>-463</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	35.2%	45.8%	4.1%	0.2%	3.0%
Determined costs for the ATSP (PP) - based on actual inflation	13 830	14 849	16 026	16 596	17 178
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>609</b>	<b>653</b>	<b>421</b>	<b>30</b>	<b>397</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>1 223</b>	<b>1 209</b>	<b>246</b>	<b>-667</b>	<b>-66</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	9 037	10 721	11 457	11 410	10 563
Estimated proportion of financing through equity (in %)	62.6%	62.3%	57.8%	55.1%	56.2%
Estimated proportion of financing through equity (in value)	5 656	6 677	6 618	6 290	5 931
Estimated proportion of financing through debt (in %)	37.4%	37.7%	42.2%	44.9%	43.8%
Estimated proportion of financing through debt (in value)	3 380	4 044	4 838	5 121	4 632
Cost of capital pre-tax (in value)	526	661	722	728	673
Average interest on debt (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Interest on debt (in value)	135	162	194	205	185
Determined RoE pre-tax rate (in %)	6.9%	7.5%	8.0%	8.3%	8.2%
Estimated surplus embedded in the cost of capital for en-route (in value)	391	499	529	523	488
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>391</b>	<b>499</b>	<b>529</b>	<b>523</b>	<b>488</b>
<b>Revenue/costs for the en-route activity</b>	<b>13 734</b>	<b>14 616</b>	<b>15 712</b>	<b>16 272</b>	<b>16 809</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>2.8%</b>	<b>3.4%</b>	<b>3.4%</b>	<b>3.2%</b>	<b>2.9%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.9%</b>	<b>7.5%</b>	<b>8.0%</b>	<b>8.3%</b>	<b>8.2%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	10 716	10 526	9 830	10 164	10 821
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	10 716	10 526	9 830	10 164	10 821
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	740	786	785	846	889
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.9%	7.5%	8.0%	8.3%	8.2%
Estimated surplus embedded in the cost of capital for en-route (in value)	740	786	785	846	889
Net ATSP gain(+)/loss(-) on en-route activity	1 223	1 209	246	-667	-66
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 963</b>	<b>1 995</b>	<b>1 032</b>	<b>178</b>	<b>823</b>
<b>Revenue/costs for the en-route activity</b>	<b>14 343</b>	<b>15 270</b>	<b>16 133</b>	<b>16 302</b>	<b>17 206</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>13.7%</b>	<b>13.1%</b>	<b>6.4%</b>	<b>1.1%</b>	<b>4.8%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>18.3%</b>	<b>19.0%</b>	<b>10.5%</b>	<b>1.8%</b>	<b>7.6%</b>



**MALTA: En-route ATSP (MATS)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 MATS en-route costs vs. PP**

In 2019, MATS actual en-route costs are +2.8% (+0.5 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- higher staff costs (+9.2%, or +0.7 M€2009), which are understood to result from the fact that "MATS employed a number of specialists at the Operational, Technical and Training Sections".
- slightly higher other operating costs (+2.2%, or +0.1 M€2009);
- much lower depreciation costs (-22.7%, or -0.6 M€2009), explained by "delays in the implementation of the planned CAPEX programme"; and,
- much higher cost of capital (+32.2%, or +0.2 M€2009), resulting from the fact that, differently from what was planned in the PP, MATS's actual capital structure relies entirely on equity financing and thus is calculated using a higher weighted average cost of capital compared to the plan, which included some financing through debt at a lower rate (interest rate on debt of 4.0%) compared to the rate of return on equity (i.e. 8.3%).

**MATS net gain/loss on en-route activity in 2019**

As shown in box 9, MATS generated a net loss of -0.07 M€2009 on the en-route activity. This is a combination of two elements:

- a loss of -0.5 M€2009 arising from the cost sharing mechanism; and
- a gain of +0.4 M€2009 arising from the traffic risk sharing mechanism.

**MATS overall estimated surplus for the en-route activity**

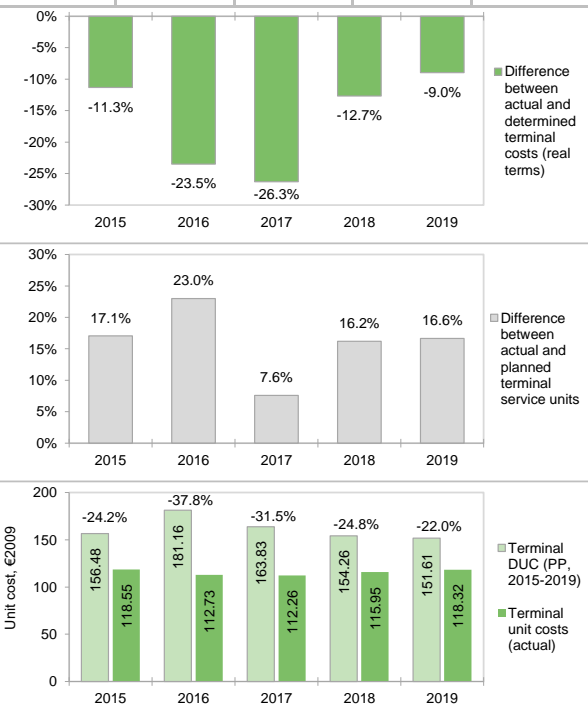
Ex-post, the overall estimated surplus taking into account the net loss from the en-route activity mentioned above (-0.07 M€2009) and the surplus embedded in the actual cost of capital (+0.9 M€2009) amounts to +0.8 M€2009 (4.8% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 7.6%, which is slightly lower than the 8.2% planned in the PP.

When considering the whole of RP2 (2015-2019), MATS generated cumulative losses in respect of cost sharing of -0.2 M€2009, as actual total costs for RP2 were slightly higher than planned. The traffic risk sharing generated a gain of +2.1 M€2009, which reflects the fact that actual traffic was in general terms +14.0% higher than planned during RP2. Adding the the estimated surplus embedded in the en-route cost of capital (+4.0 M€2009 over RP2) leads to an overall estimated surplus of +6.0 M€2009, which corresponds to an average ex-post return on equity of 11.5% (compared to 7.8% as initially planned in the NPP).

## MALTA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
· Malta TCZ represents 0.4% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP:	MATS	· Airports with fewer than 70,000 IFRs ATMs:		1	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019:	1,	of which:		· Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Malta: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	3 800 840	4 520 832	5 505 759	5 490 582	5 760 674
Inflation %	1.7%	1.8%	1.7%	1.7%	1.7%
Inflation index (100 in 2009)	111.9	114.0	115.9	117.9	119.9
Real terminal costs (EUR2009)	3 395 566	3 967 374	4 750 956	4 658 663	4 806 127
Total terminal Service Units	21 700	21 900	29 000	30 200	31 700
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>156.48</b>	<b>181.16</b>	<b>163.83</b>	<b>154.26</b>	<b>151.61</b>
Malta: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	3 347 230	3 405 338	3 979 668	4 701 684	5 130 898
Inflation %	1.2%	0.9%	1.3%	1.7%	1.5%
Inflation index (100 in 2009)	111.2	112.2	113.6	115.6	117.3
Real terminal costs (EUR2009)	3 011 060	3 036 008	3 502 516	4 068 794	4 374 613
Total terminal Service Units	25 400	26 933	31 200	35 092	36 972
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>118.55</b>	<b>112.73</b>	<b>112.26</b>	<b>115.95</b>	<b>118.32</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value -453 610	in value -1 115 494	in value -1 526 091	in value -788 898	in value -629 776
	in % -11.9%	in % -24.7%	in % -27.7%	in % -14.4%	in % -10.9%
Inflation %	in p.p. -0.5 p.p.	in p.p. -0.9 p.p.	in p.p. -0.4 p.p.	in p.p. 0.0 p.p.	in p.p. -0.2 p.p.
Inflation index (100 in 2009)	in p.p. -0.8 p.p.	in p.p. -1.8 p.p.	in p.p. -2.3 p.p.	in p.p. -2.3 p.p.	in p.p. -2.6 p.p.
Real terminal costs (EUR2009)	in value -384 506	in value -931 366	in value -1 248 440	in value -589 868	in value -431 514
	in % -11.3%	in % -23.5%	in % -26.3%	in % -12.7%	in % -9.0%
Total terminal Service Units	in value 3 700	in value 5 033	in value 2 200	in value 4 892	in value 5 272
	in % 17.1%	in % 23.0%	in % 7.6%	in % 16.2%	in % 16.6%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -37.93</b>	<b>in value -68.43</b>	<b>in value -51.57</b>	<b>in value -38.31</b>	<b>in value -33.29</b>
	<b>in % -24.2%</b>	<b>in % -37.8%</b>	<b>in % -31.5%</b>	<b>in % -24.8%</b>	<b>in % -22.0%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Malta Terminal Charging Zone (TCZ) comprising only Malta international airport (LMML). See also <b>Note 1</b> at the end of this Report.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (118.32 €2009) is -22.0% lower than planned in the PP (151.61 €2009). This results from the combination of much higher than planned TNSUs (+16.6%) and lower than planned terminal costs in real terms (-9.0%, or -0.4 ME2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Malta TCZ. The difference between actual and planned TNSUs (+16.6%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (MATS) retaining an amount of +0.2 ME2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -10.9% (-0.63 ME) lower than planned. However, since the actual inflation index is also lower than planned (-2.6 p.p.), actual terminal costs are -9.0% (-0.4 ME2009) below plans when expressed in real terms.					
The lower than planned terminal costs in real terms are driven by MATS (-14.4%, or -0.6 ME2009), while the costs for the other service provider Malta international airport - MIA (+22.8%, or +0.1 ME2009), the MET service provider (+8.2%, or +0.01 ME2009) and the NSA (+58.0%, or +0.1 ME2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Malta TCZ, actual TNSUs are +15.7% higher than planned, while actual costs in real terms are -16.6% lower than the determined costs (some -3.6 ME2009). As a result, the weighted average actual unit cost over RP2 (115.64 €2009) is -27.9% lower than planned in the NPP (160.44 €2009).					



**MALTA: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

Legend: PP TNSUs (+/- 2% deadband, +/- 10% threshold) (green triangles), Actual TNSUs (green squares)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	-14.4%
Other ANSPs	22.8%
METSP	8.2%
NSA	58.0%
Total	-9.0%

Costs by nature at ATSP level:

Staff	1.3%
Other operating costs	5.4%
Depreciation	-57.6%
Cost of capital	81.2%
Exceptional items	-
VFR exempted flights	-
Total	-14.4%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Malta 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

Adjustments charged in 2019 from previous years

The terminal unit rate charged to airspace users (CUR) in 2019 is 172.41 €. This is -5.1% lower than the nominal DUC (181.72 €). The difference between these two figures (-9.31 €) relates to:

- the inflation adjustment (-3.39 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (-6.40 €), which reflects the gain in revenues due to higher than planned traffic in previous years, reimbursed to airspace users in 2019; and
- a traffic adjustment (+0.48 €), for the costs not subject to traffic risk sharing and the related under recovery, charged to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Malta 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

Adjustments generated from activities in 2019

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (158.93 €) is -12.5% lower than the nominal DUC (181.72 €). The difference between these two figures (-22.80 €) is mainly due to:

- the inflation adjustment (-3.34 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic risk sharing adjustment (-17.96 €), which reflects the gain in revenues due to higher than planned traffic in 2019, to be reimbursed to airspace users in future years; and
- a traffic adjustment (-1.49 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## MALTA: Terminal ATSP (MATS)

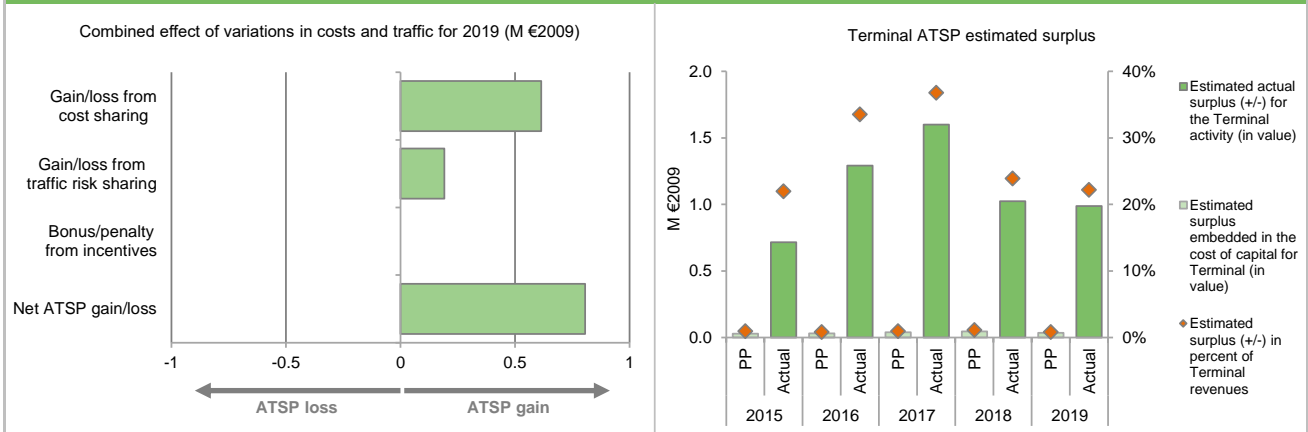
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	3 118	3 690	4 193	4 102	4 261
Actual costs for the ATSP	2 750	2 739	2 946	3 436	3 646
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	368	951	1 247	666	614
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>368</b>	<b>951</b>	<b>1 247</b>	<b>666</b>	<b>614</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	17.1%	23.0%	7.6%	16.2%	16.6%
Determined costs for the ATSP (PP) - based on actual inflation	3 139	3 749	4 277	4 184	4 354
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>138</b>	<b>165</b>	<b>157</b>	<b>184</b>	<b>192</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>506</b>	<b>1 116</b>	<b>1 404</b>	<b>850</b>	<b>806</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	1 655	2 111	2 196	2 115	2 061
Estimated proportion of financing through equity (in %)	25.7%	19.5%	22.9%	26.5%	20.8%
Estimated proportion of financing through equity (in value)	426	411	504	560	428
Estimated proportion of financing through debt (in %)	74.3%	80.5%	77.1%	73.5%	79.2%
Estimated proportion of financing through debt (in value)	1 230	1 701	1 692	1 555	1 633
Cost of capital pre-tax (in value)	79	99	108	109	101
Average interest on debt (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Interest on debt (in value)	49	68	68	62	65
Determined RoE pre-tax rate (in %)	6.9%	7.5%	8.0%	8.3%	8.2%
Estimated surplus embedded in the cost of capital for terminal (in value)	29	31	40	47	35
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>29</b>	<b>31</b>	<b>40</b>	<b>47</b>	<b>35</b>
<b>Revenue/costs for the terminal activity</b>	<b>3 118</b>	<b>3 690</b>	<b>4 193</b>	<b>4 102</b>	<b>4 261</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>0.9%</b>	<b>0.8%</b>	<b>1.0%</b>	<b>1.1%</b>	<b>0.8%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.9%</b>	<b>7.5%</b>	<b>8.0%</b>	<b>8.3%</b>	<b>8.2%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	3 023	2 360	2 457	2 099	2 216
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	3 023	2 360	2 457	2 099	2 216
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	209	176	196	175	182
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.9%	7.5%	8.0%	8.3%	8.2%
Estimated surplus embedded in the cost of capital for terminal (in value)	209	176	196	175	182
Net ATSP gain(+)/loss(-) on terminal activity	506	1 116	1 404	850	806
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>715</b>	<b>1 292</b>	<b>1 601</b>	<b>1 025</b>	<b>988</b>
<b>Revenue/costs for the terminal activity</b>	<b>3 256</b>	<b>3 855</b>	<b>4 350</b>	<b>4 286</b>	<b>4 452</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>22.0%</b>	<b>33.5%</b>	<b>36.8%</b>	<b>23.9%</b>	<b>22.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>23.7%</b>	<b>54.8%</b>	<b>65.1%</b>	<b>48.8%</b>	<b>44.6%</b>

**MALTA: Terminal ATSP (MATS)**

**Monitoring of terminal COST-EFFICIENCY for 2019**

**11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 MATS terminal costs vs. PP**

In 2019, MATS actual terminal costs are -14.4% (-0.6 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- slightly higher staff costs (+1.3%, or +0.03 M€2009) in real terms. It is noted that staff costs are below planned in nominal terms (-0.8%, or -0.02 M€), however, appear higher when expressed in real terms due to lower than planned inflation index (-2.6 p.p).
- higher other operating costs (+5.4%, or +0.05 M€2009);
- much lower depreciation costs (-57.6%, or -0.8 M€2009), resulting from the fact that "some capex was delayed due to factors beyond the control of MATS".
- much higher cost of capital (+81.2%, or +0.1 M€2009), resulting from the fact that, differently from what was planned in the PP, MATS's actual capital structure relies entirely on equity financing and thus is calculated using a higher weighted average cost of capital compared to the plan, which included some financing through debt at a lower rate (interest rate on debt of 4.0%) compared to the rate of return on equity (i.e. 8.2%).

**MATS net gain/loss on terminal activity in 2019**

As shown in box 9, MATS generated a net gain of +0.8 M€2009 on the terminal activity. This is a combination of two elements:

- a gain of +0.6 M€2009 arising from the cost sharing mechanism; and
- a gain of +0.2 M€2009 arising from the traffic risk sharing mechanism.

**MATS overall estimated surplus for the terminal activity**

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+0.8 M€2009) and the surplus embedded in the actual cost of capital (+0.2 M€2009) amounts to +1.0 M€2009 (22.2% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 44.6%, which is much higher than the 8.2% planned in the PP.

When considering the whole of RP2 (2015-2019), MATS generated cumulative gains in respect of cost sharing of +3.8 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +0.8 M€2009, which reflects the fact that actual traffic was in general terms +15.7% higher than planned during RP2. Adding the estimated surplus embedded in the terminal cost of capital (+0.9 M€2009 over RP2) leads to an overall estimated surplus of +5.6 M€2009, which corresponds to an average ex-post return on equity of 46.2% (compared to 7.8% as initially planned in the NPP).

## MALTA: Gate-to-gate

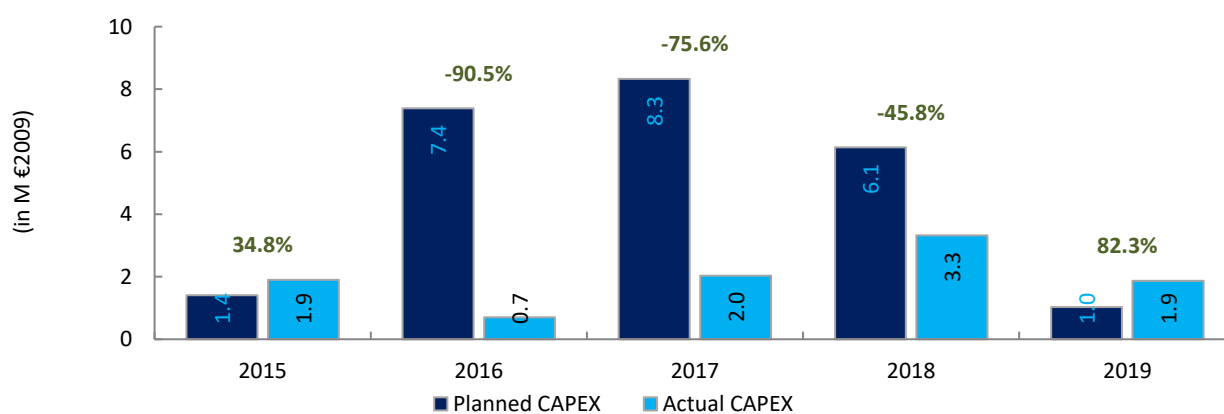
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Malta: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	15 844 908	16 745 957	17 857 802	18 429 483	18 982 242																																							
Real terminal costs (EUR2009)	3 395 566	3 967 374	4 750 956	4 658 663	4 806 127																																							
Real gate-to-gate costs (EUR2009)	19 240 474	20 713 331	22 608 758	23 088 146	23 788 369																																							
En-route share (%)	82.4%	80.8%	79.0%	79.8%	79.8%																																							
<b>Malta: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	15 153 971	16 163 775	17 991 619	19 316 792	20 137 119																																							
Real terminal costs (EUR2009)	3 011 060	3 036 008	3 502 516	4 068 794	4 374 613																																							
Real gate-to-gate costs (EUR2009)	18 165 031	19 199 783	21 494 135	23 385 586	24 511 731																																							
En-route share (%)	83.4%	84.2%	83.7%	82.6%	82.2%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	-1 075 443	-1 513 549	-1 114 623	297 440	723 363																																							
in %	-5.6%	-7.3%	-4.9%	1.3%	3.0%																																							
En-route share in p.p.	1.1 p.p.	3.3 p.p.	4.7 p.p.	2.8 p.p.	2.4 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +3.0% (+0.7 M€2009) higher than planned due to higher than planned en-route costs (+6.1%, or +1.2 M€2009) while terminal costs are lower than planned (-9.0%, or -0.4 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (82.2%) is higher than planned in the PP for 2019 (79.8%).</p> <p>For MATS, the estimated gate-to-gate economic surplus in 2019 amounts to 1.8 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 8.4% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>82.4%</td> <td>17.6%</td> </tr> <tr> <td>Actual</td> <td>83.4%</td> <td>16.6%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>80.8%</td> <td>19.2%</td> </tr> <tr> <td>Actual</td> <td>84.2%</td> <td>15.8%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>79.0%</td> <td>21.0%</td> </tr> <tr> <td>Actual</td> <td>83.7%</td> <td>16.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>79.8%</td> <td>20.2%</td> </tr> <tr> <td>Actual</td> <td>82.6%</td> <td>17.4%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>79.8%</td> <td>20.2%</td> </tr> <tr> <td>Actual</td> <td>82.2%</td> <td>17.8%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	82.4%	17.6%	Actual	83.4%	16.6%	2016	Determined	80.8%	19.2%	Actual	84.2%	15.8%	2017	Determined	79.0%	21.0%	Actual	83.7%	16.3%	2018	Determined	79.8%	20.2%	Actual	82.6%	17.4%	2019	Determined	79.8%	20.2%	Actual	82.2%	17.8%
Year	Type	En-route (%)	Terminal (%)																																									
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	Actual	82.2%	17.8%																																									
<b>3. Technical notes on en-route and terminal information reported by Malta</b>																																												
<b>Note 1: Revision of RP2 cost-efficiency targets for the years 2017 to 2019</b>																																												
<p>Malta has revised their RP2 en-route cost-efficiency targets for the years 2017 to 2019. The figures shown in this report reflect: i) the initial adopted Performance Plan (EC Decision 2015/348 of 2 March 2015) for the years 2015 and 2016; and ii) the revised Performance Plan (EC Decision 2017/2376 of 15 December 2017) for the years 2017 to 2019.</p> <p>A similar revision was also done for the terminal determined unit costs in Malta terminal charging zone for the period 2017 to 2019.</p>																																												

## MALTA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: MATS						
FAB: BLUE MED FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	1.6	8.4	9.7	7.2	1.2	28.1
Main CAPEX (in nominal M)	1.6	8.4	9.7	7.2	1.2	28.1
Inflation %	1.7%	1.8%	1.7%	1.7%	1.7%	
Inflation index (100 in 2009)	111.9	114.0	115.9	117.9	119.9	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>1.4</b>	<b>7.4</b>	<b>8.3</b>	<b>6.1</b>	<b>1.0</b>	<b>24.3</b>
Main CAPEX (in M €2009)	1.4	7.4	8.3	6.1	1.0	24.3
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	16.9	18.3	19.9	20.4	21.1	96.5
Total CAPEX as % of Real gate-to-gate ANSP costs	8.4%	40.3%	41.8%	30.2%	4.9%	25.2%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	2.1	0.8	2.3	3.8	2.2	11.3
Main CAPEX (in nominal M)	1.9	0.8	2.3	1.1	2.2	8.4
Inflation %	1.2%	0.9%	1.3%	1.7%	1.5%	
Inflation index (100 in 2009)	111.2	112.2	113.6	115.6	117.3	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>1.9</b>	<b>0.7</b>	<b>2.0</b>	<b>3.3</b>	<b>1.9</b>	<b>9.8</b>
Main CAPEX (in M €2009)	1.7	0.7	2.0	1.0	1.9	7.3
% Main of Total CAPEX	90.8%	100.0%	100.0%	29.8%	100.0%	74.5%
Real gate-to-gate ANSP costs (in M €2009)	15.9	16.8	18.8	20.4	20.9	92.8
Total CAPEX as % of Real gate-to-gate ANSP costs	12.0%	4.2%	10.8%	16.3%	8.9%	10.6%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	0.5	-7.6	-7.3	-3.4	1.0	-16.9
Total CAPEX (in M €2009)	0.5	-6.7	-6.3	-2.8	0.8	-14.5
<b>Total CAPEX (in %, M €2009)</b>	<b>34.8%</b>	<b>-90.5%</b>	<b>-75.6%</b>	<b>-45.8%</b>	<b>82.3%</b>	<b>-59.5%</b>



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# **Annual Monitoring Report 2019**

Local level view  
DANUBE FAB

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## DANUBE FAB

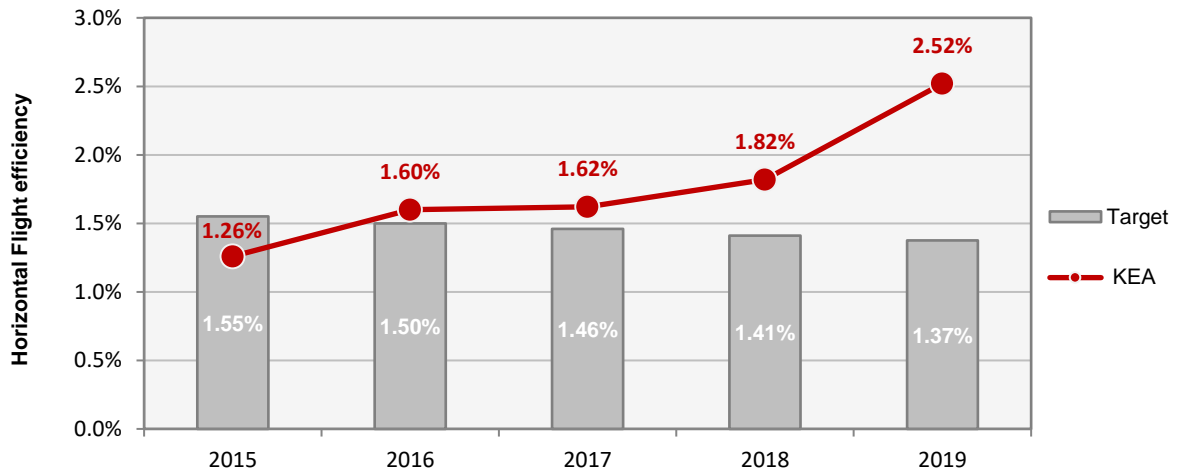
## Monitoring of SAFETY for 2019

Effectiveness of Safety Management							
			2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs					C
	at ANSP level	For Safety Culture MO					C
		For all other MOs					D
FAB level	States / Regulatory authorities	For all MOs	B	B	B	B	B
	ANSPs	For Safety Culture MO	C	D	D	D	D
	ANSPs	For all other MOs	C	C	D	D	D
Application of the severity classification of the Risk Analysis Tool (RAT)							
Ground Score			2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%		100%
	Runway Incursions (RIs)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	100%	100%	100%	100%
	Runway Incursions (RIs)		100%	N/A	N/A	n/a	100%
Overall Score			2015 Value	2016 Value	2017 Target	2018 Target	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	100%	100%	100%	100%
	Runway Incursions (RIs)		100%	N/A	N/A	100%	100%
	ATM Specific occurrences (ATM-S)		100%	100%	100%	100%	100%
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)							
Observations							
<p>The lowest level in each EoSM Components/areas of the States is Level "B" which is below the 2019 EoSM target level. All components are at this level, but Safety Culture.</p> <p>With regards the ANSP EoSM level, the minimin level is Level "D" for all components, which is at or above the 2019 EoSM target level.</p>							

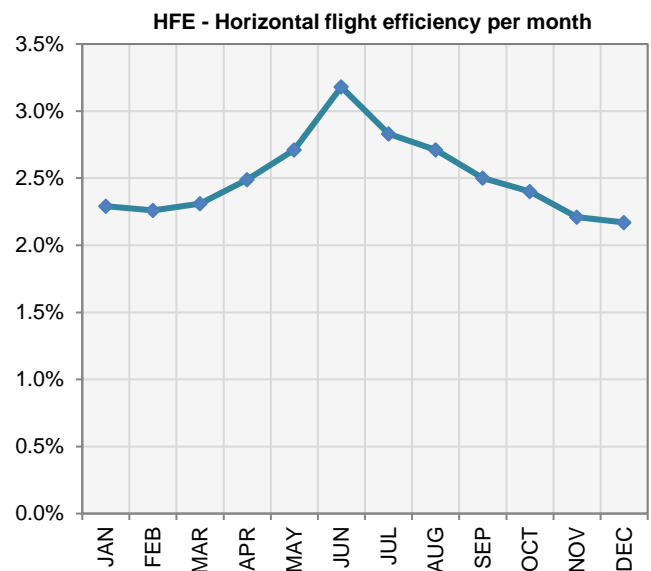
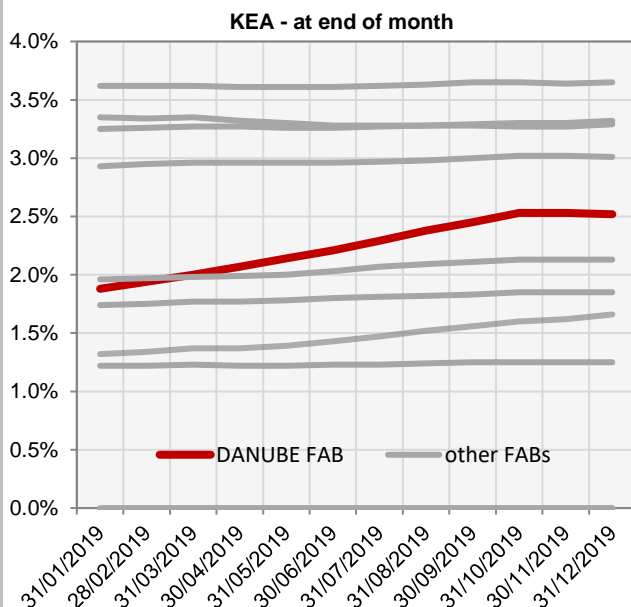
DANUBE FAB

Monitoring of ENVIRONMENT for 2019

KEA					
	2015	2016	2017	2018	2019
FAB Target	1.55%	1.50%	1.46%	1.41%	1.37%
KEA Value	1.26%	1.60%	1.62%	1.82%	2.52%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KEA (at end of month)	1.88%	1.94%	2.00%	2.07%	2.14%	2.21%	2.29%	2.38%	2.45%	2.53%	2.53%	2.52%
HFE	2.29%	2.26%	2.31%	2.49%	2.71%	3.18%	2.83%	2.71%	2.50%	2.40%	2.21%	2.17%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.

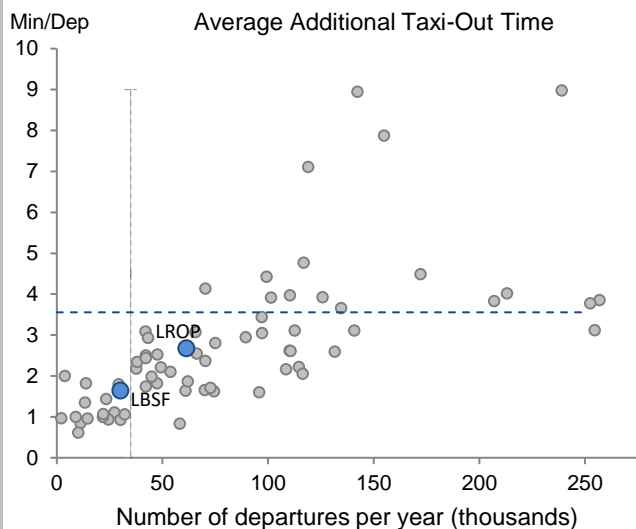
**DANUBE FAB**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

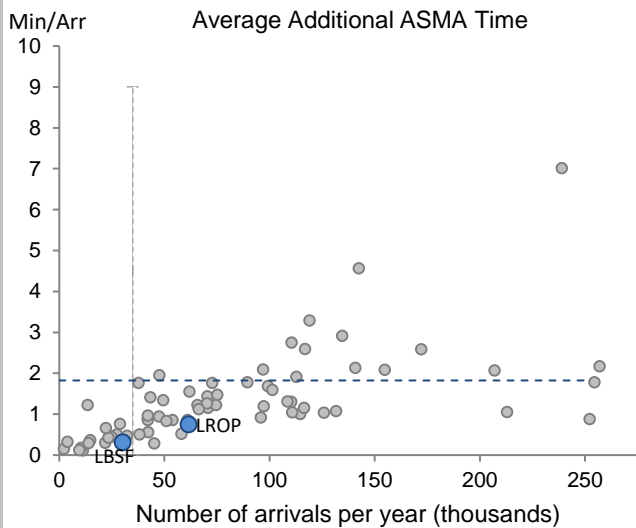
Traffic at the three airports in DANUBE FAB subject to monitoring has significantly increased since the beginning of the reference period. In 2019 the performance of the environmental indicators can be monitored for two of these airports. According to the available data, airports in the Danube FAB contribute adequately to the European performance with low levels of additional times in line with the general performance for airports with those levels of traffic. In order to monitor the performance at Bucharest/Băneasa (LRBS), it is necessary to properly establish the Airport Operator Data Flow.

**2. Additional Taxi-Out Time**



The additional taxi-out times at both Bucharest/Otopeni (LROP) and Sofia (LBSF) are well below the average for airports in RP2. At both airports these taxi-times are significantly influenced by winter operations.

**3. Additional ASMA Time**



The monitored airports in the Danube FAB show shorter additional times in the terminal area than similar airports in terms of movements. The performance has not deteriorated along RP2, despite the increase in traffic.

## DANUBE FAB

## Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
<b>FAB Reference Value</b>	0.04	0.04	0.04	0.05	0.06	
<b>FAB Target</b>	0.03	0.03	0.03	0.03	0.04	
<b>Actual performance</b>	0.03	0.00	0.01	0.08	0.08	

## DANUBE FAB assessment of capacity performance

## Romania:

Average enroute ATFM delay per flight in the Romanian airspace was 0.09 minutes in 2019. From 16th of April until 12th of May Bucharest FMP requested to implement regulations on a daily basis to reduce complexity and allow controllers to familiarize themselves with the new ATM system on a safe environment. Thus regulations LRBM15, LRBM68 and LRBM9 were applied, generating total delays of 26840 minutes under code P – special event and 40781 minutes under code T, 80% of the total delays for 2019 (Source: www.ansperformance.eu). The rest of delays were generated by weather disturbances.

## Republic of Bulgaria:

The targets for KPA Capacity are set on FAB level, but there are at least two important reasons to also analyse the variances towards planned figures on national level:

1. The drivers behind the reported delay may be different;
2. The implementation of the incentive scheme is on national level.

With this regards the reported delay figure for Bulgaria in 2019 is 0.00.

## Monitoring process for capacity performance

## Romania:

Ongoing. Over the years ROMATSA has proven itself as one of the top performers in terms of capacity with 0 minutes of delays falling under the incentive scheme, except for 2018 when these accounted to 0.04 minutes of delay/flight in the light of increased traffic growth. In 2019 also, apart from the delays caused by the above mentioned regulation there were no other delays under the codes included in the incentive scheme.

## Republic of Bulgaria:

Use of occupancy counts for family (group) sectors Sofia and Varna. Monitor the route network and sectorisation change's needs, as outgrowth of the continuous increase of numbers of aircraft and followed up by:

- Evaluation of sector capacities;
- Evaluation of sector configurations and opening schemes;
- Evaluation of human resources.

## Application of Corrective Measures for Capacity

## Romania:

The delays falling under the incentive scheme in 2019 were of temporary nature and the new ATM system brings clear benefits in terms of improving capacity.

ROMATSA participated in the coordinated process initiated by the Network Manager with all ATM stakeholders that agreed on the European RAD restrictions that were active between 25th of April - 6th of November 2019.

## Republic of Bulgaria:

There is a sharp increase of traffic and ANS demand was met with relocation of all available ATCOs holding a valid licence, after proper necessary transitional measures, at working positions in the ACC OPS room. Such measures comprise:

- Re-positioning of administrative and project staff holding ATCO licenses, as well as En-route Approach and Terminal services ATCOs;
- Additional training of ATCOs related to acquisition of competence to work at working positions at all sector families (Sofia and Varna);
- Increased flexibility of application of sector configuration aiming at the application of the optimal sector configurations, so as to provide for capacity;
- Increased number of shifts (22 applied in 2019 to meet traffic peaks and demand);
- Overall improvements of operational efficiency and rostering;

### Capacity Planning

Republic of Bulgaria:

There are going to be major changes in the nature of operations due to the new airport in Istanbul (evolution of about 20-22,000 feet per flight to/from the new Istanbul airport through Bulgarian airspace versus an average evolution of about 6,000 feet at present). While effective in the short run, the measures applied are not sustainable for continuous application in the longer-term, since they could potentially introduce risks to operational efficiency, especially in case of unforeseen events. The evolution of the events in 2016, made it clear that this way of managing increased traffic is not sustainable for the medium- to long-term and implies risks in terms of interdependent relations among the other KPAs (not limited to Safety only). Nevertheless, it is evident that delays will occur unless long-term measures are applied. The evolution of capacity over RP3 will be assessed taking into account the COVID-19 impact and the expected recovery of traffic.

### Assessment of capacity performance

Danube FAB failed to meet its adopted target during 2018. DANUBE FAB has been handling traffic levels well above the high traffic scenario forecasted by STATFOR back in 2014 when the performance plans and associated capacity plans were being determined. The delays in DANUBE FAB in 2019 were mainly associated with transitional arrangements stemming from the implementation of a new ATM system in Romania, and thus are not expected to recur. The actual delays in DANUBE FAB were in line with the predicted delays for 2019 published in the NOP 2019-2024.

**EUROCONTROL 7 year traffic forecast February 2014**

	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	804		846		893		941		982		1 038	
<b>Base</b>	793	<b>829</b>	825	<b>895</b>	858	<b>905</b>	892	<b>951</b>	917	<b>1 045</b>	960	<b>1 060</b>
<b>Low</b>	782		802		820		839		858		882	

**Delay forecast**

	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.09	0.10	0.04 – 0.07			

### En route Capacity Incentive Scheme

DANUBE FAB does not apply a FAB wide en route capacity incentive scheme. Instead both Member States apply local incentive schemes which are contained in the relevant national section that follow.

### Result of FAB Capacity Incentive Scheme

Not applicable.

### Update on Military dimension of the plan

No information provided.

### Observations on Military dimension of the plan

Nil.

### Application of FUA

No new information was provided by either Bulgaria or Romania.

### Observations of the Application of FUA

No information is provided on how the Member States assess whether or not the airspace has actually been managed to provide the optimum benefits for all airspace users.

**DANUBE FAB**

**Monitoring of Airports Contribution to CAPACITY for 2019**

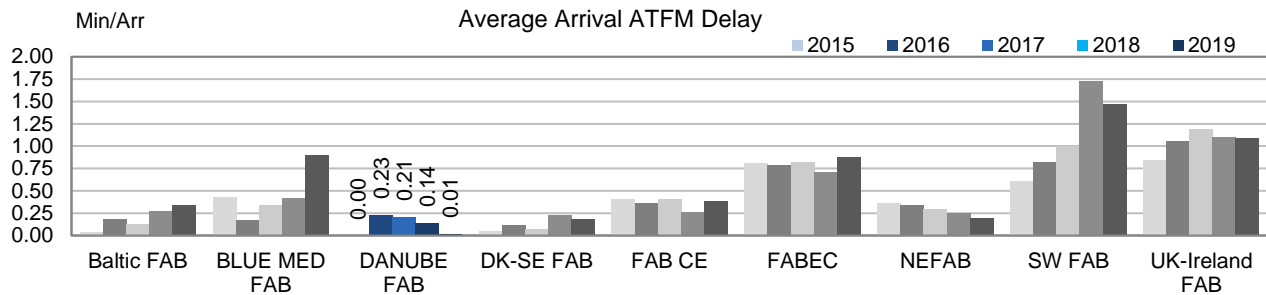
**1. Overview**

The scope of the DANUBE FAB performance plan comprises the terminal air navigation services at one airport in Bulgaria and two airports in Romania.

Arrival ATFM delays at Bucharest/Otopeni (LROP) airport and Sofia (LBSF) are negligible, and no delays at all are registered at Bucharest/Baneasa (LRBS).

Across Europe, DANUBE FAB in the best-in-class group and adequately contributes to the European ANS Capacity performance.

**2. Arrival ATFM Delay**



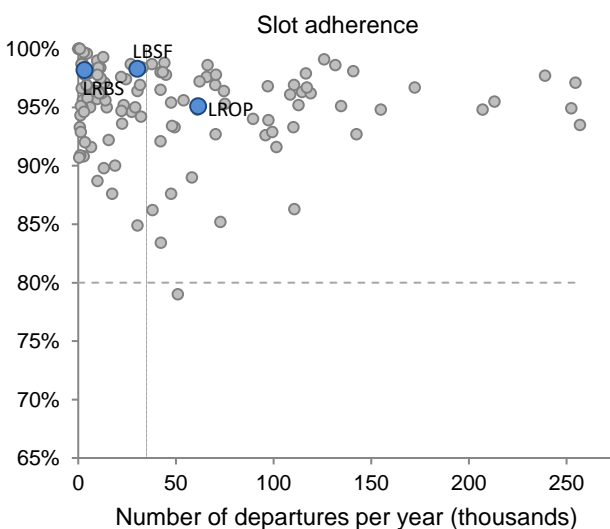
No capacity constraints appear at airports in Danube FAB, where the lowest aggregate arrival ATFM delay of all FABs (0.01 min/arr.) is observed in 2019.

**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

The DANUBE FAB performance plan establishes a national target on arrival ATFM delay with a breakdown per airport for both States, Bulgaria and Romania. The targets are consistent with the observed historical performance and the plan suggests no capacity constraints for arriving traffic under the projected traffic conditions for RP2.

The FAB DANUBE performance plan presents an incentive scheme based on CRSTMP causes for Bulgaria and Romania. In 2019, the performances in both countries slightly miss the target but fall within the dead band in both cases, so no penalties are applied.

**4. ATFM Slot Adherence**



Across DANUBE FAB, the slot adherence has improved in 2019 and it is excellent, exceeding the 95% in all three airports.

**5. ATC Pre-departure Delay**

ATC pre-departure delay can only be monitored at Bucharest/Otopeni and Sofia (LBSF). Both airports show performances commensurate with the level of traffic. There is no available data from Bucharest/Baneasa (LRBS).



# Annual Monitoring Report 2019

## Local level view

### Bulgaria

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## BULGARIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	46	B	B	B	B	C
BULATSA	91	E	E	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	BULATSA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	9	0				
Legal/Judiciary	5	2				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>16</b>	<b>2</b>				
BULATSA	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	6	2				
<b>TOTAL</b>	<b>21</b>	<b>3</b>				
Observations						
<p>The State did not meet the RP2 target level "C" in 2019 in four EoSM Components. Only the target was achieved in the component of Safety Culture. After verification some answers above the target level were downgraded to align them with EASA audit results to the end of 2019 or because the justification was not sufficient. Detailed feedback has been sent to the State focal point by EASA Standardisation team.</p> <p>With regard the RAT application, targets have been met.</p>						

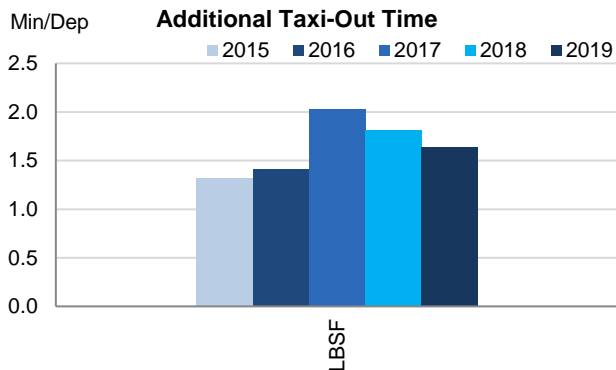
## BULGARIA

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

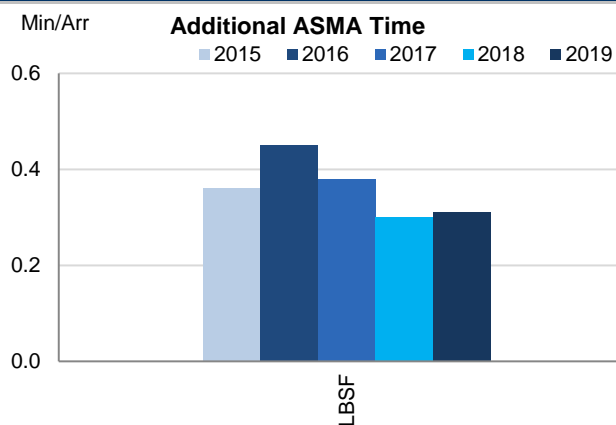
Bulgaria has identified one airport, Sofia (LBSF) as subject to RP2 monitoring, for which the APDF is well established. Traffic at Sofia did not change much last year (+1% with respect to 2018) but there is a drastic increase with respect to the beginning of the reference period (+39% with respect to 2015). Additional times in the taxi-out phase have decreased in the last two years, although have moderately worsen overall with respect to the beginning of RP2. On the other hand, additional ASMA times have improved with respect to 2015 and show very low values.

## 2. Additional Taxi-Out Time



Additional taxi-out times at Sofia (LBSF) have slightly improved in 2019. Like previous years, the taxi-out times seem heavily influenced by winter operations, reaching up to 4 min/dep in January and December, compared with an average from April to October of approximately 1 min/dep.

## 3. Additional ASMA Time



Additional times in the terminal area in 2019 have not changed much with respect to the previous year (LBSF; 2018: 0.30 min/arr.; 2019: 0.31 min/arr.) and remain significantly lower than other airports with similar number of movements, signaling the absence of capacity issues at Sofia, despite the drastic increase in traffic since the beginning of the reference period.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Sofia	LBSF	1.32	1.41	2.03	1.81	1.64	0.36	0.45	0.38	0.30	0.31

**BULGARIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.05	0.05	0.05	0.06	0.07	
Deadband +/-	0.02 - 0.05					
Actual performance	0.01	0.01	0.00	0.00	0.00	

**National capacity incentive scheme**

As per the incentive scheme envisaged in the approved PP for RP2 the amount of the bonus is 0.02% of the annual en-route revenue, which is reported to be 236,144 k BGN for 2019.

The bonus is 47,229 BGN for 2019.

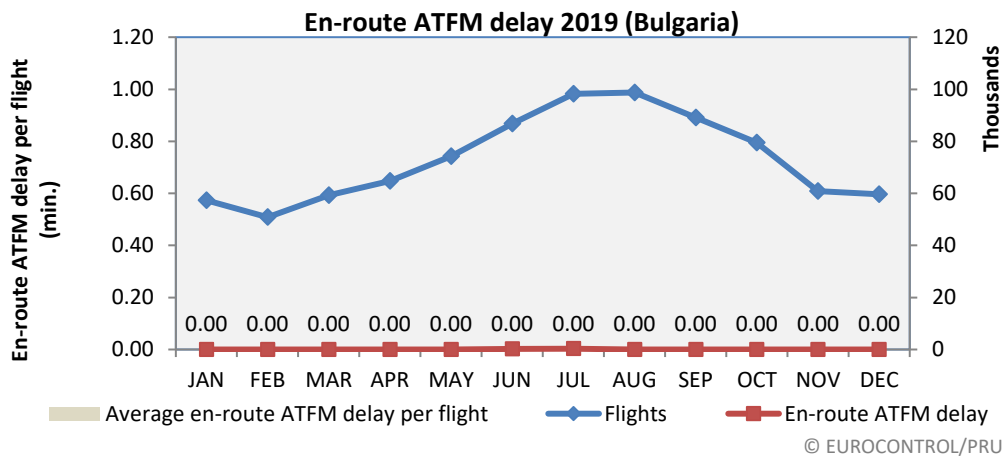
**Issues relating to national capacity incentive scheme**

Bulgaria has met the capacity targets for all the years of RP2. However, no financial bonus has been reflected in the unit rates of BULATSA for any of the years, yet. Further to the letter dated 25 Oct 2016 , we took steps to develop a mechanism for FAB-wide clearly structured procedure for allocation of the FAB results on national level so that the incentive scheme to work in a just and transparent way.

With this regard, a proposal for agreement on the general principles to be applied at DANUBE FAB level on the link between the individual incentive schemes and the FAB performance on capacity was put forward for consideration by the DANUBE FAB partners. Unfortunately, no decision was reached on the previous meetings of the DANUBE FAB governing bodies.

As RP2 has effectively ended and further to the actions agreed at the last meeting of the DANUBE FAB Governing bodies, the Bulgarian NSA sent a query to the European Commission asking its view on a possible way forward for dealing with the amount of bonus already accumulated as per the incentive scheme of Bulgaria. An initial reply was received by the EC, however no final settlement of the subject has been achieved yet.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	580		617		650		686		713		754	
Base	572	<b>683</b>	601	<b>767</b>	626	<b>758</b>	652	<b>783</b>	669	<b>871</b>	702	<b>879</b>
Low	564		585		599		614		628		648	

En route capacity performance in Bulgaria has been excellent in 2019 with zero average delay per flight. Traffic levels rose by 1% (to a level that is 16% higher than forecasted for the end of RP2 even in the high traffic scenario from back in 2014) and the new Istanbul airport opened in neighbouring Turkey which required significant changes to traffic in Bulgaria. Bulgaria has been handling traffic levels above the high forecast predicted by STATFOR for the entirety of RP2 with negligible delays for airspace users.

Delay forecast - BULATSA						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.01	0.01	0.01			

### Planning and Effective Use of CDRs

Bulgaria did not provide any data on this indicator.

### Observations on Planning and Effective Use of CDRs

It is noted that Bulgaria, like many other States, is unable to monitor the planning and effective use of CDRs. The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
29%	37%	29%	23%	25%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
0%	0%	0%	0%	0%

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

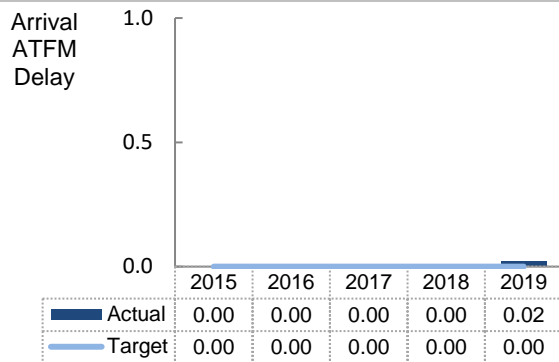
## BULGARIA

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

In Bulgaria, only ANS performance at Sofia (LBSF) airport is subject to RP2 Monitoring. Despite the drastic increase in traffic during RP2 (+38.7% with respect to 2015), the arrival ATFM delay remains negligible in 2019. The actual performance in terms of arrival ATFM delay ranges within the incentive deadband and results in no financial incentive. Next to the excellent performance in terms of arrival ATFM delay, Bulgaria shows a high level of compliance with ATFM slots. On the other hand, ATC pre-departure delay, although still low, shows a worsening since the beginning of RP2. The local performance is commensurate with the traffic and shows no congestion of capacity constraints. Bulgaria adequately contributes to the DANUBE FAB and European ANS Capacity-related performance.

## 2. Arrival ATFM Delay



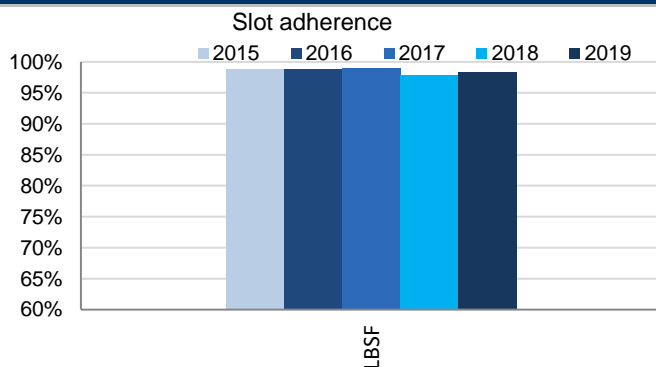
During 2019, arrival ATFM delays in Bulgaria have slightly increased with respect to the previous year (2018: 0 min/arr, 2019: 0.02 min/arr) but are still negligible and commensurate with the level of traffic.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Bulgaria has established a national target on arrival ATFM delay for every year of RP2 (0.0 min/arr.) which is missed for the first time in 2019.

The DANUBE FAB PP presents an incentive scheme for Bulatsa associated to CRSTMP causes. The actual CRSTMP performance (0.02 min/arr) falls within the dead band of the scheme (0.00 to 0.05). Therefore no bonus/penalties are applied.

## 4. ATFM Slot Adherence



Departures from Sofia show excellent adherence to the ATFM slots consistently well above 95% along RP2.

## 5. ATC Pre-departure Delay

ATC pre-departure delay at Sofia (LBSF) remains at 0.15 min/dep, in line with observed performance at other airports with similar number of movements.

## 6. Appendix

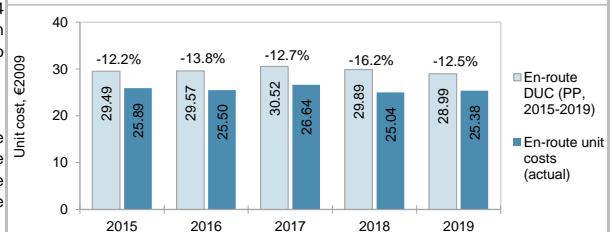
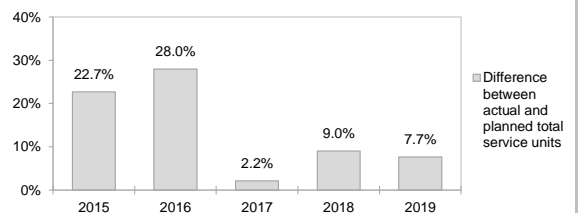
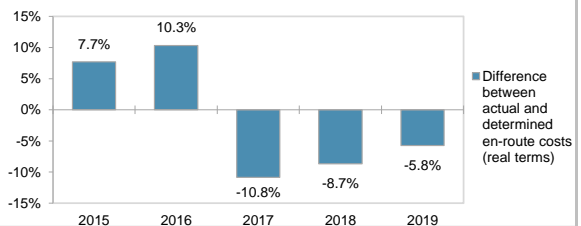
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Sofia	LBSF	0.00	0.00	0.00	0.00	0.02	98.8%	98.8%	99.0%	97.9%	98.3%	0.04	0.03	0.08	0.15	0.15

## BULGARIA: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

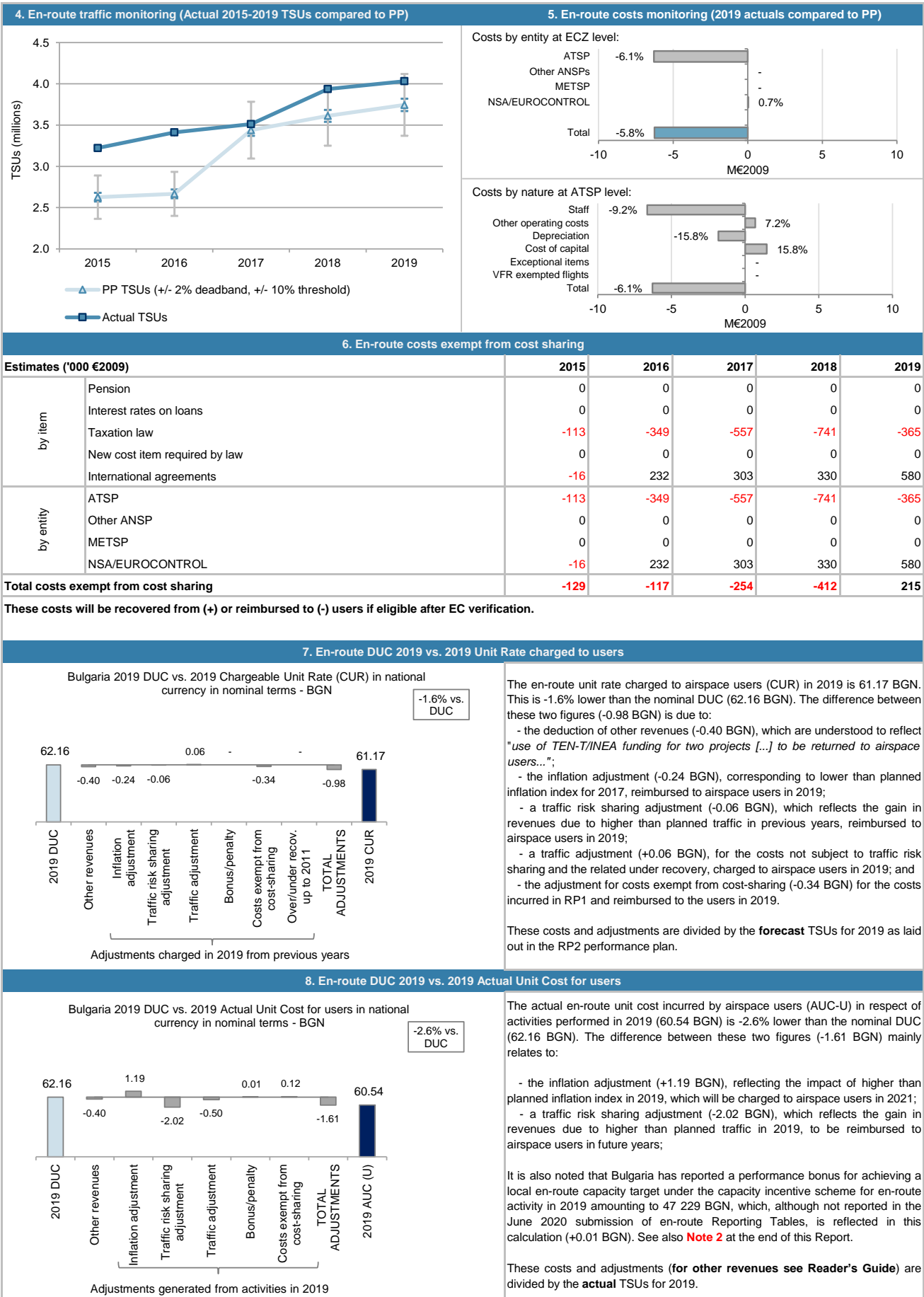
1. Contextual economic information: en-route air navigation services					
· Bulgaria ECZ represents 1.7% of the SES en-route ANS determined costs in 2019					
· ATSP: BULATSA					
· FAB: DANUBE FAB					
· National currency: BGN Exchange rate 2009: 1 EUR = 1.9553 BGN					
2. En-route DUC monitoring at Charging Zone level					
Bulgaria: Data from RP2 Performance Plan (EC Decision 2017/2376 of 15 December 2017)					
	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal BGN)	166 771 377	172 805 739	219 350 068	228 283 095	232 773 544
Inflation %	0.9%	1.8%	1.1%	1.2%	1.4%
Inflation index (100 in 2009)	110.1	112.1	106.9	108.1	109.7
Real en-route costs (BGN2009)	151 495 007	154 219 178	205 254 233	211 080 244	212 260 655
Total en-route Service Units	2 627 000	2 667 000	3 439 000	3 611 824	3 745 039
<b>Real en-route unit cost per Service Unit (BGN2009)</b>	<b>57.67</b>	<b>57.82</b>	<b>59.68</b>	<b>58.44</b>	<b>56.68</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>29.49</b>	<b>29.57</b>	<b>30.52</b>	<b>29.89</b>	<b>28.99</b>
Bulgaria: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal BGN)	173 870 778	178 955 967	194 762 951	210 486 527	223 907 905
Inflation %	-1.1%	-1.3%	1.2%	2.6%	2.5%
Inflation index (100 in 2009)	106.6	105.2	106.4	109.2	111.9
Real en-route costs (BGN2009)	163 171 301	170 155 585	182 989 369	192 750 918	200 040 399
Total en-route Service Units	3 222 750	3 412 754	3 513 254	3 937 596	4 031 643
<b>Real en-route unit cost per Service Unit (BGN2009)</b>	<b>50.63</b>	<b>49.86</b>	<b>52.09</b>	<b>48.95</b>	<b>49.62</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>25.89</b>	<b>25.50</b>	<b>26.64</b>	<b>25.04</b>	<b>25.38</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
En-route costs (nominal BGN)	7 099 402	6 150 228	-24 587 117	-17 796 567	-8 865 639
in %	4.3%	3.6%	-11.2%	-7.8%	-3.8%
Inflation %	-2.0 p.p.	-3.1 p.p.	0.1 p.p.	1.4 p.p.	1.1 p.p.
Inflation index (100 in 2009)	-3.5 p.p.	-6.9 p.p.	-0.4 p.p.	1.1 p.p.	2.3 p.p.
Real en-route costs (BGN2009)	11 676 294	15 936 406	-22 264 865	-18 329 327	-12 220 256
in %	7.7%	10.3%	-10.8%	-8.7%	-5.8%
Total en-route Service Units	595 750	745 754	74 254	325 772	286 604
in %	22.7%	28.0%	2.2%	9.0%	7.7%
<b>Real en-route unit cost per Service Unit (BGN2009)</b>	<b>-7.04</b>	<b>-7.97</b>	<b>-7.60</b>	<b>-9.49</b>	<b>-7.06</b>
in %	<b>-12.2%</b>	<b>-13.8%</b>	<b>-12.7%</b>	<b>-16.2%</b>	<b>-12.5%</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-3.60</b>	<b>-4.07</b>	<b>-3.89</b>	<b>-4.85</b>	<b>-3.61</b>
in %	<b>-12.2%</b>	<b>-13.8%</b>	<b>-12.7%</b>	<b>-16.2%</b>	<b>-12.5%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (49.62 BGN2009 or 25.38 €2009) is -12.5% lower than planned in the PP (56.68 BGN2009 or 28.99 €2009). This results from the combination of higher than planned TSUs (+7.7%) and lower than planned en-route costs in real terms (-5.8%, or -6.2 M€2009). See also <b>Note 1</b> at the end of this Report.					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+7.7%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (BULATSA) retaining an amount of +3.5 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -3.8% (-8.9 MBGN) lower than planned. However, since the actual inflation index is higher than planned (+2.3 p.p.), actual en-route costs are -5.8% (-6.2 M€2009) below plans when expressed in real terms.					
The lower than planned en-route costs in real terms are driven by BULATSA (-6.1%, or -6.3 M€2009), while the costs for the NSA/EUROCONTROL (+0.7%, or +0.04 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +0.2 M€2009 comprising -0.4 M€2009 for unforeseen changes in national taxation law and +0.6 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for the Bulgaria charging zone, actual en-route TSUs are +12.6% higher than planned, while actual costs in real terms are -2.7% lower than the determined costs (some -25.2 MBGN2009 or -12.9 M€2009). As a result, the weighted average actual unit cost over RP2 (50.18 BGN2009 or 25.66 €2009) is -13.6% lower than planned in the NPP (58.07 BGN2009 or 29.70 €2009).					





**BULGARIA: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## BULGARIA: En-route ATSP (BULATSA)

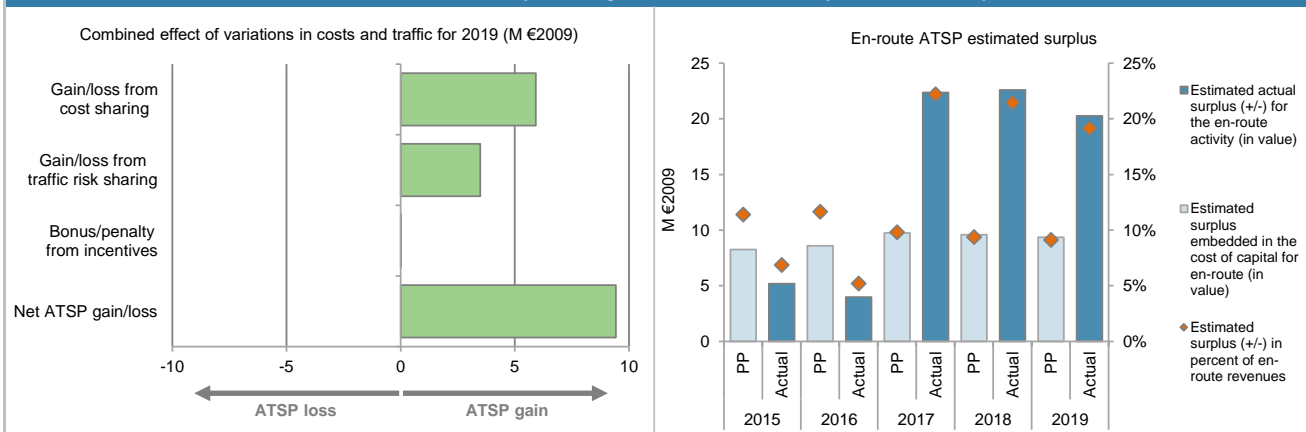
## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	72 403	73 634	99 263	102 109	102 589
Actual costs for the ATSP	79 219	81 994	88 248	93 070	96 300
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-6 816	-8 360	11 015	9 039	6 289
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-113	-349	-557	-741	-365
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-6 929</b>	<b>-8 709</b>	<b>10 458</b>	<b>8 297</b>	<b>5 924</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	22.7%	28.0%	2.2%	9.0%	7.7%
Determined costs for the ATSP (PP) - based on actual inflation	68 806	72 165	93 271	94 775	94 228
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>3 027</b>	<b>3 175</b>	<b>1 910</b>	<b>3 891</b>	<b>3 483</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>9</b>	<b>9</b>	<b>17</b>	<b>18</b>	<b>22</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>-3 892</b>	<b>-5 526</b>	<b>12 385</b>	<b>12 207</b>	<b>9 428</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	118 036	122 591	139 148	136 924	133 706
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	118 036	122 591	139 148	136 924	133 706
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	8 263	8 581	9 740	9 585	9 359
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	7.0%	7.0%	7.0%	7.0%	7.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	8 263	8 581	9 740	9 585	9 359
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>8 263</b>	<b>8 581</b>	<b>9 740</b>	<b>9 585</b>	<b>9 359</b>
<b>Revenue/costs for the en-route activity</b>	<b>72 403</b>	<b>73 634</b>	<b>99 263</b>	<b>102 109</b>	<b>102 589</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>11.4%</b>	<b>11.7%</b>	<b>9.8%</b>	<b>9.4%</b>	<b>9.1%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	129 575	135 770	142 514	148 467	154 765
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	129 575	135 770	142 514	148 467	154 765
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	9 070	9 504	9 976	10 393	10 834
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	7.0%	7.0%	7.0%	7.0%	7.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	9 070	9 504	9 976	10 393	10 834
Net ATSP gain(+)/loss(-) on en-route activity	-3 892	-5 526	12 385	12 207	9 428
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>5 178</b>	<b>3 978</b>	<b>22 361</b>	<b>22 599</b>	<b>20 262</b>
<b>Revenue/costs for the en-route activity</b>	<b>75 327</b>	<b>76 469</b>	<b>100 633</b>	<b>105 277</b>	<b>105 729</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.9%</b>	<b>5.2%</b>	<b>22.2%</b>	<b>21.5%</b>	<b>19.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>4.0%</b>	<b>2.9%</b>	<b>15.7%</b>	<b>15.2%</b>	<b>13.1%</b>

## BULGARIA: En-route ATSP (BULATSA)

## Monitoring of en-route COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on en-route activity and estimated surplus



## 12. Focus on en-route ATSP: General conclusions

## Actual 2019 BULATSA en-route costs vs. PP

In 2019, BULATSA actual en-route costs are -6.1% (-6.3 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- lower staff costs (-9.2%, or -6.6 M€2009), driven by: i) the fact that "... BULATSA has made significant efforts to employ the optimal numbers of ACC ATCOs [...] Nevertheless, the process is slightly lagging due to shortage of appropriate candidates for the ACC working positions [...] This resulted in underspending of en-route staff costs versus the plan", and ii) "lower social security costs, since there were no changes in the maximum social security income as well as in the social security rates as planned".
- higher other operating costs (+7.2%, or +0.7 M€2009), explained by the fact that: "costs for materials were higher than last year due to higher costs for power supply, heating and spare parts...", ii) "costs for external services were higher and this is mainly due to general increase of salaries in the country", and iii) "specialised studies related to BULATSA key projects, insurance cost increases, etc."
- much lower depreciation costs (-15.8%, or -1.8 M€2009);
- much higher cost of capital (+15.8%, or +1.5 M€2009), which, since BULATSA is entirely financed through equity, is driven by higher than planned en-route asset base in real terms (+15.8%, or +21.1 M€2009).

## BULATSA net gain/loss on en-route activity in 2019

As shown in box 9, BULATSA generated a net gain of +9.4 M€2009 on the en-route activity. This is a combination of three elements:

- a gain of +5.9 M€2009 arising from the cost sharing mechanism;
- a gain of +3.5 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +0.02 M€2009 (or +47'000 BGN in nominal terms), corresponding to a bonus as part of the en-route capacity target incentive mechanism. This amount corresponds to 0.02% of BULATSA en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission. See also **Note 2** at the end of this Report.

The gain from cost sharing mentioned above (+5.9 M€2009) includes amounts reported by BULATSA for cost exempt from cost sharing (-0.4 M€2009). Should these costs not be deemed eligible by the European Commission, BULATSA would record a net gain of +9.8 M€2009 for the en-route activity in 2019.

## BULATSA overall estimated surplus for the en-route activity

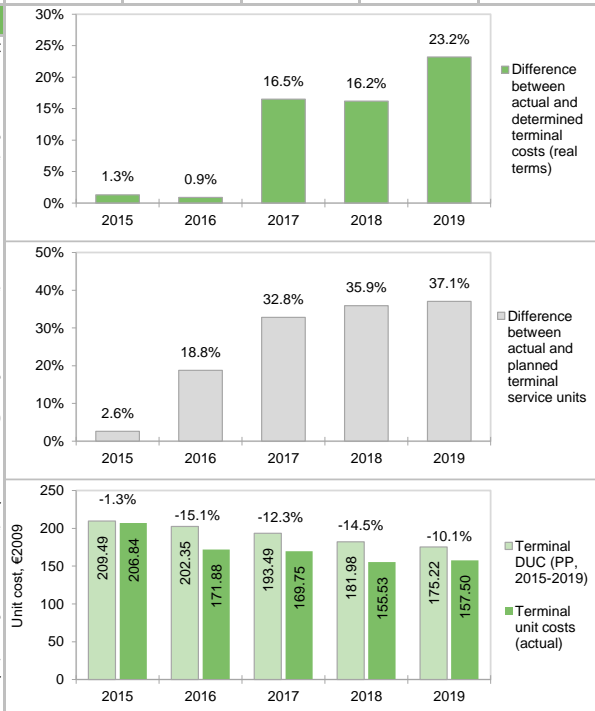
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+9.4 M€2009) and the surplus embedded in the actual cost of capital (+10.8 M€2009) amounts to +20.3 M€2009 (19.2% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 13.1%, which is much higher than the 7.0% planned in the PP.

When considering the whole of RP2 (2015-2019), BULATSA generated cumulative gains in respect of cost sharing of +9.0 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +15.5 M€2009, which reflects the fact that actual traffic was in general terms +12.6% higher than planned during RP2. Adding the gain of +0.07 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+49.8 M€2009 over RP2) leads to an overall estimated surplus of +74.4 M€2009, which corresponds to an average ex-post return on equity of 10.5% (compared to 7.0% as initially planned in the NPP).

## BULGARIA: Terminal charging zone

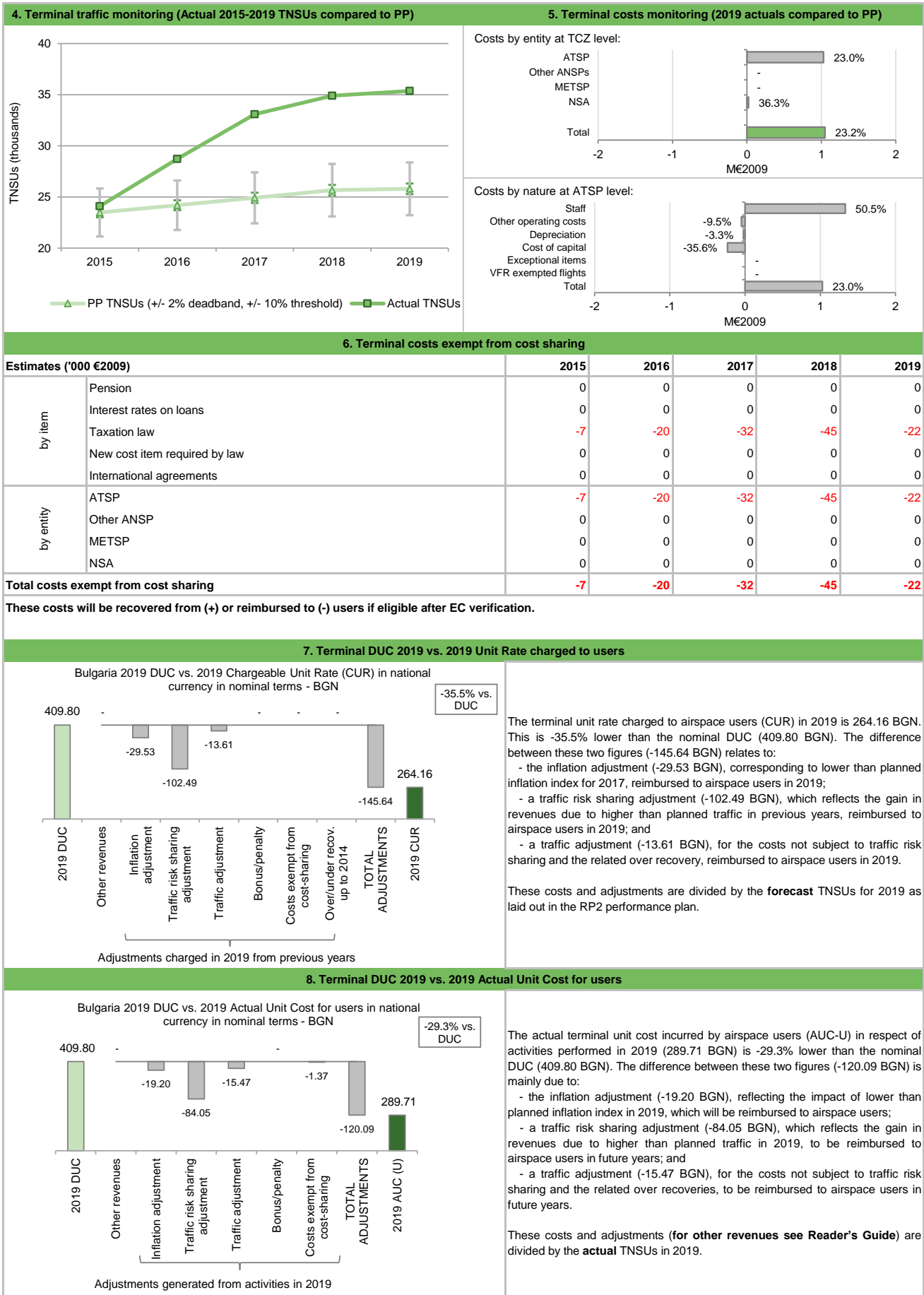
## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
· Bulgaria TCZ represents 0.4% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP: BULATSA		· Airports with fewer than 70,000 IFRs ATMs:		1	
· National currency: BGN		· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019: 1, of which:		· Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level					
Bulgaria: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal BGN)	10 590 551	10 725 206	10 795 526	10 687 693	10 572 836
Inflation %	0.9%	1.8%	2.2%	2.2%	2.2%
Inflation index (100 in 2009)	110.1	112.1	114.5	117.0	119.6
Real terminal costs (BGN2009)	9 620 450	9 571 629	9 426 992	9 131 927	8 839 324
Total terminal Service Units	23 487	24 191	24 917	25 665	25 800
<b>Real terminal unit cost per Service Unit (BGN2009)</b>	<b>409.61</b>	<b>395.66</b>	<b>378.33</b>	<b>355.82</b>	<b>342.61</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>209.49</b>	<b>202.35</b>	<b>193.49</b>	<b>181.98</b>	<b>175.22</b>
Bulgaria: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal BGN)	10 387 116	10 154 849	11 690 297	11 586 333	12 190 124
Inflation %	-1.1%	-1.3%	1.2%	2.6%	2.5%
Inflation index (100 in 2009)	106.6	105.2	106.4	109.2	111.9
Real terminal costs (BGN2009)	9 747 924	9 655 471	10 983 609	10 610 068	10 890 715
Total terminal Service Units	24 103	28 729	33 092	34 889	35 365
<b>Real terminal unit cost per Service Unit (BGN2009)</b>	<b>404.44</b>	<b>336.08</b>	<b>331.91</b>	<b>304.11</b>	<b>307.95</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>206.84</b>	<b>171.88</b>	<b>169.75</b>	<b>155.53</b>	<b>157.50</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal BGN)	in value -203 435	in value -570 357	in value 894 771	in value 898 640	in value 1 617 287
	in % -1.9%	in % -5.3%	in % 8.3%	in % 8.4%	in % 15.3%
Inflation %	in p.p. -2.0 p.p.	in p.p. -3.1 p.p.	in p.p. -1.0 p.p.	in p.p. 0.4 p.p.	in p.p. 0.3 p.p.
Inflation index (100 in 2009)	in p.p. -3.5 p.p.	in p.p. -6.9 p.p.	in p.p. -8.1 p.p.	in p.p. -7.8 p.p.	in p.p. -7.7 p.p.
Real terminal costs (BGN2009)	in value 127 475	in value 83 843	in value 1 556 617	in value 1 478 141	in value 2 051 391
	in % 1.3%	in % 0.9%	in % 16.5%	in % 16.2%	in % 23.2%
Total terminal Service Units	in value 616	in value 4 538	in value 8 175	in value 9 224	in value 9 565
	in % 2.6%	in % 18.8%	in % 32.8%	in % 35.9%	in % 37.1%
<b>Real terminal unit cost per Service Unit (BGN2009)</b>	<b>in value -5.18</b>	<b>in value -59.58</b>	<b>in value -46.42</b>	<b>in value -51.71</b>	<b>in value -34.66</b>
	<b>in % -1.3%</b>	<b>in % -15.1%</b>	<b>in % -12.3%</b>	<b>in % -14.5%</b>	<b>in % -10.1%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -2.65</b>	<b>in value -30.47</b>	<b>in value -23.74</b>	<b>in value -26.45</b>	<b>in value -17.72</b>
	<b>in % -1.3%</b>	<b>in % -15.1%</b>	<b>in % -12.3%</b>	<b>in % -14.5%</b>	<b>in % -10.1%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Bulgaria Terminal Charging Zone (TCZ) comprising only Sofia airport (LBSF). See also <b>Note 1</b> at the end of this Report.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (307.95 BGN2009 or 157.50 €2009) is -10.1% lower than planned in the PP (342.61 BGN2009 or 175.22 €2009). This results from the combination of much higher than planned TNSUs (+37.1%) and much higher than planned terminal costs in real terms (+23.2%, or +1.0 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Bulgaria TCZ. The difference between actual and planned TNSUs (+37.1%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (BULATSA) retaining an amount of +0.2 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +15.3% (+1.6 MBGN) higher than planned. However, since the actual inflation index is lower than planned (-7.7 p.p.), actual terminal costs are +23.2% (+1.0 M€2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by BULATSA (+23.0%, or +1.0 M€2009) and the NSA (+36.3%, or +0.02 M€2009). A detailed analysis is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -0.02 M€2009 corresponding to unforeseen changes in national taxation law. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Bulgaria TCZ, actual TNSUs are +25.9% higher than planned, while actual costs in real terms are also +11.4% higher than the determined costs (some +2.7 M€2009). As a result, the weighted average actual unit cost over RP2 (332.24 BGN2009 or 169.92 €2009) is -11.5% lower than planned in the NPP (375.55 BGN2009 or 192.07 €2009).					



**BULGARIA: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## BULGARIA: Terminal ATSP (BULATSA)

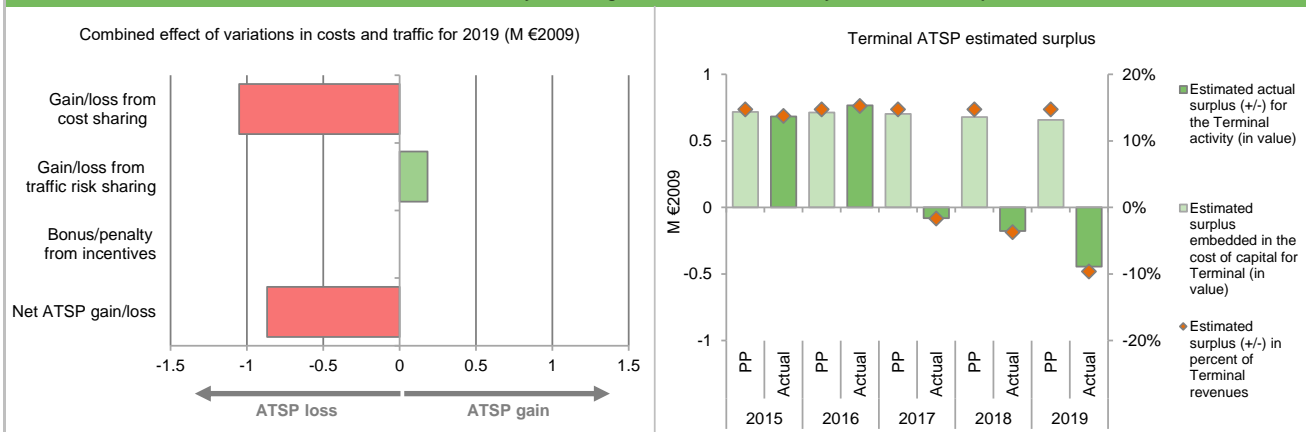
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	4 876	4 848	4 771	4 617	4 464
Actual costs for the ATSP	4 943	4 896	5 559	5 368	5 493
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-67	-48	-788	-751	-1 029
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-7	-20	-32	-45	-22
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-74</b>	<b>-68</b>	<b>-820</b>	<b>-797</b>	<b>-1 051</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	2.6%	18.8%	32.8%	35.9%	37.1%
Determined costs for the ATSP (PP) - based on actual inflation	4 390	4 500	4 473	4 312	4 157
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>96</b>	<b>198</b>	<b>197</b>	<b>190</b>	<b>183</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>22</b>	<b>130</b>	<b>-624</b>	<b>-607</b>	<b>-868</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	10 260	10 200	10 038	9 715	9 393
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	10 260	10 200	10 038	9 715	9 393
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	718	714	703	680	658
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	7.0%	7.0%	7.0%	7.0%	7.0%
Estimated surplus embedded in the cost of capital for terminal (in value)	718	714	703	680	658
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>718</b>	<b>714</b>	<b>703</b>	<b>680</b>	<b>658</b>
<b>Revenue/costs for the terminal activity</b>	<b>4 876</b>	<b>4 848</b>	<b>4 771</b>	<b>4 617</b>	<b>4 464</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>14.7%</b>	<b>14.7%</b>	<b>14.7%</b>	<b>14.7%</b>	<b>14.7%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>	<b>7.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	9 439	9 093	7 742	6 142	6 050
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	9 439	9 093	7 742	6 142	6 050
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	661	637	542	430	424
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	7.0%	7.0%	7.0%	7.0%	7.0%
Estimated surplus embedded in the cost of capital for terminal (in value)	661	637	542	430	424
Net ATSP gain(+)/loss(-) on terminal activity	22	130	-624	-607	-868
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>683</b>	<b>767</b>	<b>-82</b>	<b>-177</b>	<b>-444</b>
<b>Revenue/costs for the terminal activity</b>	<b>4 966</b>	<b>5 026</b>	<b>4 935</b>	<b>4 761</b>	<b>4 625</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>13.8%</b>	<b>15.3%</b>	<b>-1.7%</b>	<b>-3.7%</b>	<b>-9.6%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>7.2%</b>	<b>8.4%</b>	<b>-1.1%</b>	<b>-2.9%</b>	<b>-7.3%</b>

## BULGARIA: Terminal ATSP (BULATSA)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 BULATSA terminal costs vs. PP

In 2019, BULATSA actual terminal costs are +23.0% (+1.0 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much higher staff costs (+50.5%, or +1.3 M€2009), explained by: i) "increase of the salaries of ATM staff due to the significant traffic demand above the plan", and ii) the fact that "some of the candidates who have been initially trained for ACC were positions, turned out to be more appropriate to be trained and employed at TWR working positions, thus increasing TNC staff costs".
- lower other operating costs (-9.5%, or -0.05 M€2009), mainly due to "optimisation of operating costs related exclusively to terminal navigation services".
- lower depreciation costs (-3.3%, or -0.02 M€2009), reflecting the "the execution of CAPEX from the beginning of the reference period".
- much lower cost of capital (-35.6%, or -0.2 M€2009), which, since BULATSA is entirely financed through equity, is driven by lower than planned terminal asset base in real terms (-35.6%, or -3.3 M€2009).

## BULATSA net gain/loss on terminal activity in 2019

As shown in box 9, BULATSA generated a net loss of -0.9 M€2009 on the terminal activity. This is a combination of two elements:

- a loss of -1.1 M€2009 arising from the cost sharing mechanism; and
- a gain of +0.2 M€2009 arising from the traffic risk sharing mechanism.

The loss from cost sharing mentioned above (-1.1 M€2009) includes amounts reported by BULATSA for cost exempt from cost sharing (-0.02 M€2009). Should these costs not be deemed eligible by the European Commission, BULATSA would record a net loss of -0.8 M€2009 for the terminal activity in 2019.

## BULATSA overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-0.9 M€2009) and the surplus embedded in the actual cost of capital (+0.4 M€2009) amounts to -0.4 M€2009 (9.6% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -7.3%, which indicates that the surplus embedded in the cost of capital (7.0%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019), BULATSA generated cumulative losses in respect of cost sharing of -2.8 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +0.9 M€2009, which reflects the fact that actual traffic was in general terms +25.9% higher than planned during RP2. Adding the estimated surplus embedded in the terminal cost of capital (+2.7 M€2009 over RP2) leads to an overall estimated surplus of +0.7 M€2009, which corresponds to an average ex-post return on equity of 1.9% (compared to 7.0% as initially planned in the NPP).

## BULGARIA: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

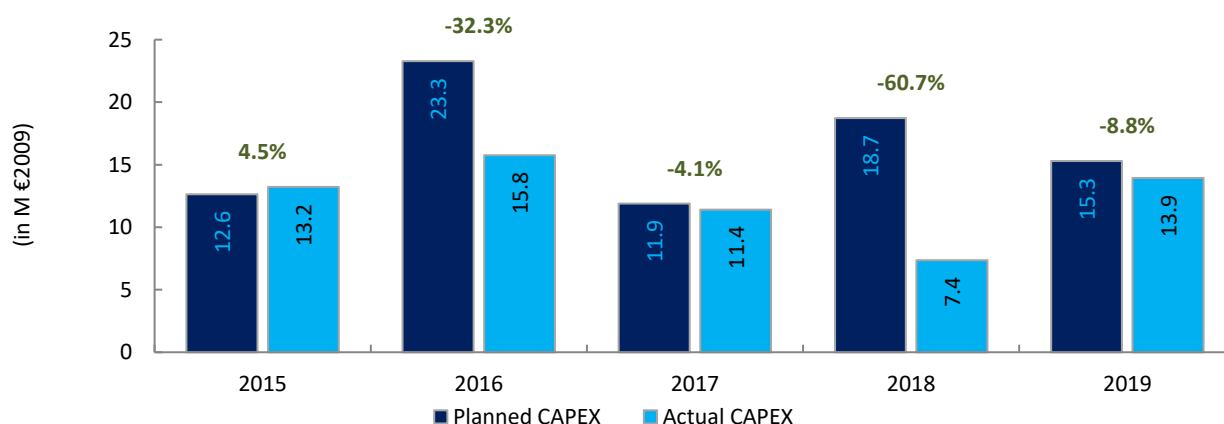
1. Monitoring of gate-to-gate ANS costs																																												
<b>Bulgaria: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	77 479 163	78 872 387	104 973 269	107 952 869	108 556 567																																							
Real terminal costs (EUR2009)	4 920 191	4 895 223	4 821 251	4 670 345	4 520 700																																							
Real gate-to-gate costs (EUR2009)	82 399 354	83 767 610	109 794 520	112 623 214	113 077 266																																							
En-route share (%)	94.0%	94.2%	95.6%	95.9%	96.0%																																							
<b>Bulgaria: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	83 450 775	87 022 751	93 586 339	98 578 693	102 306 756																																							
Real terminal costs (EUR2009)	4 985 386	4 938 102	5 617 352	5 426 312	5 569 843																																							
Real gate-to-gate costs (EUR2009)	88 436 161	91 960 853	99 203 691	104 005 005	107 876 599																																							
En-route share (%)	94.4%	94.6%	94.3%	94.8%	94.8%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)	6 036 807	8 193 243	-10 590 829	-8 618 210	-5 200 667																																							
	in value																																											
	7.3%	9.8%	-9.6%	-7.7%	-4.6%																																							
	in %																																											
En-route share	0.3 p.p.	0.5 p.p.	-1.3 p.p.	-1.1 p.p.	-1.2 p.p.																																							
	in p.p.																																											
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are -4.6% (-5.2 M€2009) lower than planned due to lower than planned en-route costs (-5.8%, or -6.2 M€2009) while terminal costs are higher than planned (+23.2%, or +1.0 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (94.8%) is slightly lower than planned in the PP for 2019 (96.0%).</p> <p>For BULATSA, the estimated gate-to-gate economic surplus in 2019 amounts to 19.8 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 18.0% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>94.0%</td> <td>6.0%</td> </tr> <tr> <td>Actual</td> <td>94.4%</td> <td>5.6%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>94.2%</td> <td>5.8%</td> </tr> <tr> <td>Actual</td> <td>94.6%</td> <td>5.4%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>95.6%</td> <td>4.4%</td> </tr> <tr> <td>Actual</td> <td>94.3%</td> <td>5.7%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>95.9%</td> <td>4.1%</td> </tr> <tr> <td>Actual</td> <td>94.8%</td> <td>5.2%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>96.0%</td> <td>4.0%</td> </tr> <tr> <td>Actual</td> <td>94.8%</td> <td>5.2%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	94.0%	6.0%	Actual	94.4%	5.6%	2016	Determined	94.2%	5.8%	Actual	94.6%	5.4%	2017	Determined	95.6%	4.4%	Actual	94.3%	5.7%	2018	Determined	95.9%	4.1%	Actual	94.8%	5.2%	2019	Determined	96.0%	4.0%	Actual	94.8%	5.2%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	94.0%	6.0%																																									
	Actual	94.4%	5.6%																																									
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	Actual	94.8%	5.2%																																									
<b>3. Technical notes on en-route and terminal information reported by Bulgaria</b>																																												
<b>Note 1: Revision of RP2 cost-efficiency targets for the years 2017 to 2019</b>																																												
<p>Bulgaria has revised their RP2 en-route cost-efficiency targets for the years 2017 to 2019. The figures shown in this report reflect: i) the initial adopted Performance Plan (EC Decision 2015/348 of 2 March 2015) for the years 2015 and 2016; and ii) the revised Performance Plan (EC Decision 2017/2376 of 15 December 2017) for the years 2017 to 2019.</p> <p>It should be noted that the revision only refers to en-route DUC for the years 2017-2019 and does <u>not</u> affect the terminal DUC for the Bulgarian terminal charging zone.</p>																																												
<b>Note 2: Reporting of en-route incentives for local en-route capacity targets</b>																																												
<p>A bonus of 47 229 BGN for achieving the local en-route capacity target in 2019 is reported for BULATSA in the 2019 DANUBE FAB Monitoring Report. It is noted, that this amount is <u>not recorded</u> in the June 2020 submission of en-route Reporting Tables, since, according to the additional information to the en-route Reporting Tables:</p> <p>"Further to that and to the 2015 PRB Annual monitoring report, BULATSA should receive a bonus of BGN 19,339. The calculations for 2016 also show a bonus achieved to the amount of BGN 17,813. However, in previous statements made by Bulgaria, such bonuses will be rewarded after consultations with the airspace users. In view of that and taking into account the EC letter dated 25 October 2016,[...], Bulgaria would prefer to award the said bonus, after the FAB en-route capacity incentive schemes are brought in line with article 12 of the performance regulation and article 15 of the charging regulation.</p> <p>Subsequently the bonus for 2015 and 2016 will be consulted and forwarded to next years from the reference period and would be subject to the fulfilment of the statement of the EC letter. The same is to be done for 2017. The calculated amount of the bonus for 2017 is BGN 34,782. Since the discussions the incentive mechanism to be brought in line with the above mentioned articles are still in progress, <u>any amounts for the bonuses identified in the PRB reports are not included in the calculation of the unit rate for 2019</u>. This will be done after consultations with the airspace users and in coordination with the European Commission.</p> <p>Further to the information above, the question was referred to the European commission and do expect to have a resolution of it. A small bonus is expected for 2018 but this is to be defined by the PRB report for 2018."</p> <p>With respect to the bonus for 2015, it should be noted that an amount of 38 678 BGN was recorded in the DANUBE FAB 2015 Monitoring Report. However, this is different from the amount reported in the additional information to the June 2020 en-route Reporting Tables (see extract above).</p> <p>For the purpose of consistency, the above mentioned bonuses stemming from the en-route capacity incentive scheme of 19 339 BGN for 2015, 17 813 BGN for 2016, 34 782 BGN for 2017, 38 909 BGN for 2018 and 47 229 BGN for 2019 are included in this en-route cost-efficiency monitoring analysis. In particular, this affects the values presented in box 8 for 2019 actual unit cost incurred by the users, box 9 for ATSP gain/loss on en-route activity and box 10 for en-route ATSP estimated surplus.</p>																																												



## BULGARIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: BULATSA						
FAB: DANUBE FAB						
Currency: BGN						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	27.2	51.0	24.9	39.6	32.8	175.5
Main CAPEX (in nominal M)	25.7	39.7	12.5	26.7	24.7	129.2
Inflation %	0.9%	1.8%	1.1%	1.2%	1.4%	
Inflation index (100 in 2009)	110.1	112.1	106.9	108.1	109.7	
Exchange rate 2009 (1 EUR =)	1.9553	1.9553	1.9553	1.9553	1.9553	
<b>Total CAPEX (in M €2009)</b>	<b>12.6</b>	<b>23.3</b>	<b>11.9</b>	<b>18.7</b>	<b>15.3</b>	<b>81.9</b>
Main CAPEX (in M €2009)	11.9	18.1	6.0	12.6	11.5	60.2
% Main of Total CAPEX	94.2%	77.8%	50.3%	67.3%	75.3%	73.5%
Real gate-to-gate ANSP costs (in M €2009)	77.3	78.5	104.0	106.7	107.1	473.6
Total CAPEX as % of Real gate-to-gate ANSP costs	16.4%	29.7%	11.4%	17.6%	14.3%	17.3%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	27.5	32.4	23.7	15.7	30.5	129.9
Main CAPEX (in nominal M)	21.4	22.9	14.6	3.4	7.3	69.5
Inflation %	-1.1%	-1.3%	1.2%	2.6%	2.5%	
Inflation index (100 in 2009)	106.6	105.2	106.4	109.2	111.9	
Exchange rate 2009 (1 EUR =)	1.9553	1.9553	1.9553	1.9553	1.9553	
<b>Total CAPEX (in M €2009)</b>	<b>13.2</b>	<b>15.8</b>	<b>11.4</b>	<b>7.4</b>	<b>13.9</b>	<b>61.7</b>
Main CAPEX (in M €2009)	10.3	11.1	7.0	1.6	3.3	33.3
% Main of Total CAPEX	77.7%	70.6%	61.6%	21.3%	23.8%	54.0%
Real gate-to-gate ANSP costs (in M €2009)	84.2	86.9	93.8	98.4	101.8	465.1
Total CAPEX as % of Real gate-to-gate ANSP costs	15.7%	18.1%	12.2%	7.5%	13.7%	13.3%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	0.3	-18.6	-1.1	-23.9	-2.3	-45.6
Total CAPEX (in M €2009)	0.6	-7.5	-0.5	-11.4	-1.3	-20.2
<b>Total CAPEX (in %, M €2009)</b>	<b>4.5%</b>	<b>-32.3%</b>	<b>-4.1%</b>	<b>-60.7%</b>	<b>-8.8%</b>	<b>-24.6%</b>



Note: Planned and actual inflation indices used to calculate CAPEX in real terms above, are based on the en-route Reporting Tables. Following the revision of RP2 Performance Plan these data differ from terminal Reporting Tables for the years 2017-2019. For this reason, two separate inflation indices are used to calculate the gate-to-gate ANSP costs in real terms.

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# Annual Monitoring Report 2019

Local level view

Romania

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## ROMANIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	66	C	C	C	B	C
ROMATSA	86	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	N/A	N/A				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	CIAS					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	9	0				
Legal/Judiciary	3	4				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>14</b>	<b>4</b>				
ROMATSA	Number of questions answered					
	YES	NO				
Policy and its implementation	11	2				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	6	2				
<b>TOTAL</b>	<b>19</b>	<b>5</b>				
Observations						
The State did not reach the RP2 target in 2019 by only one question in the EoS Component/area of Safety Promotion, out of 36 questions.						
All other safety targets have been met.						

## ROMANIA

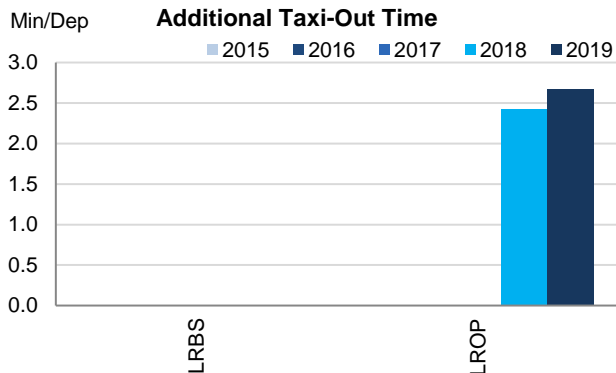
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

Romania, as a member of the Danube FAB, has identified two airports as subject to RP2 monitoring. Only Bucharest/Otopeni (LROP) has implemented the Airport Operator Data Flow, necessary for the monitoring of the additional times, in 2018. Traffic at this airport has significantly increased during RP2 (+29% in 2019 vs 2015)

The monitoring of environmental indicators at Bucharest/Băneasa (LRBS) is not possible due to the lack of data. Member States shall empower the respective airport reporting entity to establish the Airport Operator Data Flow.

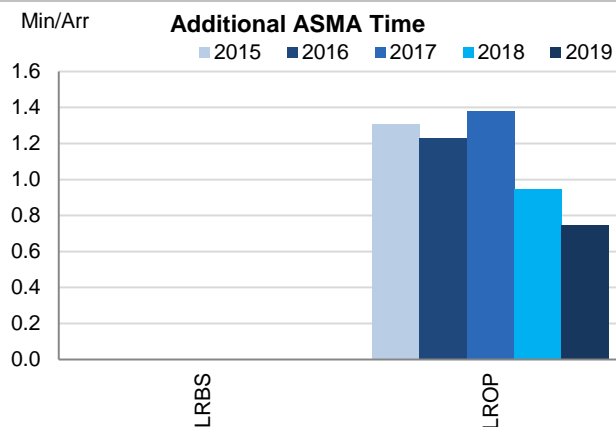
## 2. Additional Taxi-Out Time



The additional taxi-out times at Bucharest/Otopeni have worsened in 2019 (LROP; 2018: 2.43 min/dep.; 2019: 2.67 min/dep.), but they are still well below the SES average (3.56 min/dep.)

The highest values are observed in January and during the summer months, exceeding then the 3 min/dep.

## 3. Additional ASMA Time



Additional times in the terminal airspace of Bucharest/Otopeni have improved for the third year in a row (LROP; 2018: 0.95 min/arr.; 2019: 0.75 min/arr.), and are now almost half of the additional ASMA times at the beginning of the reference period, notwithstanding the increase in traffic.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bucharest/ Băneasa	LRBS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bucharest/ Otopeni	LROP	n/a	n/a	n/a	2.43	2.67	1.31	1.23	1.38	0.95	0.75

**ROMANIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						Observations
	2015	2016	2017	2018	2019	
National Capacity target	0.00	0.00	0.00	0.00	0.00	
Deadband +/-	0.05	0.05	0.05	0.05	0.05	
Actual performance	0.03	0.00	0.01	0.12	0.11	

**National capacity incentive scheme**

During 2019 Bucharest ACC registered an actual en-route delay of 0.11 min/flight per year for all causes of ATFM delay.

The national incentive scheme for Romania, in accordance with Article 15 (g) of Regulation (EU) No 391/2013, is based only on the ATFM delay causes C,R,S,T,M & P.

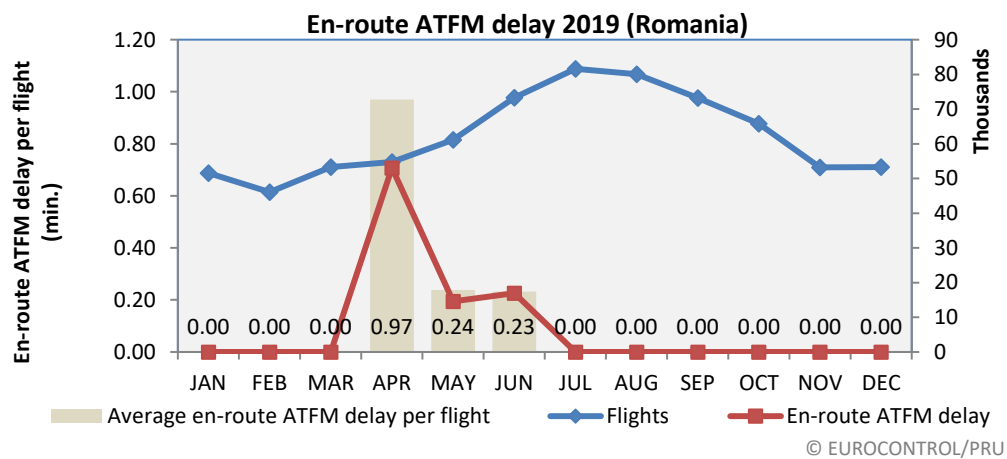
Romania reports that excluding weather related delays brings the national performance to 0.09 minutes of ATFM delay per flight.

Therefore a penalty of 722 095 RON is due.

**Compliance issues relating to national capacity incentive scheme**

Nil

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.12	0.11

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	542		574		607		641		672		710	
Base	535	598	559	635	582	621	605	673	624	738	652	747
Low	527		544		556		568		581		597	

Romania missed their en route capacity target again in 2019, predominantly due to transitional measures associated with the implementation of a new ATM system in April and May. Weather related delays accounted for approximately one quarter of delays for 2019 (0.02 minutes per flight). The actual delays in 2019 were in line with the delays predicted in the NOP 2019 - 2024.

It is important to note that Romania experienced traffic growth of 1% which means that Romania has been handling traffic levels considerably above the high traffic forecast for every year of RP2.

Delay forecast - ROMATSA						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.12	0.12	0.05 - 0.08			

### Planning and Effective Use of CDRs

Romania did not provide any data on this indicator.

### Observations on Planning and Effective Use of CDRs

It is noted that Romania, like many other States, is unable to monitor the planning and effective use of CDRs. The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
68%	70%	84%	68%	79%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
13%	4%	4%	3%	2%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.



## ROMANIA

## Monitoring of Airports Contribution to CAPACITY for 2019

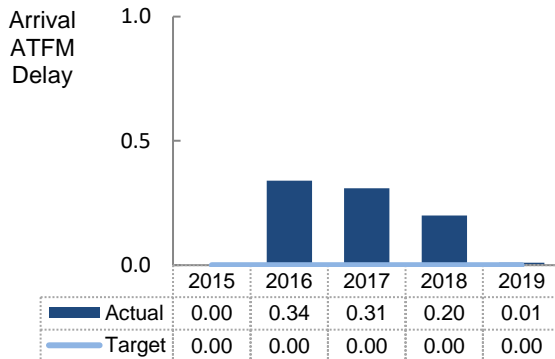
## 1. Overview

In Romania, ANS at Bucharest/Baneasa (LRBS) and Bucharest/Otopeni (LROP) are subject to RP2 monitoring. Romania has established a constant national target on arrival ATFM delay across the whole reference period (0.00 min/arr.) that was only met in 2015.

Traffic levels at these airports have drastically increased during RP2 (+29.3% with respect to 2015). In 2019, and after three years showing some moderate delays, the achieved arrival ATFM delay is reduced to almost zero (0.01 min/arr.).

Slot adherence at Romanian airports has improved once more and now surpasses the 95% mark.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Romania have practically disappeared (0.01 min/arr.)

The only contributor to these delays is Bucharest/Otopeni, where the delays have drastically reduced to 0.01 min/arr. in 2019. Delays were registered only in May and August, associated to aerodrome capacity and non-ATC related events.

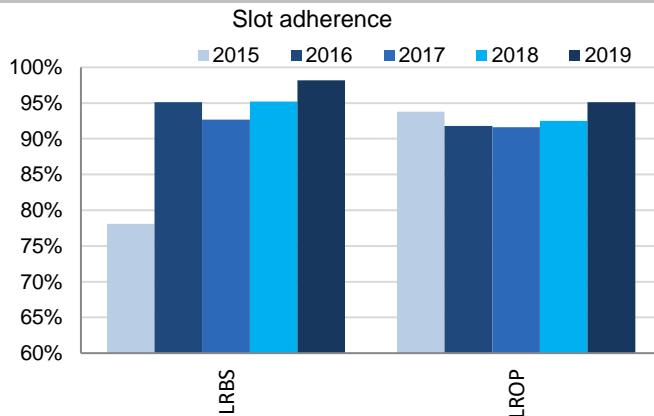
Bucharest/ Băneasa, as in previous years, shows zero ATFM delays, despite a 28% traffic increase in 2019 with respect to the previous year.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Romania has established a national target on arrival ATFM delay.

The DANUBE FAB PP presents an incentive scheme based on CRSTMP reasons. The achieved performance (all reasons) (2019: 0.01 min/arr.) does not meet the target (i.e. 0.00 min/arr.) and the actual value associated to CRSTMP reasons (0.01 min/arr.) only falls within the deadband of the incentive scheme, resulting in no penalties.

## 4. ATFM Slot Adherence



The compliance with ATFM slots in Romania has improved in 2019 and is now above 95%.

Slot adherence at Bucharest/Baneasa (LRBS) is remarkable with more than 98% and at Bucharest/Otopeni (LROP) the adherence has slightly improved, reaching now the 95% mark.

## 5. ATC Pre-departure Delay

ATC pre-departure delay at Bucharest Otopeni (LROP) has increased to 0.45 min/dep., slightly higher than for similar airports in Europe in terms of movements.

The Airport Operator Data Flow, required for the monitoring of this indicator is not yet established for LRBS.

## 6. Appendix

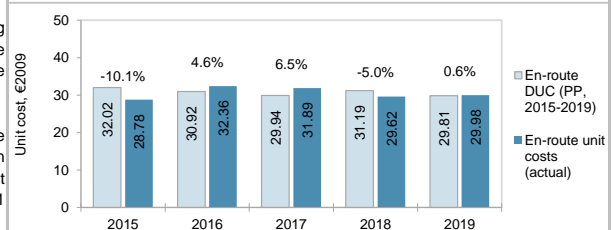
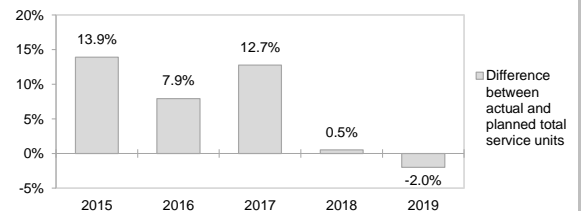
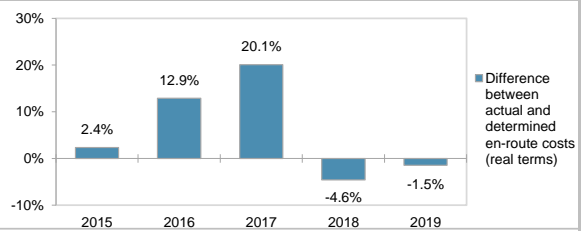
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bucharest/ Băneasa	LRBS	0.00	0.00	0.00	0.00	0.00	78.1%	95.1%	92.7%	95.2%	98.2%	n/a	n/a	n/a	n/a	n/a
Bucharest/ Otopeni	LROP	0.00	0.35	0.32	0.21	0.01	93.8%	91.8%	91.6%	92.5%	95.1%	n/a	n/a	n/a	0.36	0.45

## ROMANIA: En-route charging zone

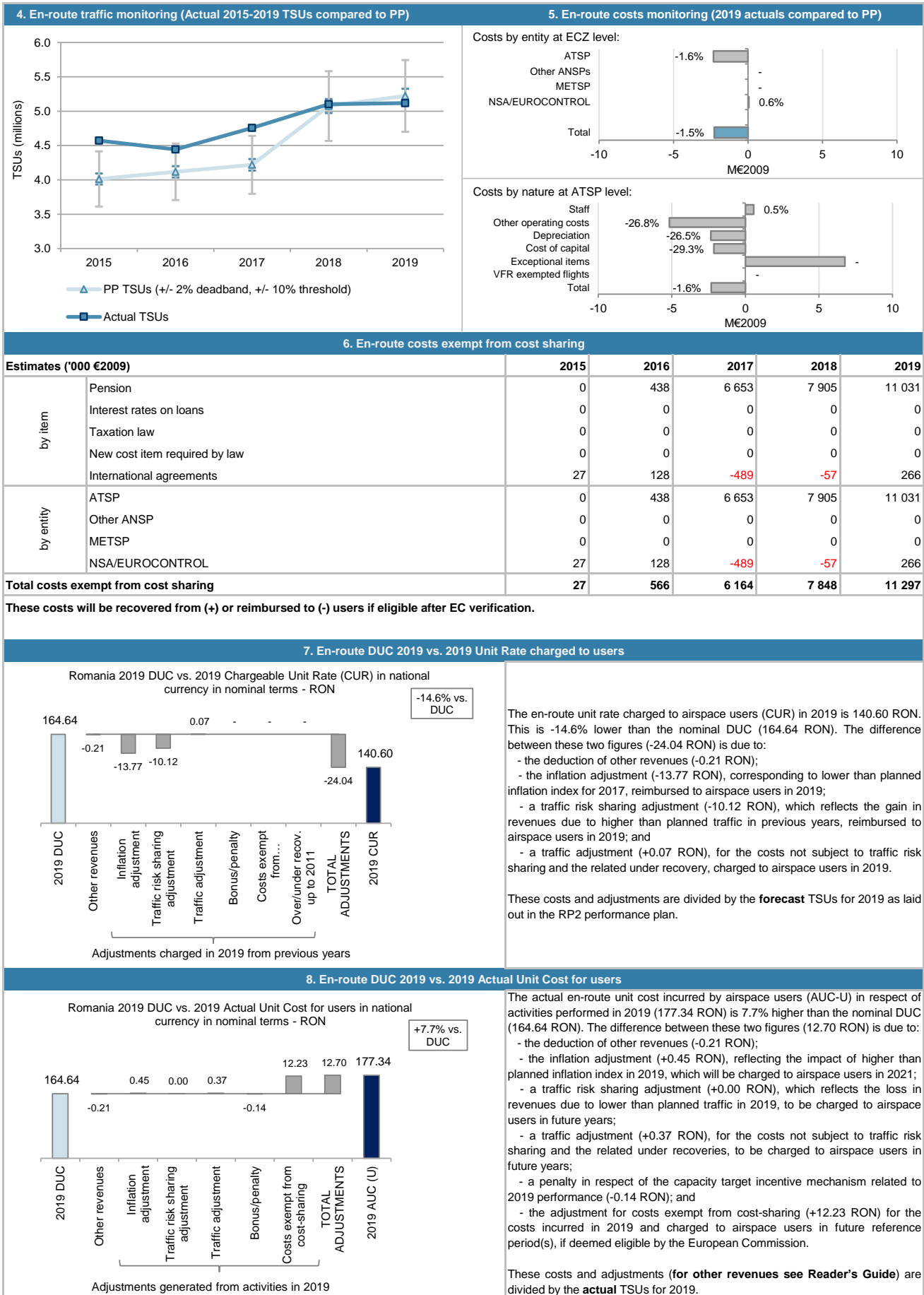
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Romania ECZ represents 2.3% of the SES en-route ANS determined costs in 2019					
· ATSP: ROMATSA					
· FAB: DANUBE FAB					
· National currency: RON Exchange rate 2009: 1 EUR = 4.23303 RON					
2. En-route DUC monitoring at Charging Zone level					
Romania: Data from RP2 Performance Plan (EC Decision 2018/2021 of 17 December 2018)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal RON)	690 507 397	704 650 329	718 659 958	848 257 273	859 757 273
Inflation %	3.1%	3.0%	2.8%	4.7%	3.1%
Inflation index (100 in 2009)	126.9	130.7	134.4	126.6	130.5
Real en-route costs (RON2009)	543 963 841	538 937 162	534 681 066	670 078 574	658 908 133
Total en-route Service Units	4 012 887	4 117 019	4 219 063	5 075 000	5 222 000
<b>Real en-route unit cost per Service Unit (RON2009)</b>	<b>135.55</b>	<b>130.90</b>	<b>126.73</b>	<b>132.04</b>	<b>126.18</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>32.02</b>	<b>30.92</b>	<b>29.94</b>	<b>31.19</b>	<b>29.81</b>
Romania: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal RON)	673 646 297	728 174 165	776 680 739	805 268 470	849 545 633
Inflation %	-0.4%	-1.1%	1.1%	4.1%	3.9%
Inflation index (100 in 2009)	121.0	119.6	121.0	125.9	130.8
Real en-route costs (RON2009)	556 843 745	608 611 836	642 090 888	639 504 989	649 343 364
Total en-route Service Units	4 570 684	4 442 936	4 756 852	5 100 776	5 117 438
<b>Real en-route unit cost per Service Unit (RON2009)</b>	<b>121.83</b>	<b>136.98</b>	<b>134.98</b>	<b>125.37</b>	<b>126.89</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>28.78</b>	<b>32.36</b>	<b>31.89</b>	<b>29.62</b>	<b>29.98</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal RON)	-16 861 100	23 523 837	58 020 780	-42 988 803	-10 211 640
in value					
in %	-2.4%	3.3%	8.1%	-5.1%	-1.2%
Inflation %	-3.5 p.p.	-4.1 p.p.	-1.7 p.p.	-0.6 p.p.	0.8 p.p.
in p.p.					
Inflation index (100 in 2009)	-6.0 p.p.	-11.1 p.p.	-13.4 p.p.	-0.7 p.p.	0.3 p.p.
in p.p.					
Real en-route costs (RON2009)	12 879 904	69 674 674	107 409 822	-30 573 585	-9 564 769
in value					
in %	2.4%	12.9%	20.1%	-4.6%	-1.5%
Total en-route Service Units	557 797	325 917	537 789	25 776	-104 562
in value					
in %	13.9%	7.9%	12.7%	0.5%	-2.0%
<b>Real en-route unit cost per Service Unit (RON2009)</b>	<b>-13.72</b>	<b>6.08</b>	<b>8.25</b>	<b>-6.66</b>	<b>0.71</b>
in value					
in %	-10.1%	4.6%	6.5%	-5.0%	0.6%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-3.24</b>	<b>1.44</b>	<b>1.95</b>	<b>-1.57</b>	<b>0.17</b>
in value					
in %	-10.1%	4.6%	6.5%	-5.0%	0.6%
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (126.89 RON2009 or 29.98 €2009) is +0.6% higher than planned in the PP (126.18 RON2009 or 29.81 €2009). This results from the combination of slightly lower than planned TSUs (-2.0%) and slightly lower than planned en-route costs in real terms (-1.5%, or -2.3 ME2009). No corrective actions are detailed in the DANUBE FAB Monitoring report.					
<b>En-route service units</b>					
The difference between actual and planned TSUs (-2.0%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (ROMATSA) bearing a loss of -2.8 ME2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -1.2% (-10.2 MRON) lower than planned. However, since the actual inflation index is slightly higher than planned (+0.3 p.p.), actual en-route costs are -1.5% (-2.3 ME2009) below plans when expressed in real terms. The slightly lower than planned en-route costs in real terms are driven by ROMATSA (-1.6%, or -2.3 ME2009), while the costs for the NSA/EUROCONTROL (+0.6%, or +0.1 ME2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +11.3 ME2009 comprising +11.0 ME2009 for pension and +0.3 ME2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for the Romania charging zone, actual en-route TSUs are +5.9% higher than planned, while actual costs in real terms are also +5.1% higher than the determined costs (some +35.4 ME2009). As a result, the weighted average actual unit cost over RP2 (129.08 RON2009 or 30.49 €2009) is -0.8% lower than planned in the NPP (130.11 RON2009 or 30.74 €2009).					



ROMANIA: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



## ROMANIA: En-route ATSP (ROMATSA)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	119 885	118 602	117 543	148 697	146 055
Actual costs for the ATSP	122 482	134 180	142 518	141 636	143 735
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-2 597	-15 579	-24 975	7 061	2 319
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	438	6 653	7 905	11 031
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-2 597</b>	<b>-15 140</b>	<b>-18 323</b>	<b>14 966</b>	<b>13 350</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	13.9%	7.9%	12.7%	0.5%	-2.0%
Determined costs for the ATSP (PP) - based on actual inflation	119 127	122 737	123 687	141 564	137 943
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>5 242</b>	<b>4 633</b>	<b>5 442</b>	<b>719</b>	<b>-2 760</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-130</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>2 644</b>	<b>-10 507</b>	<b>-12 881</b>	<b>15 685</b>	<b>10 460</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	136 694	137 931	134 442	116 211	112 745
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	136 694	137 931	134 442	116 211	112 745
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	9 008	9 275	9 140	7 533	7 309
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.6%	6.7%	6.8%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	9 008	9 275	9 140	7 533	7 309
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>9 008</b>	<b>9 275</b>	<b>9 140</b>	<b>7 533</b>	<b>7 309</b>
<b>Revenue/costs for the en-route activity</b>	<b>119 885</b>	<b>118 602</b>	<b>117 543</b>	<b>148 697</b>	<b>146 055</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>7.5%</b>	<b>7.8%</b>	<b>7.8%</b>	<b>5.1%</b>	<b>5.0%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.6%</b>	<b>6.7%</b>	<b>6.8%</b>	<b>6.5%</b>	<b>6.5%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	131 269	127 296	107 592	75 072	79 730
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	131 269	127 296	107 592	75 072	79 730
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	8 651	8 560	7 315	4 867	5 169
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.6%	6.7%	6.8%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	8 650	8 560	7 315	4 867	5 169
Net ATSP gain(+)/loss(-) on en-route activity	2 644	-10 507	-12 881	15 685	10 460
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>11 294</b>	<b>-1 947</b>	<b>-5 566</b>	<b>20 552</b>	<b>15 628</b>
<b>Revenue/costs for the en-route activity</b>	<b>125 126</b>	<b>123 673</b>	<b>129 638</b>	<b>157 321</b>	<b>154 195</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>9.0%</b>	<b>-1.6%</b>	<b>-4.3%</b>	<b>13.1%</b>	<b>10.1%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>8.6%</b>	<b>-1.5%</b>	<b>-5.2%</b>	<b>27.4%</b>	<b>19.6%</b>

**ROMANIA: En-route ATSP (ROMATSA)**

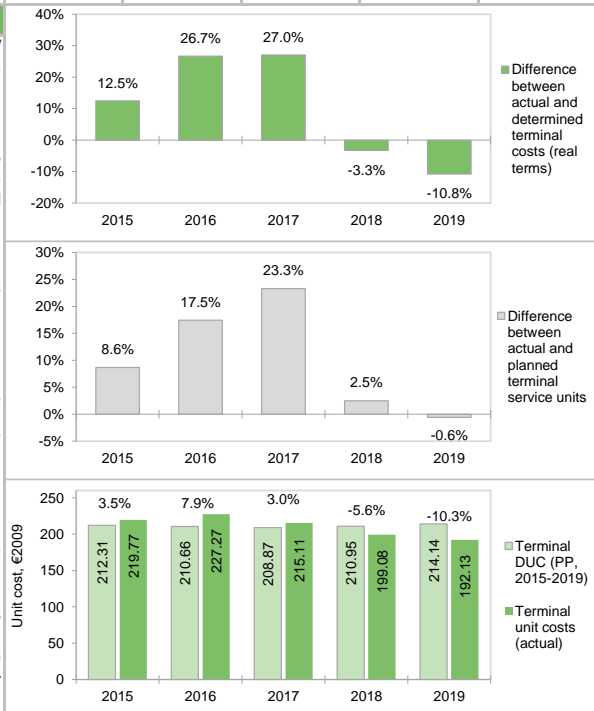
**Monitoring of en-route COST-EFFICIENCY for 2019**



## ROMANIA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services						
· Romania TCZ represents 1.3% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No		
· ATSP: ROMATSA		· Airports with fewer than 70,000 IFRs ATMs:		1		
· National currency: RON		· Airports with between 70,000 and 225,000 IFRs ATMs:		1		
· Number of airports in charging zone in 2019: 2, of which:		· Airports with more than 225,000 IFRs ATMs:		0		
2. Terminal DUC monitoring at Charging Zone level						
Romania: Data from RP2 Performance Plan						
	2015D	2016D	2017D	2018D	2019D	
Terminal costs (nominal RON)	57 805 814	61 551 138	65 441 925	80 031 502	88 114 502	
Inflation %	3.1%	3.0%	2.8%	4.7%	3.1%	
Inflation index (100 in 2009)	126.9	130.7	134.4	126.6	130.5	
Real terminal costs (RON2009)	45 537 923	47 076 109	48 688 615	63 220 672	67 529 945	
Total terminal Service Units	50 670	52 793	55 069	70 800	74 500	
<b>Real terminal unit cost per Service Unit (RON2009)</b>	<b>898.72</b>	<b>891.71</b>	<b>884.14</b>	<b>892.95</b>	<b>906.44</b>	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>212.31</b>	<b>210.66</b>	<b>208.87</b>	<b>210.95</b>	<b>214.14</b>	
Romania: Actual data from Reporting Tables						
	2015A	2016A	2017A	2018A	2019A	
Terminal costs (nominal RON)	61 954 069	71 379 012	74 801 229	76 990 115	78 798 162	
Inflation %	-0.4%	-1.1%	1.1%	4.1%	3.9%	
Inflation index (100 in 2009)	121.0	119.6	121.0	125.9	130.8	
Real terminal costs (RON2009)	51 211 943	59 658 958	61 839 035	61 141 798	60 228 741	
Total terminal Service Units	55 050	62 012	67 912	72 555	74 054	
<b>Real terminal unit cost per Service Unit (RON2009)</b>	<b>930.28</b>	<b>962.05</b>	<b>910.58</b>	<b>842.70</b>	<b>813.31</b>	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>219.77</b>	<b>227.27</b>	<b>215.11</b>	<b>199.08</b>	<b>192.13</b>	
Difference between Actuals and Planned						
	2015	2016	2017	2018	2019	
Terminal costs (nominal RON)	in value	4 148 255	9 827 874	9 359 304	-3 041 387	-9 316 339
	in %	7.2%	16.0%	14.3%	-3.8%	-10.6%
Inflation %	in p.p.	-3.5 p.p.	-4.1 p.p.	-1.7 p.p.	-0.6 p.p.	0.8 p.p.
Inflation index (100 in 2009)	in p.p.	-6.0 p.p.	-11.1 p.p.	-13.4 p.p.	-0.7 p.p.	0.3 p.p.
Real terminal costs (RON2009)	in value	5 674 021	12 582 849	13 150 420	-2 078 873	-7 301 205
	in %	12.5%	26.7%	27.0%	-3.3%	-10.8%
Total terminal Service Units	in value	4 380	9 219	12 843	1 755	-446
	in %	8.6%	17.5%	23.3%	2.5%	-0.6%
<b>Real terminal unit cost per Service Unit (RON2009)</b>	in value	<b>31.57</b>	<b>70.34</b>	<b>26.44</b>	<b>-50.25</b>	<b>-93.13</b>
	in %	<b>3.5%</b>	<b>7.9%</b>	<b>3.0%</b>	<b>-5.6%</b>	<b>-10.3%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	in value	<b>7.46</b>	<b>16.62</b>	<b>6.25</b>	<b>-11.87</b>	<b>-22.00</b>
	in %	<b>3.5%</b>	<b>7.9%</b>	<b>3.0%</b>	<b>-5.6%</b>	<b>-10.3%</b>
3. Focus on terminal at State/Charging Zone level						
This analysis focuses on Romania Terminal Charging Zone (TCZ) comprising Bucuresti / HenriCoanda (LROP) and Bucuresti / Baneasa-Aurel Vlaicu (LRBS) airports. See <b>Note 1</b> at the end of this Report.						
<b>Terminal unit cost</b>						
In 2019, the actual terminal unit cost in real terms (813.31 RON2009 or 192.13 €2009) is -10.3% lower than planned in the PP (906.44 RON2009 or 214.14 €2009). This results from the combination of slightly lower than planned TNSUs (-0.6%) and much lower than planned terminal costs in real terms (-10.8%, or -1.7 M€2009).						
<b>Terminal service units</b>						
The traffic risk sharing mechanism does not apply in Romania TCZ. In 2019, the actual TNSUs in Romania TCZ are -0.6% lower than planned in the PP.						
<b>Terminal costs</b>						
In nominal terms, actual terminal costs are -10.6% (-9.3 MRON) lower than planned. However, since the actual inflation index is slightly higher than planned (+0.3 p.p.), actual terminal costs are -10.8% (-1.7 M€2009) below plans when expressed in real terms. The lower than planned terminal costs in real terms are driven by ROMATSA (-10.8%, or -1.7 M€2009) and the NSA (-9.8%, or -0.01 M€2009). A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +1.4 M€2009 corresponding to pensions. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for Romania TCZ, actual TNSUs are +9.1% higher than planned, while actual costs in real terms are also +8.1% higher than the determined costs (some +5.2 M€2009). As a result, the weighted average actual unit cost over RP2 (886.90 RON2009 or 209.52 €2009) is -1.0% lower than planned in the NPP (895.41 RON2009 or 211.53 €2009).						



ROMANIA: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	-10.8%
Other ANSPs	-
METSP	-
NSA	-9.8%
Total	-10.8%

Costs by nature at ATSP level:

Staff	-14.4%
Other operating costs	-34.2%
Depreciation	76.2%
Cost of capital	-
Exceptional items	-21.0%
VFR exempted flights	9.0%
Total	-10.8%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	56	317	516	1 417
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	56	317	516	1 417
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>56</b>	<b>317</b>	<b>516</b>	<b>1 417</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

The terminal unit rate charged to airspace users (CUR) in 2019 is 913.73 RON. This is -22.7% lower than the nominal DUC (1 182.74 RON). The difference between these two figures (-269.01 RON) relates to:

- the inflation adjustment (-87.89 RON), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019; and
- a traffic adjustment (-181.12 RON), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (1 299.00 RON) is 9.8% higher than the nominal DUC (1 182.74 RON). The difference between these two figures (116.25 RON) is mainly due to:

- the inflation adjustment (+3.19 RON), reflecting the impact of higher than planned inflation index in 2019, which will be charged to airspace users in 2021;
- a traffic adjustment (+7.13 RON), for the costs not subject to traffic risk sharing and the related under recoveries, to be charged to airspace users in future years; and
- the adjustment for costs exempt from cost-sharing (+105.94 RON) for the costs incurred in 2019 and charged to airspace users in future reference period(s), if deemed eligible by the European Commission.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## ROMANIA: Terminal ATSP (ROMATSA)

## Monitoring of terminal COST-EFFICIENCY for 2019

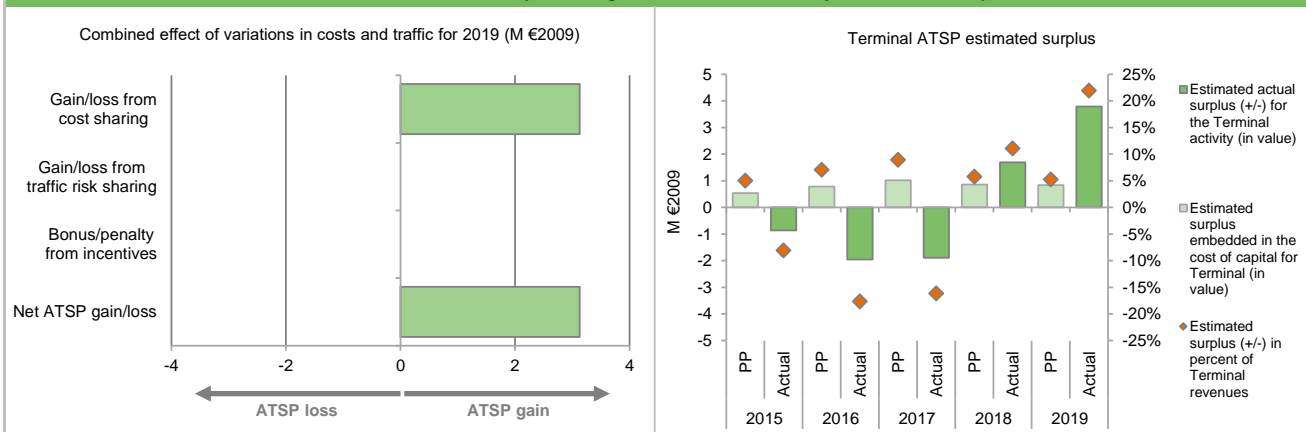
9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	10 641	11 005	11 386	14 809	15 827
Actual costs for the ATSP	11 975	13 966	14 485	14 327	14 115
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-1 335	-2 962	-3 099	482	1 713
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	56	317	516	1 417
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-1 335</b>	<b>-2 905</b>	<b>-2 783</b>	<b>997</b>	<b>3 129</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-1 335</b>	<b>-2 905</b>	<b>-2 783</b>	<b>997</b>	<b>3 129</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	7 869	10 850	13 805	13 110	12 719
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	7 869	10 850	13 805	13 110	12 719
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	538	780	1 018	861	835
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.8%	7.2%	7.4%	6.6%	6.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	538	780	1 018	861	835
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>538</b>	<b>780</b>	<b>1 018</b>	<b>861</b>	<b>835</b>
<b>Revenue/costs for the terminal activity</b>	<b>10 641</b>	<b>11 005</b>	<b>11 386</b>	<b>14 809</b>	<b>15 827</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>5.1%</b>	<b>7.1%</b>	<b>8.9%</b>	<b>5.8%</b>	<b>5.3%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.8%</b>	<b>7.2%</b>	<b>7.4%</b>	<b>6.6%</b>	<b>6.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	6 945	13 292	12 125	10 656	10 041
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	6 945	13 292	12 125	10 656	10 041
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	475	955	894	700	659
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.8%	7.2%	7.4%	6.6%	6.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	475	955	894	700	659
Net ATSP gain(+)/loss(-) on terminal activity	-1 335	-2 905	-2 783	997	3 129
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>-860</b>	<b>-1 950</b>	<b>-1 888</b>	<b>1 697</b>	<b>3 788</b>
<b>Revenue/costs for the terminal activity</b>	<b>10 641</b>	<b>11 061</b>	<b>11 703</b>	<b>15 324</b>	<b>17 244</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>-8.1%</b>	<b>-17.6%</b>	<b>-16.1%</b>	<b>11.1%</b>	<b>22.0%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>-12.4%</b>	<b>-14.7%</b>	<b>-15.6%</b>	<b>15.9%</b>	<b>37.7%</b>



## ROMANIA: Terminal ATSP (ROMATSA)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 ROMATSA terminal costs vs. PP

In 2019, ROMATSA actual terminal costs are -10.8% (-1.7 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much lower staff costs (-14.4%, or -1.8 M€2009);
- much lower other operating costs (-34.2%, or -0.7 M€2009);
- much higher depreciation costs (+76.2%, or +0.4 M€2009);
- much lower cost of capital (-21.0%, or -0.2 M€2009); and,
- unplanned exceptional costs (+0.6 M€2009).

No drivers underlying the deviation of 2019 actual costs outlined above are provided in the additional information to June 2020 terminal Reporting Tables or in the DANUBE FAB 2019 Monitoring Report. Similarly, no information is provided on the nature of the actual exceptional costs (3.3 MRON).

## ROMATSA net gain/loss on terminal activity in 2019

As shown in box 9, ROMATSA generated a net gain of +3.1 M€2009 on the terminal activity arising from the cost sharing mechanism.

The gain from cost sharing mentioned above (+3.1 M€2009) includes amounts reported by ROMATSA for cost exempt from cost sharing (+1.4 M€2009). Should these costs not be deemed eligible by the European Commission, ROMATSA would record a net gain of +1.7 M€2009 for the terminal activity in 2019.

## ROMATSA overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+3.1 M€2009) and the surplus embedded in the actual cost of capital (+0.7 M€2009) amounts to +3.8 M€2009 (22.0% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 37.7%, which is much higher than the 6.6% planned in the PP.

When considering the whole of RP2 (2015-2019), ROMATSA generated cumulative losses in respect of cost sharing of -2.9 M€2009, as actual total costs for RP2 were higher than planned. The TCZ is not subject to traffic risk sharing. Adding the estimated surplus embedded in the terminal cost of capital (+3.7 M€2009 over RP2) leads to an overall estimated surplus of +0.8 M€2009, which corresponds to an average ex-post return on equity of 1.5% (compared to 6.9% as initially planned in the NPP).

## ROMANIA: Gate-to-gate

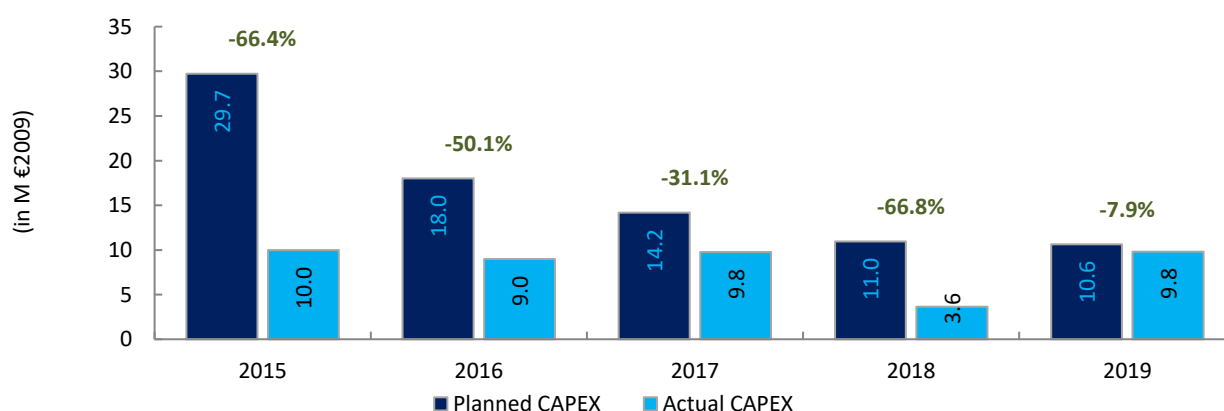
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Romania: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	128 504 603	127 317 114	126 311 665	158 297 620	155 658 744																																							
Real terminal costs (EUR2009)	10 757 760	11 121 138	11 502 072	14 935 087	15 953 099																																							
Real gate-to-gate costs (EUR2009)	139 262 364	138 438 251	137 813 736	173 232 707	171 611 843																																							
En-route share (%)	92.3%	92.0%	91.7%	91.4%	90.7%																																							
<b>Romania: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	131 547 318	143 776 878	151 685 882	151 074 996	153 399 188																																							
Real terminal costs (EUR2009)	12 098 176	14 093 677	14 608 693	14 443 979	14 228 281																																							
Real gate-to-gate costs (EUR2009)	143 645 495	157 870 555	166 294 575	165 518 975	167 627 469																																							
En-route share (%)	91.6%	91.1%	91.2%	91.3%	91.5%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)																																												
in value	4 383 131	19 432 303	28 480 838	-7 713 732	-3 984 374																																							
in %	3.1%	14.0%	20.7%	-4.5%	-2.3%																																							
En-route share																																												
in p.p.	-0.7 p.p.	-0.9 p.p.	-0.4 p.p.	-0.1 p.p.	0.8 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are -2.3% (-4.0 M€2009) lower than planned due to lower than planned en-route costs (-1.5%, or -2.3 M€2009) and terminal costs (-10.8%, or -1.7 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (91.5%) is slightly higher than planned in the PP for 2019 (90.7%).</p> <p>For ROMATSA, the estimated gate-to-gate economic surplus in 2019 amounts to 19.4 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 11.3% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>92.3%</td> <td>7.7%</td> </tr> <tr> <td>Actual</td> <td>91.6%</td> <td>8.4%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>92.0%</td> <td>8.0%</td> </tr> <tr> <td>Actual</td> <td>91.1%</td> <td>8.9%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>91.7%</td> <td>8.3%</td> </tr> <tr> <td>Actual</td> <td>91.2%</td> <td>8.8%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>91.4%</td> <td>8.6%</td> </tr> <tr> <td>Actual</td> <td>91.3%</td> <td>8.7%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>90.7%</td> <td>9.3%</td> </tr> <tr> <td>Actual</td> <td>91.5%</td> <td>8.5%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	92.3%	7.7%	Actual	91.6%	8.4%	2016	Determined	92.0%	8.0%	Actual	91.1%	8.9%	2017	Determined	91.7%	8.3%	Actual	91.2%	8.8%	2018	Determined	91.4%	8.6%	Actual	91.3%	8.7%	2019	Determined	90.7%	9.3%	Actual	91.5%	8.5%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	92.3%	7.7%																																									
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	Actual	91.5%	8.5%																																									
<b>3. Technical notes on en-route and terminal information reported by Romania</b>																																												
<b>Note 1: Revision of RP2 cost-efficiency targets for the years 2018 to 2019</b>																																												
<p>Romania has revised their RP2 en-route cost-efficiency targets for the years 2018 to 2019. The figures shown in this report reflect: i) the initial adopted Performance Plan (EC Decision 2015/348 of 2 March 2015) for the years 2015 and 2017; and ii) the revised Performance Plan (EC Decision 2018/2021 of 17 December 2018) for the years 2018 to 2019.</p> <p>It is also noted that a similar revision was also done for the terminal determined unit costs in Romania terminal charging zone for the period 2018 to 2019.</p>																																												

## ROMANIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: ROMATSA						
FAB: DANUBE FAB						
Currency: RON						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	159.7	99.7	80.7	58.7	58.7	457.7
Main CAPEX (in nominal M)	108.3	35.2	38.4	15.2	0.0	197.1
Inflation %	3.1%	3.0%	2.8%	4.7%	3.1%	
Inflation index (100 in 2009)	126.9	130.7	134.4	126.6	130.5	
Exchange rate 2009 (1 EUR =)	4.23303	4.23303	4.23303	4.23303	4.23303	
<b>Total CAPEX (in M €2009)</b>	<b>29.7</b>	<b>18.0</b>	<b>14.2</b>	<b>11.0</b>	<b>10.6</b>	<b>83.5</b>
Main CAPEX (in M €2009)	20.2	6.4	6.7	2.8	0.0	36.1
% Main of Total CAPEX	67.8%	35.3%	47.5%	25.8%	0.0%	43.2%
Real gate-to-gate ANSP costs (in M €2009)	130.5	129.6	128.9	163.5	161.9	714.4
Total CAPEX as % of Real gate-to-gate ANSP costs	22.8%	13.9%	11.0%	6.7%	6.6%	11.7%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	51.2	45.6	50.1	19.4	54.2	220.4
Main CAPEX (in nominal M)	18.4	17.6	40.0	4.9	14.9	95.8
Inflation %	-0.4%	-1.1%	1.1%	4.1%	3.9%	
Inflation index (100 in 2009)	121.0	119.6	121.0	125.9	130.8	
Exchange rate 2009 (1 EUR =)	4.23303	4.23303	4.23303	4.23303	4.23303	
<b>Total CAPEX (in M €2009)</b>	<b>10.0</b>	<b>9.0</b>	<b>9.8</b>	<b>3.6</b>	<b>9.8</b>	<b>42.2</b>
Main CAPEX (in M €2009)	3.6	3.5	7.8	0.9	2.7	18.5
% Main of Total CAPEX	36.0%	38.6%	80.0%	25.3%	27.4%	43.8%
Real gate-to-gate ANSP costs (in M €2009)	134.5	148.1	157.0	156.0	157.9	753.4
Total CAPEX as % of Real gate-to-gate ANSP costs	7.4%	6.1%	6.2%	2.3%	6.2%	5.6%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-108.6	-54.2	-30.7	-39.3	-4.5	-237.2
Total CAPEX (in M €2009)	-19.7	-9.0	-4.4	-7.3	-0.8	-41.3
<b>Total CAPEX (in %, M €2009)</b>	<b>-66.4%</b>	<b>-50.1%</b>	<b>-31.1%</b>	<b>-66.8%</b>	<b>-7.9%</b>	<b>-49.5%</b>



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# Annual Monitoring Report 2019

Local level view

DK SE FAB

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## DK-SE FAB

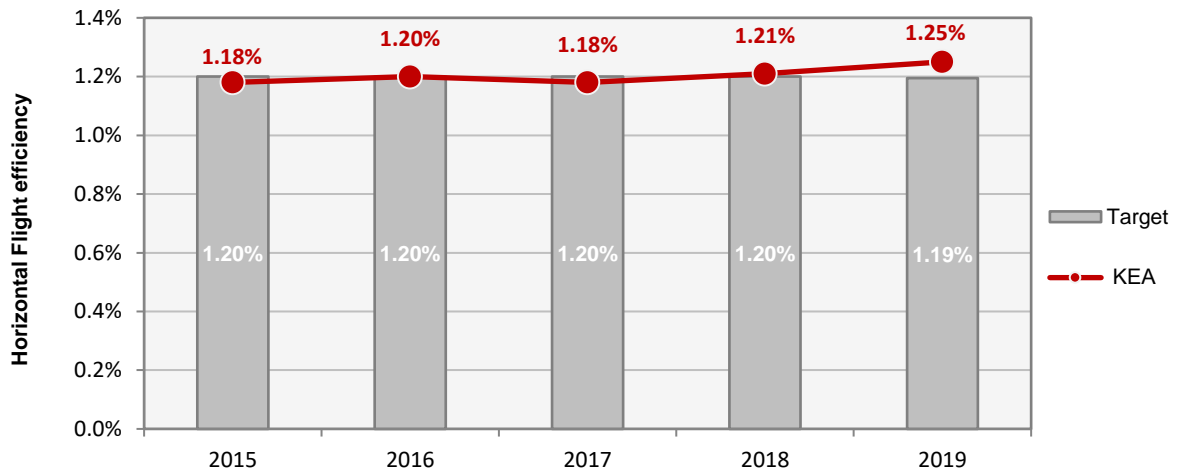
## Monitoring of SAFETY for 2019

Effectiveness of Safety Management					2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs							C
	at ANSP level	For Safety Culture MO							C
		For all other MOs							D
FAB level	States / Regulatory authorities	For all MOs	A	A	A	B	B	B	
	ANSPs	For Safety Culture MO	D	D	D	D	D	D	
	ANSPs	For all other MOs	C	C	C	C	C	C	
Application of the severity classification of the Risk Analysis Tool (RAT)					2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Ground Score									
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%			100%	
	Runway Incursions (RIs)				>= 80%			100%	
FAB level	Separation Minima Infringements (SMIs)		67%	100%	100%	100%	100%	100%	
	Runway Incursions (RIs)		100%	100%	100%	100%	100%	100%	
Overall Score									
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%		
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%		
	ATM Specific occurrences (ATM-S)				>= 80%		100%		
FAB level	Separation Minima Infringements (SMIs)		57%	100%	100%	100%	100%		
	Runway Incursions (RIs)		75%	100%	100%	100%	100%		
	ATM Specific occurrences (ATM-S)		100%	100%	100%	95%	100%		
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)									
Observations									
The lowest level in the EoS Components/areas of the States is Level "B" which is below the 2019 EoS target level. Safety Risk Management and Safety Assurance met the 2019 EoS target level.									
With regards the ANSP EoS level, the minimum level for all components met the 2019 EoS target level.									

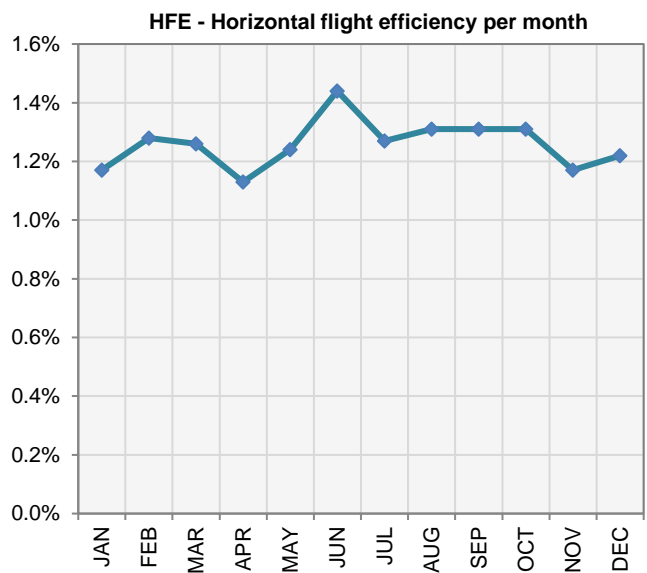
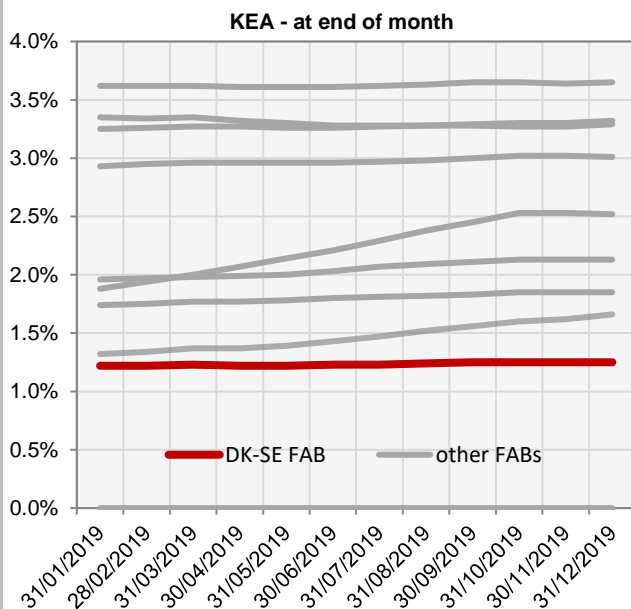
DK-SE FAB

Monitoring of ENVIRONMENT for 2019

KEA					
	2015	2016	2017	2018	2019
FAB Target	1.20%	1.20%	1.20%	1.20%	1.19%
KEA Value	1.18%	1.20%	1.18%	1.21%	1.25%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KEA (at end of month)	1.22%	1.22%	1.23%	1.22%	1.22%	1.23%	1.23%	1.24%	1.25%	1.25%	1.25%	1.25%
HFE	1.17%	1.28%	1.26%	1.13%	1.24%	1.44%	1.27%	1.31%	1.31%	1.31%	1.17%	1.22%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.



**DK-SE FAB**

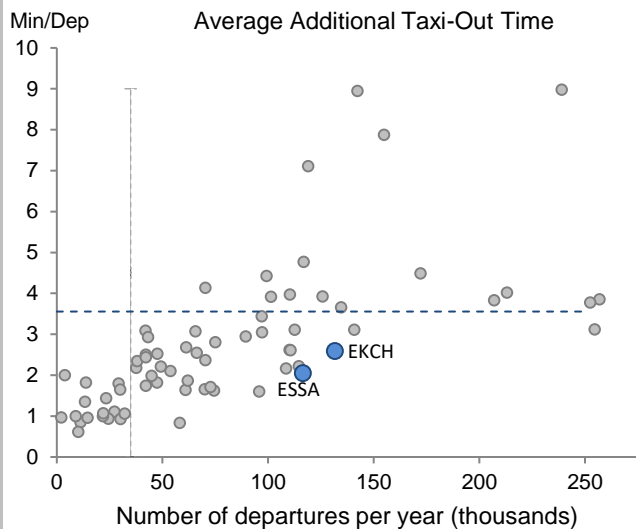
**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

DK-SE FAB is monitored for RP2 at the two main national airports: Copenhagen/Kastrup and Stockholm/Arlanda, where traffic has only slightly increased in the course of RP2, even decreasing in 2019. Both airports have a fully implemented Airport Operator Data Flow and show similar performance regarding additional times, well below the averages for airports under RP2 monitoring.

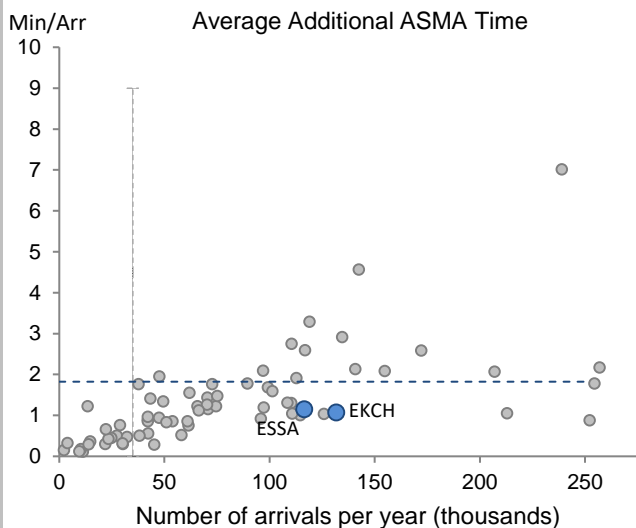
DK-SE FAB contributes remarkably to the airport-related ANS Capacity performance in Europe.

**2. Additional Taxi-Out Time**



The additional taxi-out times at both Copenhagen and Stockholm/Arlanda airports show during the entire reference period best-in-class performance for airports with a yearly traffic around or above 250000 flights.

**3. Additional ASMA Time**



The observed additional ASMA times at the airports within the DK-SE FAB are a little over a minute, well below the RP2 average (1.82 min/arr.) and also below those at similar airports in terms of movements.

## DK-SE FAB

## Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay												
	2015	2016	2017	2018	2019	Observations						
<b>FAB Reference Value</b>	0.10	0.10	0.10	0.09	0.09							
<b>FAB Target</b>	0.10	0.10	0.10	0.09	0.09							
<b>Actual performance</b>	0.01	0.05	0.02	0.04	0.07							
DK - SE FAB assessment of capacity performance												
No justification required, FAB targets were met.												
Monitoring process for capacity performance												
The en-route ATFM delay per flight is monitored during the reference period using PRU website Pan-European ANS Performance repository.												
Application of Corrective Measures for Capacity												
N/A												
Capacity Planning												
The capacity planning is consistent with required performance.												
Assessment of capacity performance												
It is noted that the DK SE FAB provided a positive contribution to the Union-wide en route capacity performance in 2019, as it has for each year of RP2 to date. Actual delays were significantly lower than predicted in the NOP 2019-2024.												
The evolution of traffic in DK SE FAB is shown below and, with an annual traffic decrease of just over 1% in 2019, traffic levels remain below the baseline scenario, having consistently remained below the forecasted baseline scenario as calculated by STATFOR (and available when the FAB performance plans and associated capacity plans were being determined), for the whole of RP2.												
EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	1 034		1 072		1 118		1 156		1 196		1 236	
<b>Base</b>	1 023	<b>1 005</b>	1 052	<b>1 011</b>	1 082	<b>1 035</b>	1 105	<b>1 061</b>	1 130	<b>1 090</b>	1 155	<b>1 075</b>
<b>Low</b>	1 012		1 029		1 036		1 044		1 052		1 060	
Delay forecast (with eNM/ANSPs measures for 2019/2020)												
	2019	2020	2021	2022	2023	2024						
<b>NOP 2018 - 2022</b>	0.04	0.04	0.06	0.07	N/A	N/A						
<b>NOP 2019 - 2024</b>	0.12	0.14	0.15 – 0.22									

### En route Capacity Incentive Scheme

A FAB wide incentive scheme was applicable for en route capacity performance. The bonuses and penalties are as illustrated below.

	2015	2016	2017	2018	2019
0,00	0,50%	0,50%	0,50%	0,50%	0,50%
0,01	0,25%	0,25%	0,25%	0,25%	0,25%
0,02	Dead band	Dead band	Dead band	Dead band	Dead band
0,03					
0,04					
0,05					
0,06					
0,07					
0,08					
0,09					
0,10	Target	Target	Target	Dead band	Dead band
0,11					
0,12					
0,13					
0,14	Dead band	Dead band	Dead band		
0,15					
0,16					
0,17	-0,25%	-0,25%	-0,25%		
0,18	-0,50%	-0,50%	-0,50%		
0,19	-0,25%	-0,25%	-0,25%		
0,20	-0,50%	-0,50%	-0,50%		

### Result of FAB Capacity Incentive Scheme

The actual value of the FAB en route capacity performance was 0,07 minutes delay per flight which falls within the deadband of the FAB wide incentive scheme. Therefore, even though the FAB en route capacity performance was better than the FAB target, and provided a positive contribution to the Union-wide target, no bonus will be applicable to the ANSPs in the DK-SE FAB for 2019 performance.

### Update on Military dimension of the plan

No new information provided.

### Observations on Military dimension of the plan

Nil

### Application of FUA

No new information provided

### Observations of the Application of FUA

Nil

**DK-SE FAB**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

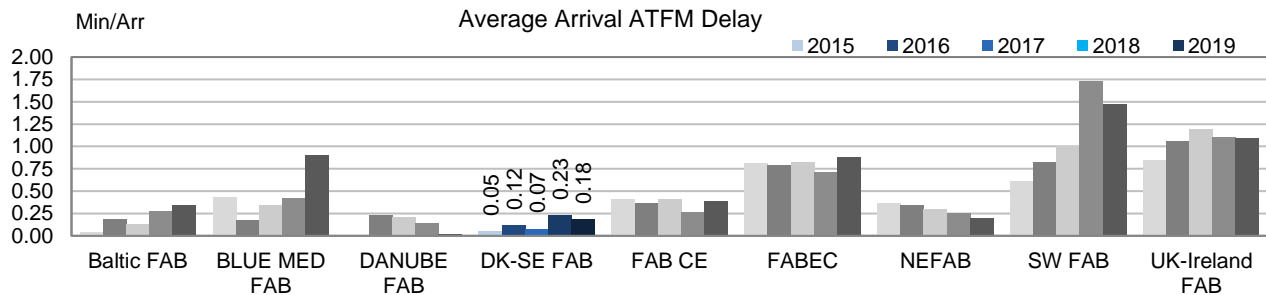
DK-SE FAB contributes adequately to the airport-related ANS Capacity performance in Europe. The observed performance in RP2 range within the best-in-class category.

Although the average arrival ATFM delay in 2019 has decreased in 2019, and the traffic levels since the beginning of the reference period have not changed much (low increase in the first years to then actually decrease at the end), there is a slight deterioration of the arrival ATFM delays with respect to the beginning of the RP.

Both airports range above 95% in terms of ATFM slot adherence and accrue low ATC pre-departure delay.

Considering the level of traffic in Denmark and Sweden, both around 250 000 flights, DK-SE FAB certainly serves as a benchmark for airport-related ANS Capacity contributions across Europe at airports around and below that level of traffic.

**2. Arrival ATFM Delay**



Regulations associated to weather remain the main contributor to the delays registered in 2019 at both airports, together with aerodrome capacity regulations.

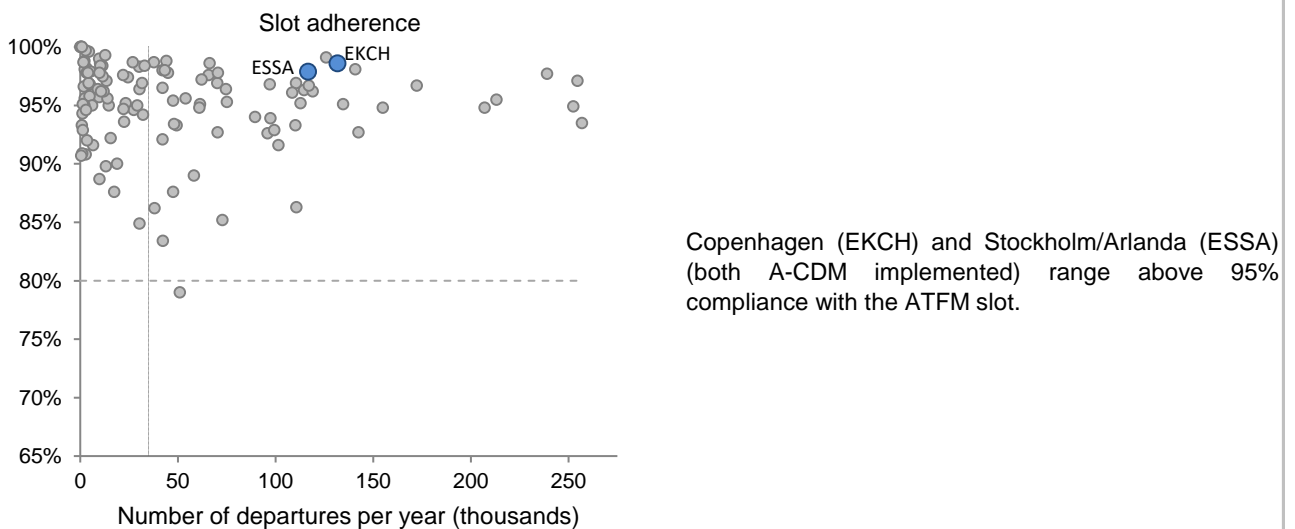
**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

The DK-SE FAB performance plan sets a national target on arrival ATFM delay for each of the states with a breakdown per airport for each of the years of the reference period. For both states, the national target on arrival ATFM delay is consistent with the observed historical performance.

The Danish target is challenging, setting the target value at 50% of the historical performance, while Sweden sets an upper bound in line with the maximum of arrival ATFM delay observed throughout the recent years. The target is met by both countries in 2019.

The DK-SE FAB performance plan presents no incentive schemes for the national targets on arrival ATFM delay.

**4. ATFM Slot Adherence**



**5. ATC Pre-departure Delay**

A negligible share of ATC pre-departure delay (0.09 min/dep) is accrued within DK-SE FAB in 2019.

# **Annual Monitoring Report 2019**

## Local level view

### Denmark

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## DENMARK

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	52	C	C	C	B	B
NAVIAIR	85	D	D	D	D	D

Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.

Application of the severity classification of the Risk Analysis Tool (RAT)		
	RAT application (%)	
	ATM Ground	ATM Overall
Separation Minima Infringements (SMIs)	No data submitted	No data submitted
Runway Incursions (RIs)	No data submitted	No data submitted
ATM Specific Occurrences (ATM-S)	No data submitted	No data submitted
<b>Source of RAT data:</b>	CAA	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

Just culture		
State level	Number of questions answered	
	YES	NO
Policy and its implementation	6	3
Legal/Judiciary	5	2
Occurrence reporting and Investigation	2	0
<b>TOTAL</b>	<b>13</b>	<b>5</b>

NAVIAIR	Number of questions answered	
	YES	NO
Policy and its implementation	12	1
Legal/Judiciary	2	1
Occurrence reporting and Investigation	6	2
<b>TOTAL</b>	<b>20</b>	<b>4</b>

Observations
<p>Two out of the four reviewed EoSM Components/areas of the State did not meet the 2019 EoSM target level "C". This was the result of three out of 36 questions not reaching the level C.</p> <p>RAT data have not been submitted neither through AST mechanism nor in the FAB Monitoring Report in June. Denmark is requested to provide this information asap.</p>

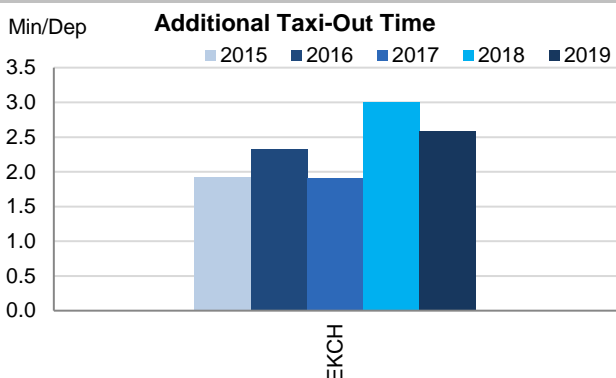
**DENMARK**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

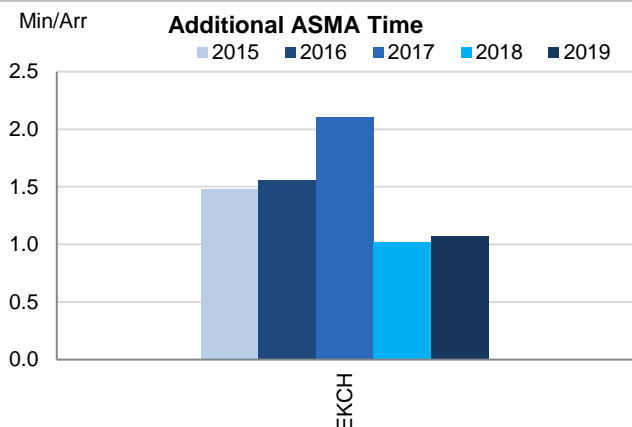
Denmark only has Copenhagen/Kastrup (EKCH) airport subject to RP2 monitoring for which the APDF is successfully established. Traffic at Copenhagen has increased only a 3% during the entire RP2, and 2019 actually shows 1% less traffic than 2018. The overall environmental ANS performance at EKCH during RP2 and in 2019 is excellent, with lower additional times than other airports in the network with similar number of movements.

**2. Additional Taxi-Out Time**



After a significant increase in 2018, additional taxi-out times at Copenhagen/Kastrup (EKCH) have moderately recovered with a 0.5 min/dep. decrease.

**3. Additional ASMA Time**



The additional times in the terminal airspace have not changed much in 2019 (EKCH; 2018: 1.02 min/arr.; 2019: 1.07 min/arr.) and remain very low.

**4. Appendix**

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Copenhagen/ Kastrup	EKCH	1.92	2.32	1.91	3.00	2.59	1.48	1.56	2.11	1.02	1.07



**DENMARK**

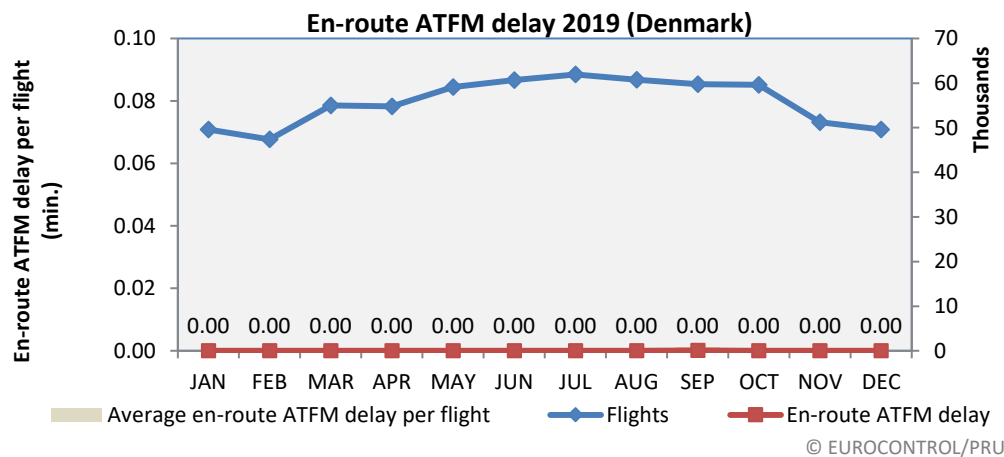
**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	N/A	N/A	N/A	N/A	N/A	
Deadband +/-	N/A	N/A	N/A	N/A	N/A	
Actual performance	0.00	0.00	0.00	0.01	0.00	

**National capacity incentive scheme**

Not applicable.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1.91	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
<b>High</b>	638		662		688		710		734		757	
<b>Base</b>	632	<b>619</b>	650	<b>626</b>	667	<b>640</b>	681	<b>647</b>	696	<b>670</b>	711	<b>669</b>
<b>Low</b>	624		635		639		643		648		653	

Denmark continues to provide excellent en route capacity performance in 2018, as it has done since the beginning of RP1. Actual delays in Denmark were significantly better than predicted in NOP 2019 - 2024.

Traffic levels in Denmark have remained below those initially predicted for the baseline scenario in the STATFOR forecast available when FAB performance plans and associated capacity plans were being determined.

Delay forecast - NAVIAIR						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.06	0.05	0.03 - 0.04			

### Planning and Effective Use of CDRs

Denmark has implemented Free Route Airspace operations.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
23%	22%	27%	31%	N/A

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
11%	8%	4%	5%	4%

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## DENMARK

## Monitoring of Airports Contribution to CAPACITY for 2019

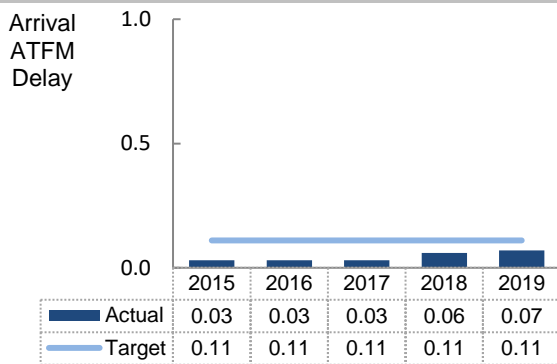
## 1. Overview

In Denmark, ANS at Copenhagen (EKCH) airport are subject to RP2 monitoring, where traffic has only slightly increased during the reference period (+3.4% with respect to 2015) and in fact decreased in the last year by 1%. The actual performance observed in all years of RP2 fully meets the established national target on arrival ATFM delay, despite a small deterioration observed mainly in the last two years.

ATFM slot adherence was excellent and it has further improved during RP2 (2015: 95.9%; 2019: 98.6%).

The local performance is amongst the best-in-class and shows no capacity-related constraints. Denmark adequately contributes to the DK-SE FAB and European ANS Capacity performance.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Denmark have not changed much with respect to the previous year (2018: 0.06 min/arr, 2019: 0.07 min/arr) and still meet the national target.

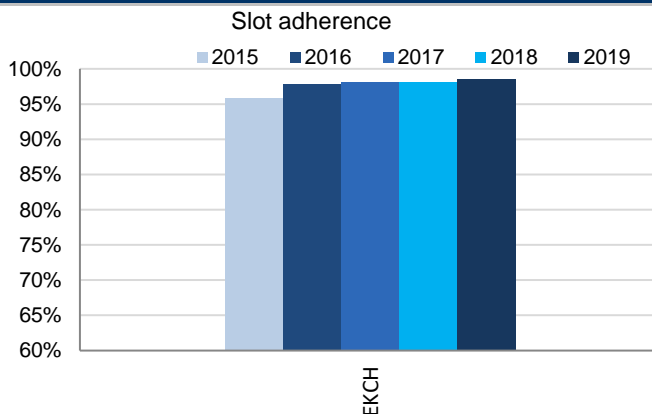
The delays are registered mainly in March and June (associated to weather) and September (due to aerodrome capacity).

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Denmark established a challenging national target on arrival ATFM delay at the level of approximately 50% of the average performance observed throughout the years preceding RP2. This target is met once again in 2019.

No incentive scheme is established. Although a reference is provided in the supporting documentation that the establishment of an incentive scheme for terminal ANS might be reviewed in 2017, nothing in this regard is presented in the DK-SE FAB monitoring report.

## 4. ATFM Slot Adherence



The compliance with the ATFM slots remains one more year amongst best-in-class performance and adds positively to the predictability in the network.

## 5. ATC Pre-departure Delay

The ATC pre-departure delay has decreased in 2019 to the level of 2017 (0.09 min/dep.)

Copenhagen/Kastrup (EKCH) shows lower ATC pre-departure delay compared to similar European airports.

## 6. Appendix

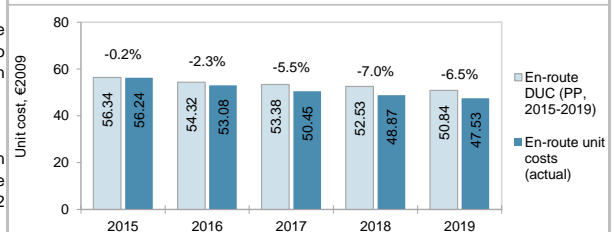
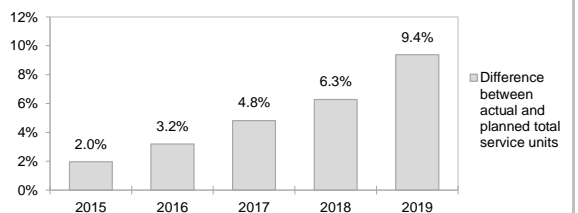
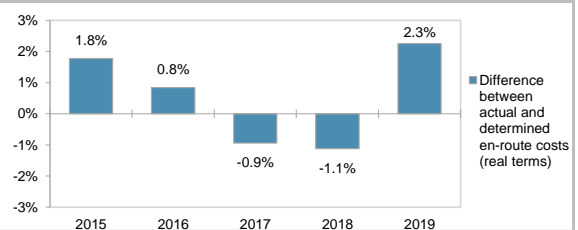
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Copenhagen/ Kastrup	EKCH	0.03	0.03	0.03	0.06	0.07	95.9%	97.9%	98.2%	98.1%	98.6%	0.03	0.07	0.09	0.14	0.09

## DENMARK: En-route charging zone

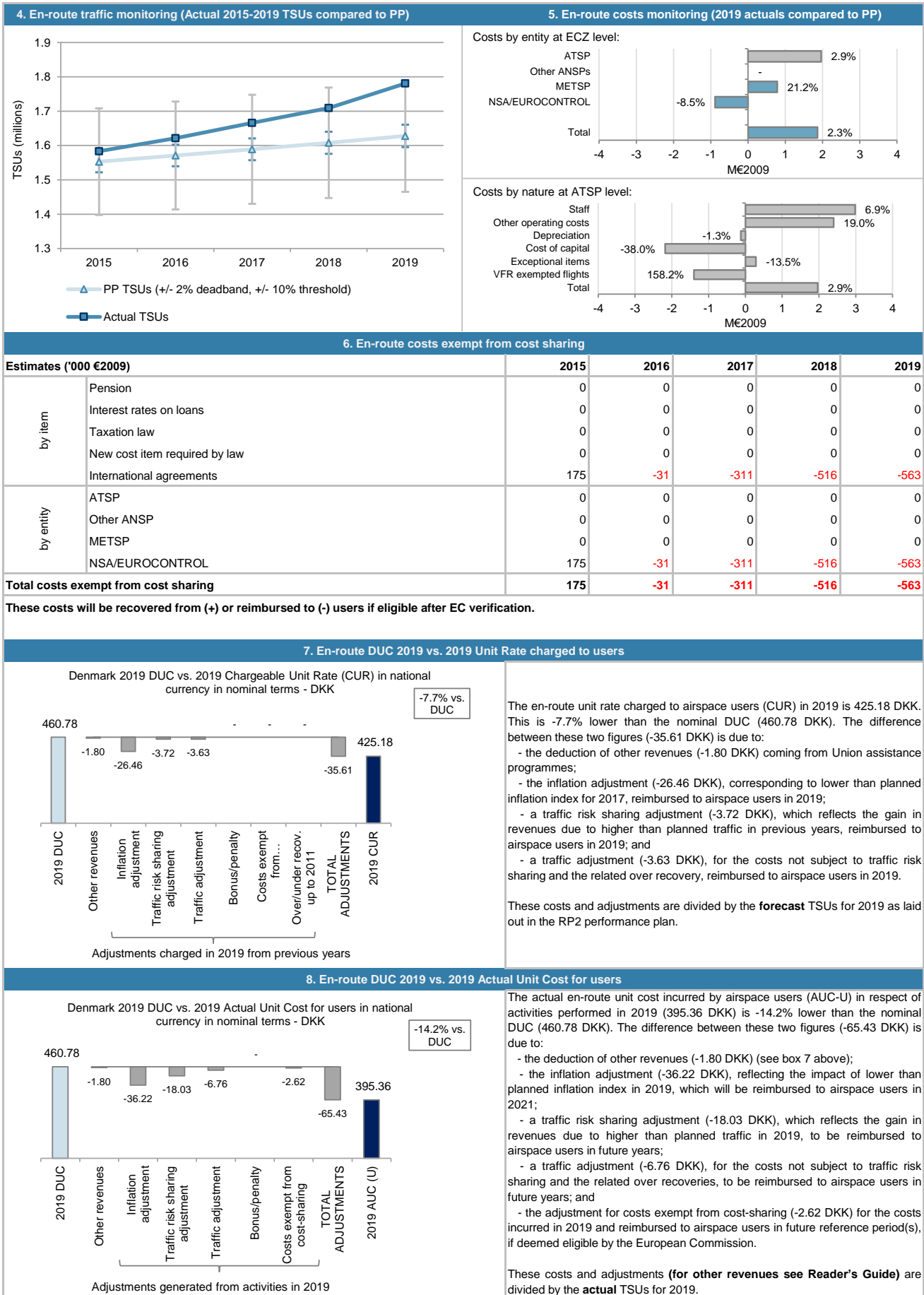
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Denmark ECZ represents 1.4% of the SES en-route ANS determined costs in 2019					
· ATSP: NAVIAIR					
· FAB: DK-SE FAB					
· National currency: DKK Exchange rate 2009: 1 EUR = 7.44337 DKK					
2. En-route DUC monitoring at Charging Zone level					
Denmark: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal DKK)	726 872 134	724 495 393	735 983 926	749 032 040	750 157 741
Inflation %	1.8%	2.2%	2.2%	2.2%	2.2%
Inflation index (100 in 2009)	111.6	114.1	116.6	119.1	121.8
Real en-route costs (DKK2009)	651 263 654	635 160 606	631 342 985	628 704 443	616 095 213
Total en-route Service Units	1 553 000	1 571 000	1 589 000	1 608 000	1 628 000
<b>Real en-route unit cost per Service Unit (DKK2009)</b>	<b>419.36</b>	<b>404.30</b>	<b>397.32</b>	<b>390.99</b>	<b>378.44</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>56.34</b>	<b>54.32</b>	<b>53.38</b>	<b>52.53</b>	<b>50.84</b>
Denmark: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal DKK)	719 545 995	695 318 991	686 419 641	687 049 103	701 118 720
Inflation %	0.2%	0.0%	1.1%	0.7%	0.7%
Inflation index (100 in 2009)	108.6	108.6	109.8	110.5	111.3
Real en-route costs (DKK2009)	662 830 597	640 513 192	625 435 508	621 657 444	629 978 102
Total en-route Service Units	1 583 445	1 621 145	1 665 678	1 709 063	1 780 648
<b>Real en-route unit cost per Service Unit (DKK2009)</b>	<b>418.60</b>	<b>395.10</b>	<b>375.48</b>	<b>363.74</b>	<b>353.79</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>56.24</b>	<b>53.08</b>	<b>50.45</b>	<b>48.87</b>	<b>47.53</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal DKK)	-7 326 139	-29 176 402	-49 564 285	-61 982 936	-49 039 022
in %	-1.0%	-4.0%	-6.7%	-8.3%	-6.5%
Inflation %	-1.6 p.p.	-2.2 p.p.	-1.1 p.p.	-1.5 p.p.	-1.5 p.p.
Inflation index (100 in 2009)	-3.1 p.p.	-5.5 p.p.	-6.8 p.p.	-8.6 p.p.	-10.5 p.p.
Real en-route costs (DKK2009)	11 566 943	5 352 586	-5 907 478	-7 046 999	13 882 890
in %	1.8%	0.8%	-0.9%	-1.1%	2.3%
Total en-route Service Units	30 445	50 145	76 678	101 063	152 648
in %	2.0%	3.2%	4.8%	6.3%	9.4%
<b>Real en-route unit cost per Service Unit (DKK2009)</b>	<b>in value -0.76</b>	<b>in value -9.20</b>	<b>in value -21.84</b>	<b>in value -27.24</b>	<b>in value -24.65</b>
	<b>in % -0.2%</b>	<b>in % -2.3%</b>	<b>in % -5.5%</b>	<b>in % -7.0%</b>	<b>in % -6.5%</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value -0.10</b>	<b>in value -1.24</b>	<b>in value -2.93</b>	<b>in value -3.66</b>	<b>in value -3.31</b>
	<b>in % -0.2%</b>	<b>in % -2.3%</b>	<b>in % -5.5%</b>	<b>in % -7.0%</b>	<b>in % -6.5%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (353.79 DKK2009 or 47.53 €2009) is -6.5% lower than planned in the PP (378.44 DKK2009 or 50.84 €2009). This results from the combination of higher than planned TSUs (+9.4%) and slightly higher than planned en-route costs in real terms (+2.3%, or +1.9 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+9.4%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (NAVIAIR) retaining an amount of +3.2 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -6.5% (-49.0 MDKK) lower than planned. However, since the actual inflation index is also lower than planned (-10.5 p.p.), actual en-route costs are +2.3% (+1.9 M€2009) above plans when expressed in real terms. The slightly higher than planned en-route costs in real terms are driven by NAVIAIR (+2.9%, or +2.0 M€2009) and the MET service provider (+21.2%, or +0.8 M€2009), while the costs for the NSAEUROCONTROL (-8.5%, or -0.9 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total of -0.6 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +5.2% higher than planned, while actual costs in real terms are also +0.6% higher than the determined costs (some +17.8 MDKK2009 or +2.4 M€2009). As a result, the weighted average actual unit cost over RP2 (51.11 €2009) is -4.4% lower than planned in the NPP (53.45 €2009).					



**DENMARK: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



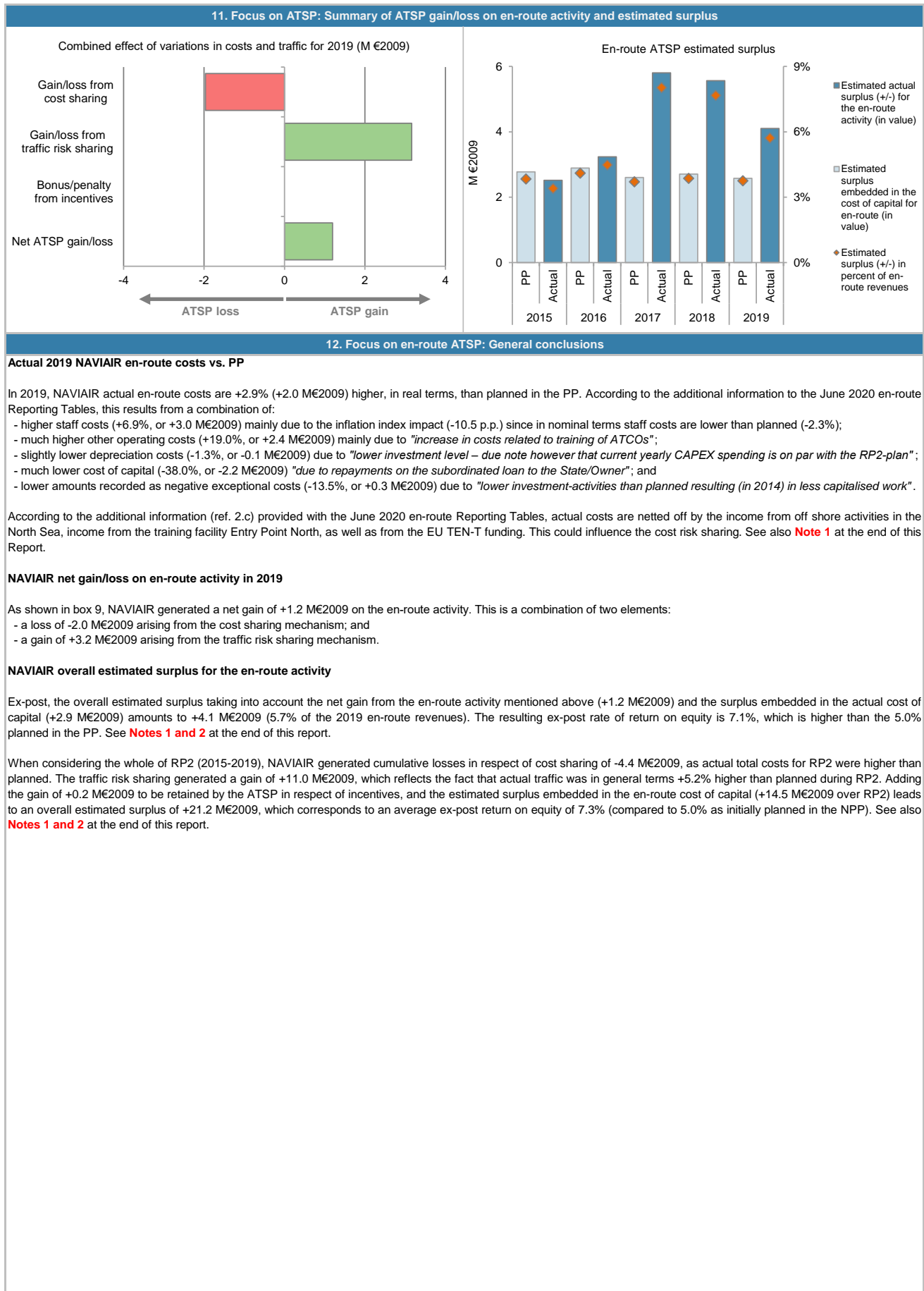
## DENMARK: En-route ATSP (NAVIAR)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	72 364	70 391	70 121	70 039	68 601
Actual costs for the ATSP	74 365	71 764	69 362	69 876	70 566
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-2 001	-1 373	759	163	-1 965
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-2 001</b>	<b>-1 373</b>	<b>759</b>	<b>163</b>	<b>-1 965</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	2.0%	3.2%	4.8%	6.3%	9.4%
Determined costs for the ATSP (PP) - based on actual inflation	74 399	73 963	74 481	75 502	75 053
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>1 459</b>	<b>1 744</b>	<b>2 121</b>	<b>2 481</b>	<b>3 162</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>190</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>-353</b>	<b>371</b>	<b>2 880</b>	<b>2 643</b>	<b>1 197</b>
	<i>*see Note 1</i>				
10. Focus on ATSP: En-route ATSP estimated surplus *					
<small>* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&amp;L accounts of the ATSP.</small>					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	162 405	160 889	159 999	160 494	160 817
Estimated proportion of financing through equity (in %)	34.2%	36.0%	32.6%	33.7%	32.0%
Estimated proportion of financing through equity (in value)	55 546	57 849	52 092	54 147	51 526
Estimated proportion of financing through debt (in %)	65.8%	64.0%	67.4%	66.3%	68.0%
Estimated proportion of financing through debt (in value)	106 859	103 040	107 907	106 347	109 291
Cost of capital pre-tax (in value)	7 372	6 499	6 273	6 004	5 746
Average interest on debt (in %)	4.3%	3.5%	3.4%	3.1%	2.9%
Interest on debt (in value)	4 595	3 606	3 669	3 297	3 169
Determined RoE pre-tax rate (in %)	5.0%	5.0%	5.0%	5.0%	5.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	<i>*see Note 2</i>	2 777	2 892	2 707	2 576
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b><i>*see Note 2</i></b>	<b>2 777</b>	<b>2 892</b>	<b>2 605</b>	<b>2 707</b>
<b>Revenue/costs for the en-route activity</b>	<b>72 364</b>	<b>70 391</b>	<b>70 121</b>	<b>70 039</b>	<b>68 601</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.8%</b>	<b>4.1%</b>	<b>3.7%</b>	<b>3.9%</b>	<b>3.8%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	150 659	149 569	159 393	170 351	172 870
Estimated proportion of financing through equity (in %)	38.1%	38.3%	36.7%	34.3%	33.6%
Estimated proportion of financing through equity (in value)	57 412	57 340	58 493	58 386	58 135
Estimated proportion of financing through debt (in %)	61.9%	61.7%	63.3%	65.7%	66.4%
Estimated proportion of financing through debt (in value)	93 247	92 229	100 901	111 965	114 736
Cost of capital pre-tax (in value)	7 067	5 542	3 541	3 057	3 562
Average interest on debt (in %)	4.5%	2.9%	0.6%	0.1%	0.6%
Interest on debt (in value)	4 196	2 675	616	138	655
Determined RoE pre-tax rate (in %)	5.0%	5.0%	5.0%	5.0%	5.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	<i>*see Note 2</i>	2 871	2 867	2 919	2 907
Net ATSP gain(+)/loss(-) on en-route activity	-353	371	2 880	2 643	1 197
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b><i>*see Notes 1-2</i></b>	<b>2 518</b>	<b>3 238</b>	<b>5 805</b>	<b>5 563</b>
<b>Revenue/costs for the en-route activity</b>	<b>74 012</b>	<b>72 135</b>	<b>72 242</b>	<b>72 520</b>	<b>71 763</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.4%</b>	<b>4.5%</b>	<b>8.0%</b>	<b>7.7%</b>	<b>5.7%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>4.4%</b>	<b>5.6%</b>	<b>9.9%</b>	<b>9.5%</b>	<b>7.1%</b>

**DENMARK: En-route ATSP (NAVIAIR)**

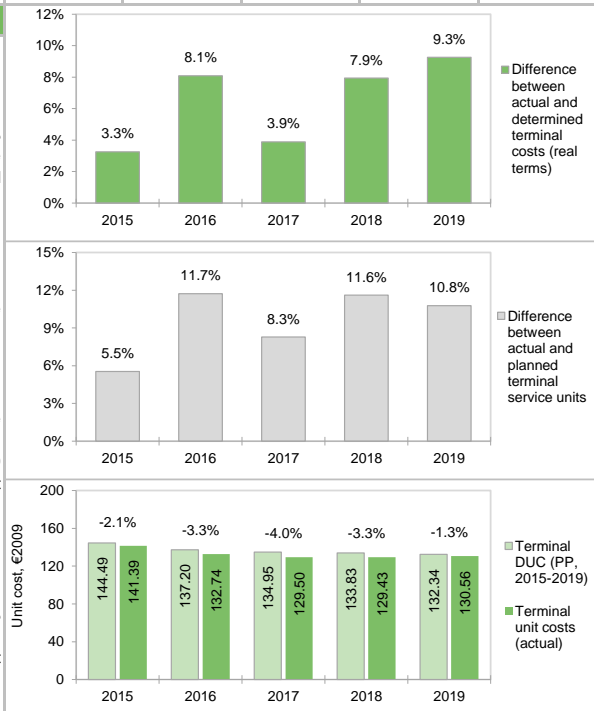
**Monitoring of en-route COST-EFFICIENCY for 2019**



## DENMARK: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

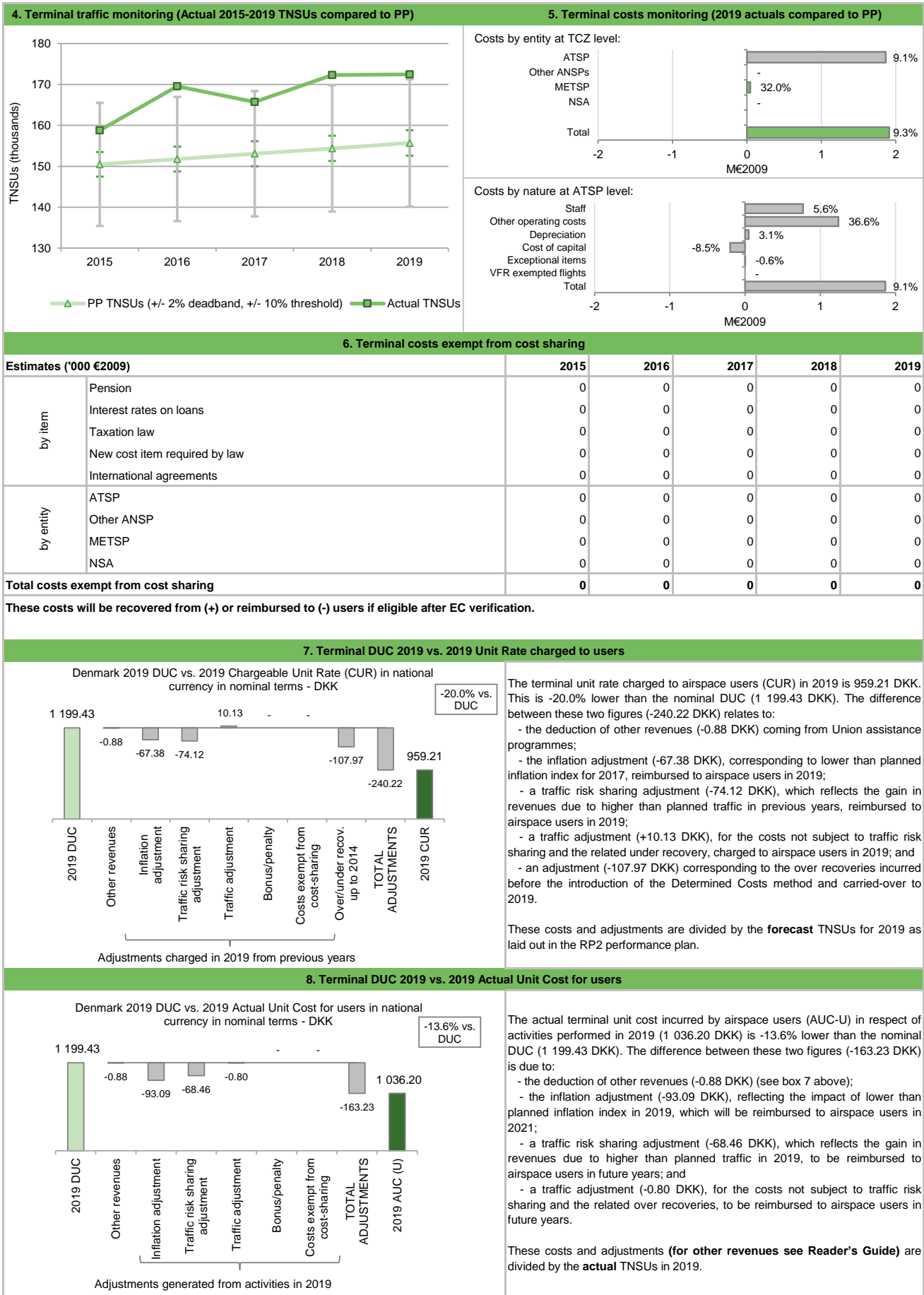
1. Contextual economic information: terminal air navigation services						
Denmark TCZ represents 1.9% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes		
ATSP:	NAVIAIR	Airports with fewer than 70,000 IFRs ATMs:		0		
National currency:	DKK	Airports with between 70,000 and 225,000 IFRs ATMs:		0		
Number of airports in charging zone in 2019:	1,	of which:	Airports with more than 225,000 IFRs ATMs:		1	
2. Terminal DUC monitoring at Charging Zone level						
Denmark: Data from RP2 Performance Plan						
	2015D	2016D	2017D	2018D	2019D	
Terminal costs (nominal DKK)	180 631 201	176 790 835	179 242 261	183 226 026	186 756 637	
Inflation %	1.8%	2.2%	2.2%	2.2%	2.2%	
Inflation index (100 in 2009)	111.6	114.1	116.6	119.1	121.8	
Real terminal costs (DKK2009)	161 842 132	154 991 426	153 757 902	153 791 841	153 380 900	
Total terminal Service Units	150 479	151 768	153 069	154 381	155 704	
<b>Real terminal unit cost per Service Unit (DKK2009)</b>	<b>1 075.51</b>	<b>1 021.24</b>	<b>1 004.50</b>	<b>996.18</b>	<b>985.08</b>	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>144.49</b>	<b>137.20</b>	<b>134.95</b>	<b>133.83</b>	<b>132.34</b>	
Denmark: Actual data from Reporting Tables						
	2015A	2016A	2017A	2018A	2019A	
Terminal costs (nominal DKK)	181 422 000	181 867 000	175 324 000	183 458 381	186 527 309	
Inflation %	0.2%	0.0%	1.1%	0.7%	0.7%	
Inflation index (100 in 2009)	108.6	108.6	109.8	110.5	111.3	
Real terminal costs (DKK2009)	167 122 121	167 532 045	159 747 549	165 997 259	167 600 888	
Total terminal Service Units	158 800	169 561	165 730	172 308	172 467	
<b>Real terminal unit cost per Service Unit (DKK2009)</b>	<b>1 052.41</b>	<b>988.03</b>	<b>963.90</b>	<b>963.38</b>	<b>971.79</b>	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>141.39</b>	<b>132.74</b>	<b>129.50</b>	<b>129.43</b>	<b>130.56</b>	
Difference between Actuals and Planned						
	2015	2016	2017	2018	2019	
Terminal costs (nominal DKK)	in value	790 799	5 076 165	-3 918 261	232 355	-229 328
	in %	0.4%	2.9%	-2.2%	0.1%	-0.1%
Inflation %	in p.p.	-1.6 p.p.	-2.2 p.p.	-1.1 p.p.	-1.5 p.p.	-1.5 p.p.
Inflation index (100 in 2009)	in p.p.	-3.1 p.p.	-5.5 p.p.	-6.8 p.p.	-8.6 p.p.	-10.5 p.p.
Real terminal costs (DKK2009)	in value	5 279 988	12 540 620	5 989 647	12 205 418	14 219 988
	in %	3.3%	8.1%	3.9%	7.9%	9.3%
Total terminal Service Units	in value	8 321	17 793	12 661	17 926	16 763
	in %	5.5%	11.7%	8.3%	11.6%	10.8%
<b>Real terminal unit cost per Service Unit (DKK2009)</b>	in value	<b>-23.11</b>	<b>-33.20</b>	<b>-40.60</b>	<b>-32.80</b>	<b>-13.29</b>
	in %	<b>-2.1%</b>	<b>-3.3%</b>	<b>-4.0%</b>	<b>-3.3%</b>	<b>-1.3%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	in value	<b>-3.10</b>	<b>-4.46</b>	<b>-5.45</b>	<b>-4.41</b>	<b>-1.79</b>
	in %	<b>-2.1%</b>	<b>-3.3%</b>	<b>-4.0%</b>	<b>-3.3%</b>	<b>-1.3%</b>
3. Focus on terminal at State/Charging Zone level						
This analysis focuses on Denmark Terminal Charging Zone (TCZ) comprising only Copenhagen airport (EKCH).						
<b>Terminal unit cost</b>						
In 2019, the actual terminal unit cost in real terms (971.79 DKK2009 or 130.56 €2009) is -1.3% lower than planned in the PP (985.08 DKK2009 or 132.34 €2009). This results from the combination of much higher than planned TNSUs (+10.8%) and higher than planned terminal costs in real terms (+9.3%, or +1.9 M€2009).						
<b>Terminal service units</b>						
The traffic risk sharing mechanism applies in Denmark TCZ. The difference between actual and planned TNSUs (+10.8%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (NAVIAIR) retaining an amount of +1.0 M€2009.						
<b>Terminal costs</b>						
In nominal terms, actual terminal costs are -0.1% (-0.23 MDKK) lower than planned. However, since the actual inflation index is also lower than planned (-10.5 p.p.), actual terminal costs are +9.3% (+1.9 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by NAVIAIR (+9.1%, or +1.9 M€2009) and the MET service provider (+32.0%, or +0.05 M€2009). A detailed analysis at ATSP level is provided in box 12.						
There are no costs exempt from cost-sharing reported.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for Denmark TCZ, actual TNSUs are +9.6% higher than planned, while actual costs in real terms are also +6.5% higher than the determined costs (some +50.2 MDKK2009 or +6.7 M€2009). As a result, the weighted average actual unit cost over RP2 (987.05 DKK2009 or 132.61 €2009) is -2.9% lower than planned in the NPP (1 016.15 DKK2009 or 136.52 €2009).						





**DENMARK: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**



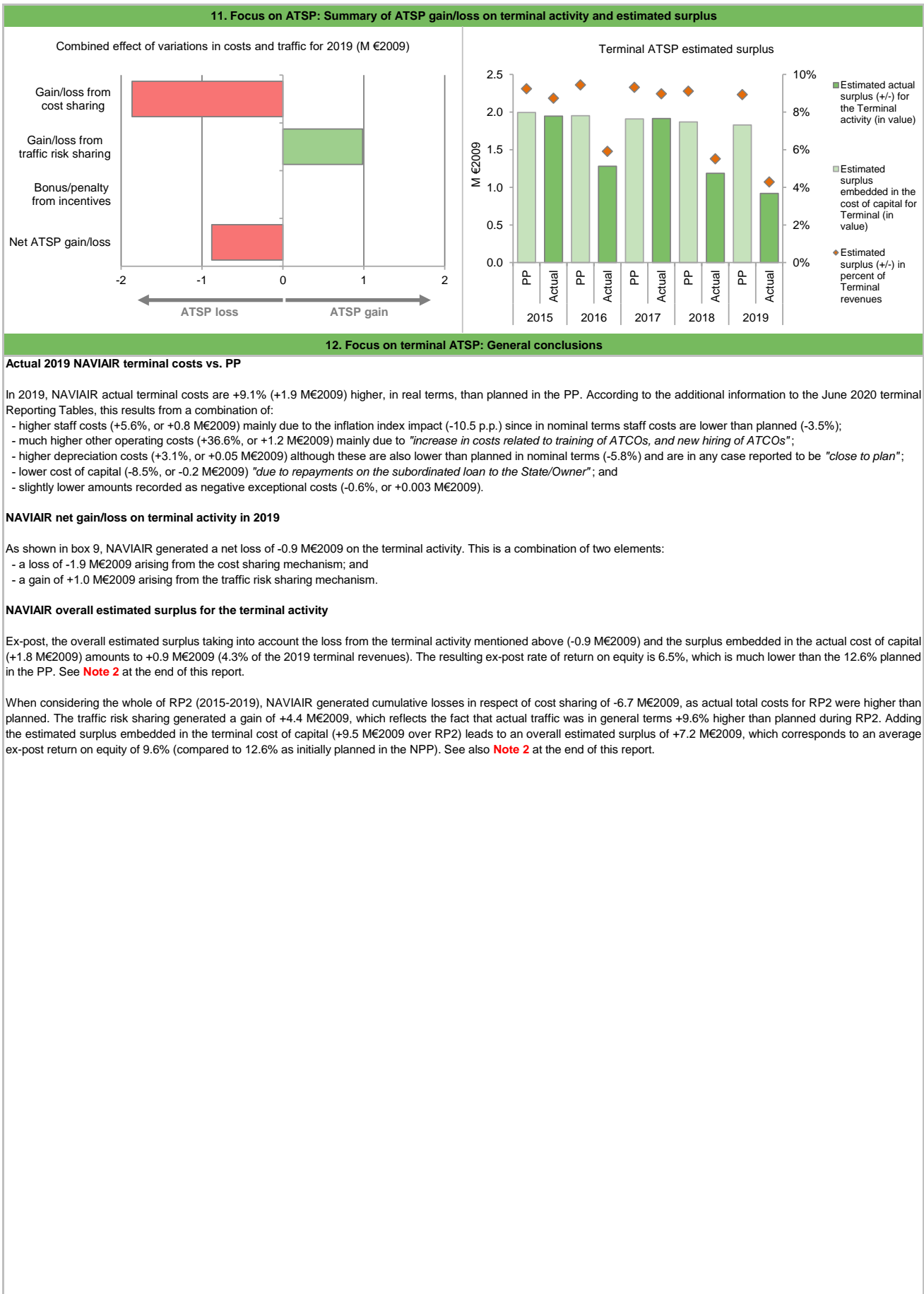
## DENMARK: Terminal ATSP (NAVIAR)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	21 588	20 671	20 508	20 516	20 464
Actual costs for the ATSP	22 314	22 369	21 320	22 135	22 329
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-726	-1 698	-812	-1 619	-1 865
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-726</b>	<b>-1 698</b>	<b>-812</b>	<b>-1 619</b>	<b>-1 865</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	5.5%	11.7%	8.3%	11.6%	10.8%
Determined costs for the ATSP (PP) - based on actual inflation	22 195	21 720	21 784	22 116	22 389
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>679</b>	<b>956</b>	<b>846</b>	<b>973</b>	<b>985</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>*see Note 1</b>	<b>-47</b>	<b>-743</b>	<b>34</b>	<b>-880</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	25 448	25 211	25 071	25 149	25 199
Estimated proportion of financing through equity (in %)	62.0%	61.2%	60.2%	58.7%	57.4%
Estimated proportion of financing through equity (in value)	15 769	15 430	15 097	14 772	14 454
Estimated proportion of financing through debt (in %)	38.0%	38.8%	39.8%	41.3%	42.6%
Estimated proportion of financing through debt (in value)	9 679	9 781	9 974	10 376	10 745
Cost of capital pre-tax (in value)	2 813	2 574	2 497	2 409	2 325
Average interest on debt (in %)	8.5%	6.4%	5.9%	5.2%	4.6%
Interest on debt (in value)	818	622	587	541	497
Determined RoE pre-tax rate (in %)	12.6%	12.6%	12.6%	12.6%	12.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	*see Note 2	1 995	1 952	1 869	1 828
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>*see Note 1</b>	<b>1 995</b>	<b>1 952</b>	<b>1 910</b>	<b>1 869</b>
<b>Revenue/costs for the terminal activity</b>	<b>21 588</b>	<b>20 671</b>	<b>20 508</b>	<b>20 516</b>	<b>20 464</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>9.2%</b>	<b>9.4%</b>	<b>9.3%</b>	<b>9.1%</b>	<b>8.9%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>12.6%</b>	<b>12.6%</b>	<b>12.6%</b>	<b>12.6%</b>	<b>12.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	26 082	22 342	23 279	25 073	27 555
Estimated proportion of financing through equity (in %)	60.4%	71.6%	63.9%	57.8%	51.6%
Estimated proportion of financing through equity (in value)	15 755	15 988	14 878	14 480	14 227
Estimated proportion of financing through debt (in %)	39.6%	28.4%	36.1%	42.2%	48.4%
Estimated proportion of financing through debt (in value)	10 327	6 355	8 401	10 593	13 329
Cost of capital pre-tax (in value)	2 726	2 451	2 143	2 100	2 127
Average interest on debt (in %)	7.1%	6.7%	3.1%	2.5%	2.5%
Interest on debt (in value)	733	429	261	268	327
Determined RoE pre-tax rate (in %)	12.6%	12.6%	12.6%	12.6%	12.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	*see Note 2	1 993	2 022	1 832	1 799
Net ATSP gain(+)/loss(-) on terminal activity	-47	-743	34	-646	-880
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>*see Notes 1-2</b>	<b>1 946</b>	<b>1 280</b>	<b>1 916</b>	<b>1 186</b>
<b>Revenue/costs for the terminal activity</b>	<b>22 267</b>	<b>21 627</b>	<b>21 354</b>	<b>21 489</b>	<b>21 449</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>8.7%</b>	<b>5.9%</b>	<b>9.0%</b>	<b>5.5%</b>	<b>4.3%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>12.4%</b>	<b>8.0%</b>	<b>12.9%</b>	<b>8.2%</b>	<b>6.5%</b>

**DENMARK: Terminal ATSP (NAVIAIR)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## DENMARK: Gate-to-gate

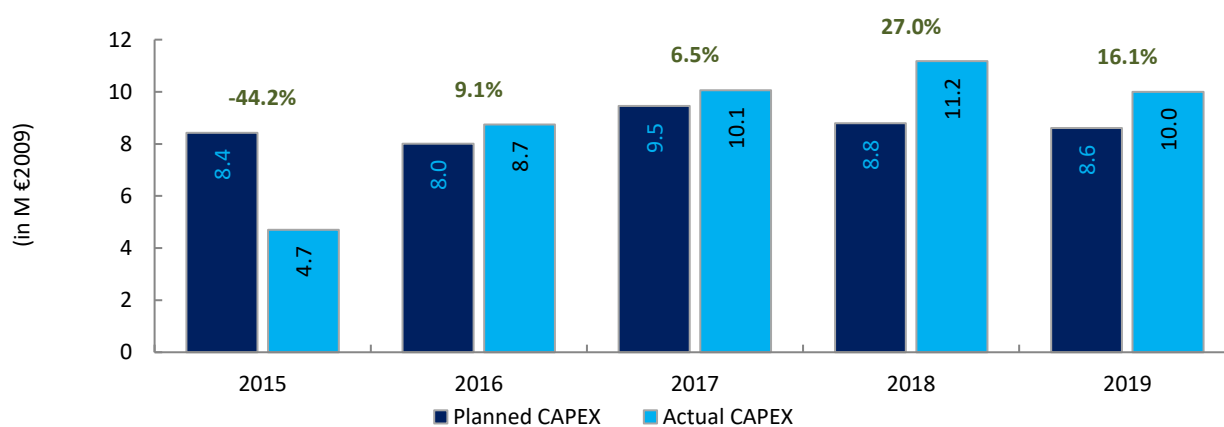
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Denmark: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	87 495 806	85 332 397	84 819 509	84 465 026	82 771 005																																							
Real terminal costs (EUR2009)	21 743 126	20 822 749	20 657 028	20 661 588	20 606 379																																							
Real gate-to-gate costs (EUR2009)	109 238 932	106 155 146	105 476 537	105 126 614	103 377 383																																							
En-route share (%)	80.1%	80.4%	80.4%	80.3%	80.1%																																							
<b>Denmark: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	89 049 798	86 051 505	84 025 852	83 518 278	84 636 140																																							
Real terminal costs (EUR2009)	22 452 481	22 507 553	21 461 723	22 301 358	22 516 802																																							
Real gate-to-gate costs (EUR2009)	111 502 279	108 559 058	105 487 576	105 819 636	107 152 942																																							
En-route share (%)	79.9%	79.3%	79.7%	78.9%	79.0%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)																																												
in value	2 263 347	2 403 912	11 039	693 022	3 775 558																																							
in %	2.1%	2.3%	0.0%	0.7%	3.7%																																							
En-route share																																												
in p.p.	-0.2 p.p.	-1.1 p.p.	-0.8 p.p.	-1.4 p.p.	-1.1 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +3.7% (+3.8 M€2009) higher than planned due to higher than planned terminal costs (+9.3%, or +1.9 M€2009) and en-route costs (+2.3%, or +1.9 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (79.0%) is slightly lower than planned in the PP for 2019 (80.1%).</p> <p>For NAVIAIR, the estimated gate-to-gate economic surplus in 2019 amounts to 5.0 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 5.4% of gate-to-gate ANS revenues. See also <b>Notes 1 and 2</b> at the end of this report.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>80.1%</td> <td>19.9%</td> </tr> <tr> <td>Actual</td> <td>79.9%</td> <td>20.1%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>80.4%</td> <td>19.6%</td> </tr> <tr> <td>Actual</td> <td>79.3%</td> <td>20.7%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>80.4%</td> <td>19.6%</td> </tr> <tr> <td>Actual</td> <td>79.7%</td> <td>20.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>80.3%</td> <td>19.7%</td> </tr> <tr> <td>Actual</td> <td>78.9%</td> <td>21.1%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>80.1%</td> <td>19.9%</td> </tr> <tr> <td>Actual</td> <td>79.0%</td> <td>21.0%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	80.1%	19.9%	Actual	79.9%	20.1%	2016	Determined	80.4%	19.6%	Actual	79.3%	20.7%	2017	Determined	80.4%	19.6%	Actual	79.7%	20.3%	2018	Determined	80.3%	19.7%	Actual	78.9%	21.1%	2019	Determined	80.1%	19.9%	Actual	79.0%	21.0%
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<b>3. Technical notes on en-route and terminal information reported by Denmark</b>																																												
<b>Note 1: Reporting of 2015-2019 actual costs</b>																																												
<p>Denmark reports in the June 2020 en-route Reporting Tables (see Additional Information 2.c) that actual costs are netted-off by the income from off shore activities in the North Sea, income from the training facility Entry Point North, as well as from EU TEN-T funding. Denmark clarified during the validation of June 2017 Reporting Tables that back in 2014 the determined costs were netted-off by corresponding estimated amounts. These issues, which affect actual costs may possibly affect the cost sharing for Denmark, and, in particular, the analysis contained in boxes 9 &amp; 10.</p>																																												
<b>Note 2: NAVIAIR capital structure</b>																																												
<p>There is an inconsistency in the assumptions for the calculation of the cost of capital between en-route and terminal activities (in respect of the proportion of financing through equity and the interest rates on debts). This may affect the calculation of the surplus embedded in the cost of capital and the assessment of the NAVIAIR overall estimated surplus on the en-route and terminal activity calculated in box 10.</p> <p>According to the June 2020 Reporting Tables, NAVIAIR does not split the balance sheet based on the various cost bases, and there is no specific capital structure for en-route and terminal activities. Moreover, NAVIAIR cost of capital is the combined amount of return on equity, interest payment on debt, and the deduction of capitalisation of interim interest.</p>																																												

## DENMARK

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: NAVIAIR						
FAB: DK-SE FAB						
Currency: DKK						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	70.0	68.0	82.0	78.0	78.0	376.0
Main CAPEX (in nominal M)	70.0	68.0	82.0	78.0	78.0	376.0
Inflation %	1.8%	2.2%	2.2%	2.2%	2.2%	
Inflation index (100 in 2009)	111.6	114.1	116.6	119.1	121.8	
Exchange rate 2009 (1 EUR =)	7.44337	7.44337	7.44337	7.44337	7.44337	
<b>Total CAPEX (in M €2009)</b>	<b>8.4</b>	<b>8.0</b>	<b>9.5</b>	<b>8.8</b>	<b>8.6</b>	<b>43.3</b>
Main CAPEX (in M €2009)	8.4	8.0	9.5	8.8	8.6	43.3
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	94.0	91.1	90.6	90.6	89.1	455.3
Total CAPEX as % of Real gate-to-gate ANSP costs	9.0%	8.8%	10.4%	9.7%	9.7%	9.5%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	38.0	70.6	82.2	91.9	82.8	365.5
Main CAPEX (in nominal M)	38.0	70.6	82.2	91.9	82.8	365.5
Inflation %	0.2%	0.0%	1.1%	0.7%	0.7%	
Inflation index (100 in 2009)	108.6	108.6	109.8	110.5	111.3	
Exchange rate 2009 (1 EUR =)	7.44337	7.44337	7.44337	7.44337	7.44337	
<b>Total CAPEX (in M €2009)</b>	<b>4.7</b>	<b>8.7</b>	<b>10.1</b>	<b>11.2</b>	<b>10.0</b>	<b>44.7</b>
Main CAPEX (in M €2009)	4.7	8.7	10.1	11.2	10.0	44.7
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	96.7	94.1	90.7	92.0	92.9	466.4
Total CAPEX as % of Real gate-to-gate ANSP costs	4.9%	9.3%	11.1%	12.1%	10.8%	9.6%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-32.0	2.6	0.2	13.9	4.8	-10.5
Total CAPEX (in M €2009)	-3.7	0.7	0.6	2.4	1.4	1.4
<b>Total CAPEX (in %, M €2009)</b>	<b>-44.2%</b>	<b>9.1%</b>	<b>6.5%</b>	<b>27.0%</b>	<b>16.1%</b>	<b>3.2%</b>



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# Annual Monitoring Report 2019

## Local level view

### Sweden

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## SWEDEN

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	67	B	C	C	C	B
LFV NUAC	75	D	C	C	D	D

Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.

Application of the severity classification of the Risk Analysis Tool (RAT)		
	RAT application (%)	
	ATM Ground	ATM Overall
Separation Minima Infringements (SMIs)	100%	100%
Runway Incursions (RIs)	100%	100%
ATM Specific Occurrences (ATM-S)		100%
<b>Source of RAT data:</b>	STA	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

Just culture		
State level	Number of questions answered	
	YES	NO
Policy and its implementation	6	3
Legal/Judiciary	5	2
Occurrence reporting and Investigation	2	0
<b>TOTAL</b>	<b>13</b>	<b>5</b>

LFV	Number of questions answered	
	YES	NO
Policy and its implementation	9	4
Legal/Judiciary	2	1
Occurrence reporting and Investigation	6	2
<b>TOTAL</b>	<b>17</b>	<b>7</b>

Observations
<p>One (Safety Policy and Objectives) out of the four reviewed EoSM Components/areas of the State meet the 2019 EoSM target level "C". Out of 36 questions, only two are below Level C, including one question in Safety Culture (not reviewed by EASA)</p> <p>The ANSP did not meet the EoSM target level "D" in two components (namely Safety Risk and Safety Assurance).</p> <p>With regard the RAT application, targets have been met.</p>

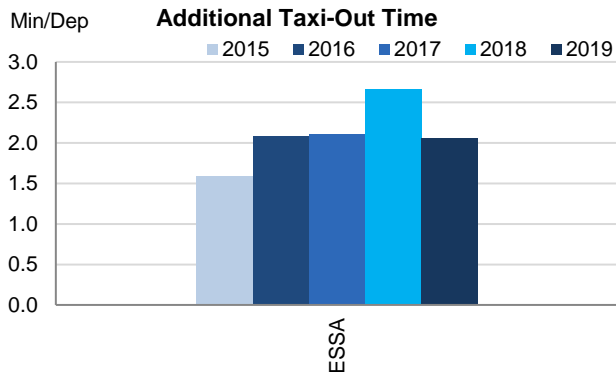
## SWEDEN

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

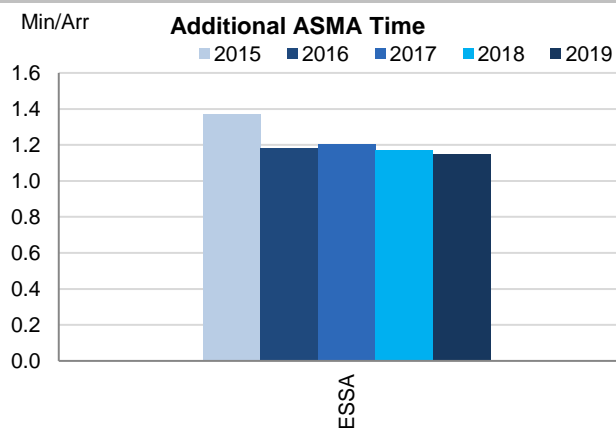
Stockholm/Arlanda (ESSA) is the only Swedish airport subject to RP2 monitoring. The APDF is successfully established and the data shows a remarkable environmental performance at ESSA, with lower additional times than other airports in the network with similar number of movements. Traffic during RP2 has only increased by 3%, and the last two years it has actually slightly decreased (-2% 2018 vs 2017 and -4% in 2019 vs 2018)

## 2. Additional Taxi-Out Time



After a half a minute increase in 2018, additional taxi-out times at Stockholm have gone back to 2.05 min/dep in 2019. According to the DK-SE FAB monitoring report, *the A-CDM process has only been activated for shorter periods during 2018-2020 due to technical problems. The decrease in taxi-out time can most probably be explained by a constant decrease in traffic since September 2018. Less traffic, means less waiting on taxiway, results in shorter total taxi-out time.*

## 3. Additional ASMA Time



The additional time in the terminal area at Stockholm Arlanda is very stable and around 1.2 min/arr for the last four years. The indicator for ESSA is, like the additional taxi-out time, lower than most of the airports in its range of yearly movements.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Stockholm/ Arlanda	ESSA	1.59	2.08	2.11	2.66	2.05	1.37	1.18	1.20	1.17	1.15

**SWEDEN**

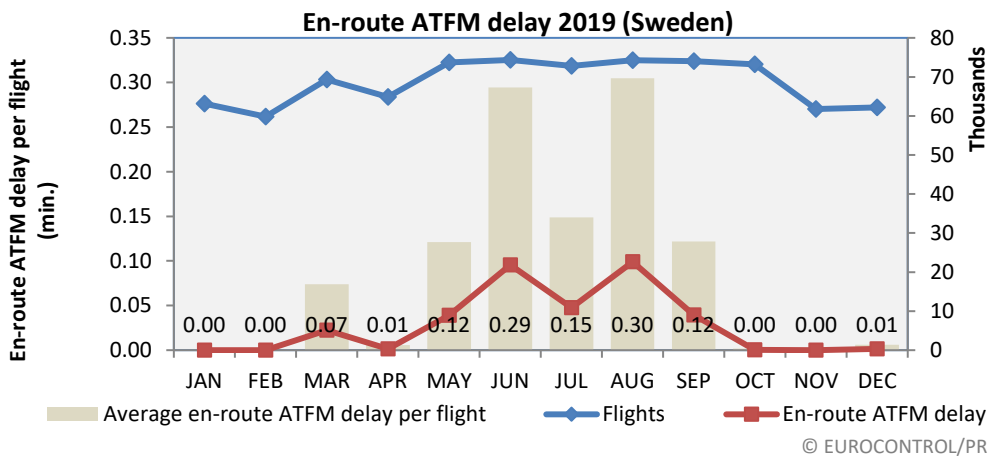
**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	N/A	N/A	N/A	N/A	N/A	
Deadband +/-	N/A	N/A	N/A	N/A	N/A	
Actual performance	0.02	0.07	0.03	0.04	0.10	

**National capacity incentive scheme**

Not applicable

**Observations regarding national capacity performance**



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En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.11	0.03	0.16	0.11	0.04	0.03	0.03	0.02	0.07	0.03	0.04	0.10

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	745		776		813		843		875		907	
Base	737	<b>739</b>	761	<b>751</b>	784	<b>767</b>	802	<b>808</b>	822	<b>831</b>	841	<b>823</b>
Low	728		743		750		756		763		770	

En route capacity performance deteriorated in Sweden in 2019 (0.10 minutes per flight) compared to 2018 (0.04 minutes per flight). The increase in delays were mostly attributed to adverse weather (0.04 minutes per flight) followed by ATC capacity (0.03 minutes per flight) with ATC staffing and ATC disruptions each accounting for 0.01 minutes per flight.

Traffic levels decreased in Sweden from 2018, with a 1% reduction, taking it below the original baseline forecast from STATFOR 2014.

Delay forecast - LFV						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.05	0.06	0.08	0.10	N/A	N/A
NOP 2019 - 2024	0.12	0.16	0.18 - 0.30			

### Planning and Effective Use of CDRs

Sweden has implemented Free Route Airspace operations.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
86%	99%	78%	66%	30%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
0%	2%	3%	4%	7%

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## SWEDEN

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

In Sweden, ANS at Stockholm/Arlanda (ESSA) airport are subject to RP2 monitoring.

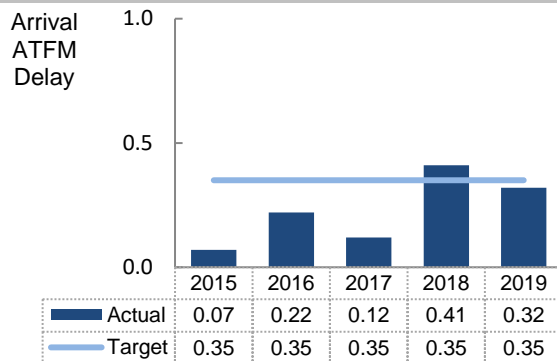
Traffic levels at Arlanda have slightly increased during RP2 (+3.1% with respect to 2015), but in fact have decreased the last 2 years (-2% in 2019 and -4% in 2019)

In terms of arrival ATFM delays, values are drastically higher than those in the beginning of the reference period (almost 5 times the delays in 2015), although a slight improvement in observed in 2019 and the performance meets the national target.

ATFM slot adherence is excellent (2019: 97.9%) and performance is stable along RP2.

Sweden adequately contributes to the DK-SE FAB and European ANS Capacity performance.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Sweden have moderately decreased with respect to the previous year (2018: 0.41 min/arr, 2019: 0.32 min/arr)

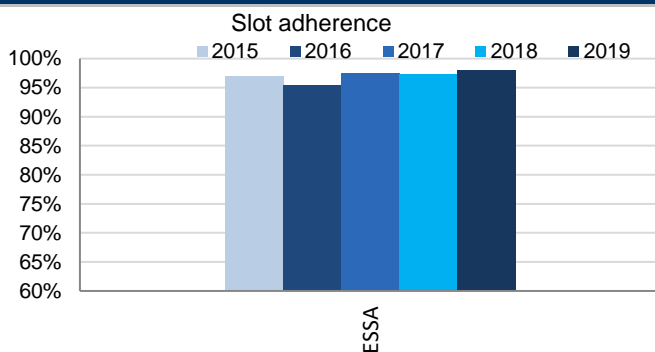
Once again, the majority of these delays (88%) were due to weather, and heavily concentrated in the months of January and February. Secondly, some aerodrome capacity issues generated 9% of these delays in July and January.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Sweden established a national target on arrival ATFM delay based on an upper bound of the maximum arrival ATFM delay observed throughout the years preceding RP2. This target is met in 2019.

No incentive scheme is established. A reference is provided in the supporting documentation that the establishment of an incentive scheme for terminal ANS may be reviewed in 2017, but nothing is presented in the DK-SE monitoring report.

## 4. ATFM Slot Adherence



Although the A-CDM process at Stockholm/Arlanda (ESSA) is currently suspended due to IT related problems, slot adherence is consistently above 95% and reached 97.9% in 2019, ranging in the group of best-in-class performers across Europe.

## 5. ATC Pre-departure Delay

ATC pre-departure delay at ESSA remains very low with 0.09 min/dep. Stockholm (ESSA) shows lower ATC pre-departure delay compared to similar European airports.

## 6. Appendix

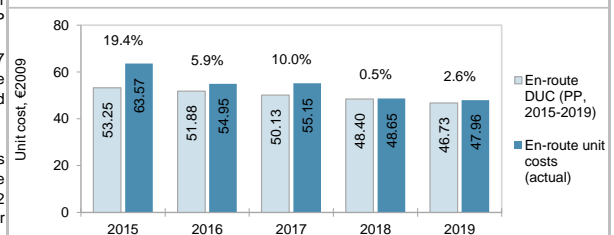
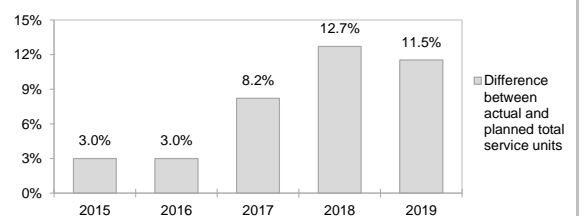
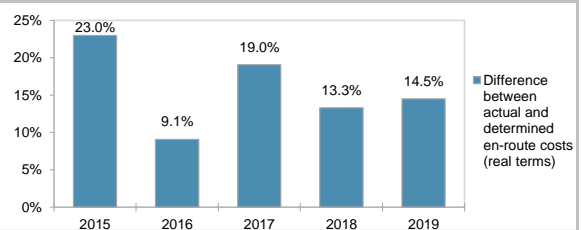
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Stockholm/ Arlanda	ESSA	0.07	0.22	0.12	0.41	0.32	96.9%	95.4%	97.5%	97.2%	97.9%	0.04	0.09	0.12	0.07	0.09

## SWEDEN: En-route charging zone

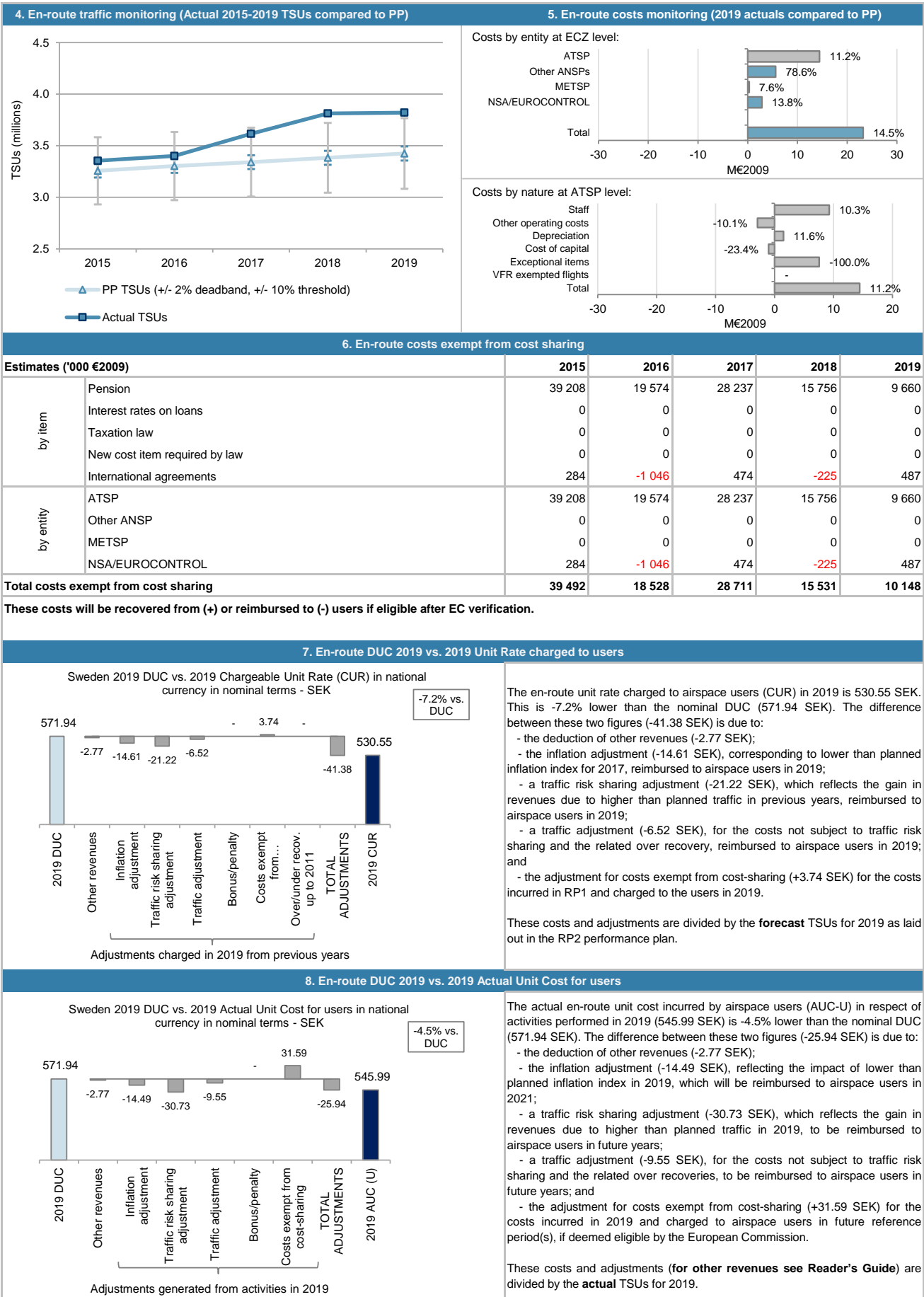
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· Sweden ECZ represents 2.7% of the SES en-route ANS determined costs in 2019						
· ATSP: LFV						
· FAB: DK-SE FAB						
· National currency: SEK Exchange rate 2009: 1 EUR = 10.6102 SEK						
2. En-route DUC monitoring at Charging Zone level						
Sweden: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D	
En-route costs (nominal SEK)	1 951 544 485	1 974 263 091	1 970 314 688	1 964 628 986	1 958 887 595	
Inflation %	1.6%	2.4%	2.1%	2.0%	2.0%	
Inflation index (100 in 2009)	106.1	108.6	110.9	113.1	115.4	
Real en-route costs (SEK2009)	1 840 204 091	1 817 994 673	1 777 040 937	1 737 169 570	1 698 130 296	
Total en-route Service Units	3 257 000	3 303 000	3 341 000	3 383 000	3 425 000	
<b>Real en-route unit cost per Service Unit (SEK2009)</b>	<b>565.00</b>	<b>550.41</b>	<b>531.89</b>	<b>513.50</b>	<b>495.80</b>	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>53.25</b>	<b>51.88</b>	<b>50.13</b>	<b>48.40</b>	<b>46.73</b>	
Sweden: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
En-route costs (nominal SEK)	2 373 538 863	2 103 181 392	2 286 059 045	2 169 308 416	2 179 365 205	
Inflation %	0.7%	1.1%	1.9%	2.0%	1.7%	
Inflation index (100 in 2009)	104.9	106.0	108.1	110.2	112.1	
Real en-route costs (SEK2009)	2 262 850 219	1 983 284 585	2 115 541 577	1 968 136 661	1 944 209 272	
Total en-route Service Units	3 354 938	3 401 901	3 615 171	3 812 797	3 820 393	
<b>Real en-route unit cost per Service Unit (SEK2009)</b>	<b>674.48</b>	<b>582.99</b>	<b>585.18</b>	<b>516.19</b>	<b>508.90</b>	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>63.57</b>	<b>54.95</b>	<b>55.15</b>	<b>48.65</b>	<b>47.96</b>	
Difference between Actuals and Planned	2015	2016	2017	2018	2019	
En-route costs (nominal SEK)	421 994 378	128 918 300	315 744 357	204 679 430	220 477 610	
in value						
in %	21.6%	6.5%	16.0%	10.4%	11.3%	
Inflation %	-0.9 p.p.	-1.3 p.p.	-0.2 p.p.	0.0 p.p.	-0.3 p.p.	
in p.p.						
Inflation index (100 in 2009)	-1.2 p.p.	-2.6 p.p.	-2.8 p.p.	-2.9 p.p.	-3.3 p.p.	
in p.p.						
Real en-route costs (SEK2009)	422 646 128	165 289 912	338 500 640	230 967 091	246 078 975	
in value						
in %	23.0%	9.1%	19.0%	13.3%	14.5%	
Total en-route Service Units	97 938	98 901	274 171	429 797	395 393	
in value						
in %	3.0%	3.0%	8.2%	12.7%	11.5%	
<b>Real en-route unit cost per Service Unit (SEK2009)</b>	<b>109.48</b>	<b>32.59</b>	<b>53.30</b>	<b>2.69</b>	<b>13.10</b>	
in value						
in %	19.4%	5.9%	10.0%	0.5%	2.6%	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>10.32</b>	<b>3.07</b>	<b>5.02</b>	<b>0.25</b>	<b>1.23</b>	
in value						
in %	19.4%	5.9%	10.0%	0.5%	2.6%	
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (508.90 SEK2009 or 47.96 €2009) is +2.6% higher than planned in the PP (495.80 SEK2009 or 46.73 €2009). This results from the combination of much higher than planned TSUs (+11.5%) and much higher than planned en-route costs in real terms (+14.5%, or +23.2 M€2009). No corrective measures are detailed in the DK-SE FAB Monitoring Report.						
To that end, it should be noted that the deviation in en-route costs is mainly driven by higher than planned LFV pension costs reported as costs exempt from cost-sharing. Excluding this impact, the actual en-route unit cost in real terms would be 482.07 SEK2009 (or 45.43 €2009), which would be -2.8% lower than the 2019 DUC target.						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+11.5%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (LFV) retaining an amount of +5.8 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are +11.3% (+220.5 M€2009) higher than planned. However, since the actual inflation index is lower than planned (-3.3 p.p.), actual en-route costs are +14.5% (+23.2 M€2009) above plans when expressed in real terms.						
The higher than planned en-route costs in real terms are driven by LFV (+11.2%, or +14.4 M€2009), the other ANSPs (+7.6%, or +5.6 M€2009, see also <b>Note 1</b> ), the MET service provider (+7.6%, or +0.3 M€2009) and the NSA/EUROCONTROL (+13.8%, or +2.8 M€2009). A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +10.1 M€2009 comprising +9.7 M€2009 for pension and +0.5 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Sweden charging zone, actual en-route TSUs are +7.8% higher than planned, while actual costs in real terms are also +15.8% higher than the determined costs (some +132.3 M€2009). As a result, the weighted average actual unit cost over RP2 (570.61 SEK2009 or 53.78 €2009) is +7.5% higher than planned in the NPP (530.88 SEK2009 or 50.04 €2009).						



**SWEDEN: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## SWEDEN: En-route ATSP (LFV)

## Monitoring of en-route COST-EFFICIENCY for 2019

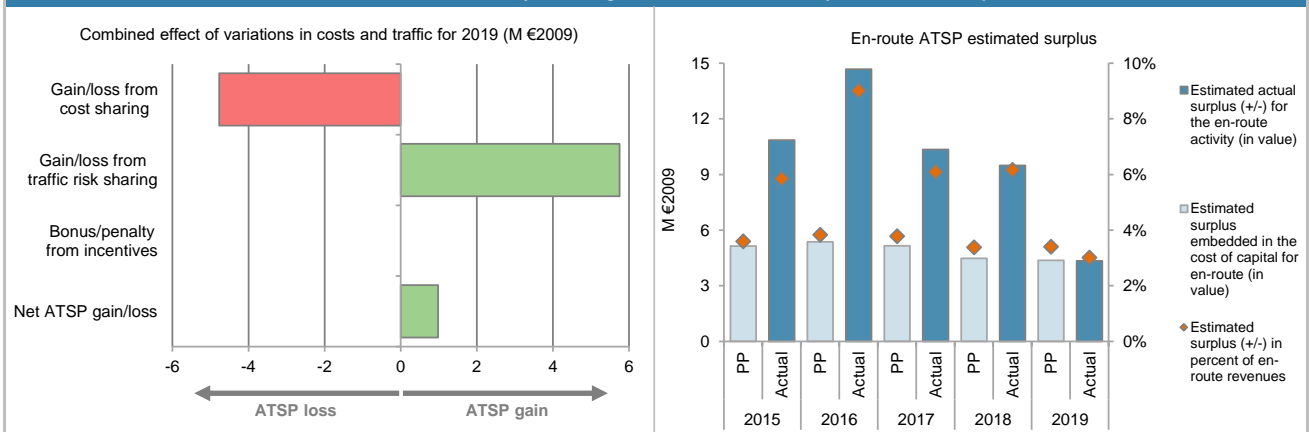
9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	142 525	140 007	136 052	132 252	128 529
Actual costs for the ATSP	178 067	151 533	162 360	147 122	142 959
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-35 542	-11 526	-26 308	-14 870	-14 430
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	39 208	19 574	28 237	15 756	9 660
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>3 666</b>	<b>8 048</b>	<b>1 930</b>	<b>886</b>	<b>-4 769</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	3.0%	3.0%	8.2%	12.7%	11.5%
Determined costs for the ATSP (PP) - based on actual inflation	142 582	141 910	138 139	134 236	130 813
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>3 282</b>	<b>3 261</b>	<b>5 335</b>	<b>5 906</b>	<b>5 756</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>384</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>7 332</b>	<b>11 309</b>	<b>7 264</b>	<b>6 792</b>	<b>986</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	143 708	127 587	116 010	105 112	102 862
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	143 708	127 587	116 010	105 112	102 862
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	5 135	5 373	5 152	4 479	4 375
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	3.6%	4.2%	4.4%	4.3%	4.3%
Estimated surplus embedded in the cost of capital for en-route (in value)	5 135	5 373	5 152	4 479	4 375
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>*see Note 3</b>	<b>5 135</b>	<b>5 373</b>	<b>5 152</b>	<b>4 479</b>
<b>Revenue/costs for the en-route activity</b>	<b>142 525</b>	<b>140 007</b>	<b>136 052</b>	<b>132 252</b>	<b>128 529</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.6%</b>	<b>3.8%</b>	<b>3.8%</b>	<b>3.4%</b>	<b>3.4%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>3.6%</b>	<b>4.2%</b>	<b>4.4%</b>	<b>4.3%</b>	<b>4.3%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	112 788	107 724	98 309	109 637	129 841
Estimated proportion of financing through equity (in %)	*see Note 2	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	112 788	107 724	98 309	109 637	129 841
Estimated proportion of financing through debt (in %)	*see Note 2	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	3 516	3 367	3 074	2 697	3 351
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	*see Note 2	3.1%	3.1%	3.1%	2.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	3 516	3 367	3 074	2 697	3 351
Net ATSP gain(+)/loss(-) on en-route activity	7 332	11 309	7 264	6 792	986
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>*see Note 3</b>	<b>10 848</b>	<b>14 676</b>	<b>10 338</b>	<b>9 490</b>
<b>Revenue/costs for the en-route activity</b>	<b>185 399</b>	<b>162 842</b>	<b>169 624</b>	<b>153 914</b>	<b>143 945</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>5.9%</b>	<b>9.0%</b>	<b>6.1%</b>	<b>6.2%</b>	<b>3.0%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>9.6%</b>	<b>13.6%</b>	<b>10.5%</b>	<b>8.7%</b>	<b>3.3%</b>



## SWEDEN: En-route ATSP (LFV)

## Monitoring of en-route COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on en-route activity and estimated surplus



## 12. Focus on en-route ATSP: General conclusions (see also Note 1)

## Actual 2019 LFV en-route costs vs. PP

In 2019, LFV actual en-route costs are +11.2% (+14.4 M€2009) higher, in real terms, than planned in the PP (see also Note 3 at the end of this report). According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- much higher staff costs (+10.3%, or +9.3 M€2009), which are explained by "higher pension costs (reported as costs exempt from cost sharing). This is a result of lower interest rate than assumed in the performance plan of RP2" and "changes in the internal accounting, which affects both staff costs and other operation costs compared to when the plan for RP2 was established. The effect of these changes is a bit lower operating costs and higher staff costs".
- much lower other operating costs (-10.1%, or -2.9 M€2009), resulting from i) "cost-cutting programme", ii) "lower costs for maintenance as a result of negotiations with suppliers", and iii) changes in internal accounting as described above.
- much higher depreciation costs (+11.6%, or +1.5 M€2009);
- much lower cost of capital (-23.4%, or -1.0 M€2009), resulting from the use of lower RoE rate than planned (i.e. 2.6% instead of 4.3%) to compute actual cost of capital. See also Note 2 at the end of this report.

It is also noteworthy that a deduction of -7.6 M€2009 was foreseen in the PP as (negative) exceptional costs for LFV, reflecting a "top-down" approach used by Sweden to ensure that each party in Sweden en-route cost-base contributes to the objective of cost-efficiency. This deduction also contributes to the observed overall deviation between LFV actual and determined costs in 2019.

## LFV net gain/loss on en-route activity in 2019

As shown in box 9, LFV generated a net gain of +1.0 M€2009 on the en-route activity. This is a combination of two elements:

- a loss of -4.8 M€2009 arising from the cost sharing mechanism; and
- a gain of +5.8 M€2009 arising from the traffic risk sharing mechanism.

The loss from cost sharing mentioned above (-4.8 M€2009) includes amounts reported by LFV for cost exempt from cost sharing (+9.7 M€2009). Should these costs not be deemed eligible by the European Commission, LFV would record a net loss of -8.7 M€2009 for the en-route activity in 2019.

## LFV overall estimated surplus for the en-route activity (see also Note 3)

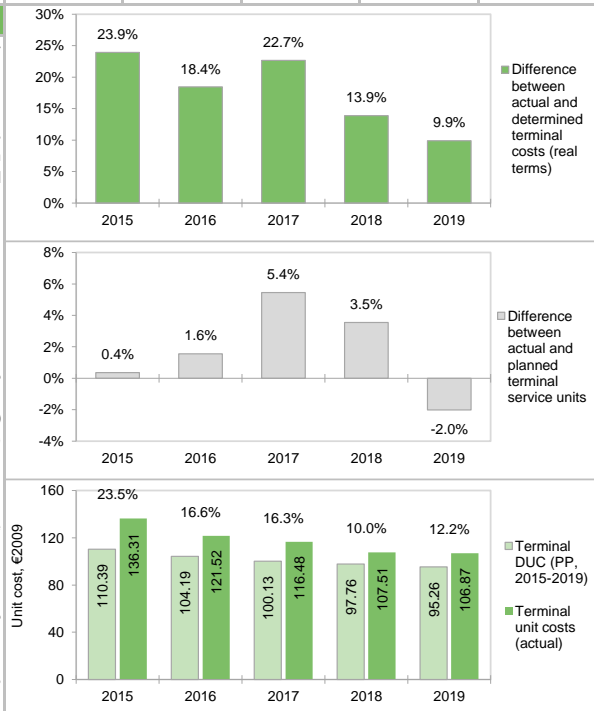
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+1.0 M€2009) and the surplus embedded in the actual cost of capital (+3.4 M€2009) amounts to +4.3 M€2009 (3.0% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 3.3%, which is slightly lower than the 4.3% planned in the PP. It should be noted, however, that if the costs exempt from cost sharing mentioned above were to be excluded from the LFV gains in 2019, the resulting overall estimated surplus would be negative (-10.1 M€2009, or 7.0% of the 2019 en-route revenues).

When considering the whole of RP2 (2015-2019), LFV generated cumulative gains in respect of cost sharing of +9.8 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +23.5 M€2009, which reflects the fact that actual traffic was in general terms +7.8% higher than planned during RP2. Adding the gain of +0.4 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+16.0 M€2009 over RP2) leads to an overall estimated surplus of +49.7 M€2009, which corresponds to an average ex-post return on equity of 8.9% (compared to 4.1% as initially planned in the NPP).

## SWEDEN: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services						
· Sweden TCZ represents 1.4% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No		
· ATSP:	LFV	· Airports with fewer than 70,000 IFRs ATMs:		0		
· National currency:	SEK	· Airports with between 70,000 and 225,000 IFRs ATMs:		1		
· Number of airports in charging zone in 2019:	1,	of which:	· Airports with more than 225,000 IFRs ATMs:	0		
2. Terminal DUC monitoring at Charging Zone level						
Sweden: Data from RP2 Performance Plan						
	2015D	2016D	2017D	2018D	2019D	
Terminal costs (nominal SEK)	169 678 803	170 109 786	172 098 429	175 956 588	178 967 182	
Inflation %	1.6%	2.4%	2.1%	2.0%	2.0%	
Inflation index (100 in 2009)	106.1	108.6	110.9	113.1	115.4	
Real terminal costs (SEK2009)	159 998 211	156 645 123	155 216 806	155 584 812	155 143 968	
Total terminal Service Units	136 600	141 700	146 100	150 000	153 500	
<b>Real terminal unit cost per Service Unit (SEK2009)</b>	<b>1 171.29</b>	<b>1 105.47</b>	<b>1 062.40</b>	<b>1 037.23</b>	<b>1 010.71</b>	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>110.39</b>	<b>104.19</b>	<b>100.13</b>	<b>97.76</b>	<b>95.26</b>	
Sweden: Actual data from Reporting Tables						
	2015A	2016A	2017A	2018A	2019A	
Terminal costs (nominal SEK)	207 983 086	196 748 751	205 739 690	195 280 449	191 167 283	
Inflation %	0.7%	1.1%	1.9%	2.0%	1.7%	
Inflation index (100 in 2009)	104.9	106.0	108.1	110.2	112.1	
Real terminal costs (SEK2009)	198 283 912	185 532 625	190 393 538	177 171 032	170 540 120	
Total terminal Service Units	137 100	143 900	154 056	155 314	150 405	
<b>Real terminal unit cost per Service Unit (SEK2009)</b>	<b>1 446.27</b>	<b>1 289.32</b>	<b>1 235.87</b>	<b>1 140.73</b>	<b>1 133.87</b>	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>136.31</b>	<b>121.52</b>	<b>116.48</b>	<b>107.51</b>	<b>106.87</b>	
Difference between Actuals and Planned						
	2015	2016	2017	2018	2019	
Terminal costs (nominal SEK)	in value	38 304 283	26 638 965	33 641 262	19 323 861	12 200 101
	in %	22.6%	15.7%	19.5%	11.0%	6.8%
Inflation %	in p.p.	-0.9 p.p.	-1.3 p.p.	-0.2 p.p.	0.0 p.p.	-0.3 p.p.
Inflation index (100 in 2009)	in p.p.	-1.2 p.p.	-2.6 p.p.	-2.8 p.p.	-2.9 p.p.	-3.3 p.p.
Real terminal costs (SEK2009)	in value	38 285 701	28 887 502	35 176 732	21 586 220	15 396 153
	in %	23.9%	18.4%	22.7%	13.9%	9.9%
Total terminal Service Units	in value	500	2 200	7 956	5 314	-3 095
	in %	0.4%	1.6%	5.4%	3.5%	-2.0%
<b>Real terminal unit cost per Service Unit (SEK2009)</b>	<b>in value</b>	<b>274.98</b>	<b>183.85</b>	<b>173.47</b>	<b>103.49</b>	<b>123.16</b>
	<b>in %</b>	<b>23.5%</b>	<b>16.6%</b>	<b>16.3%</b>	<b>10.0%</b>	<b>12.2%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>25.92</b>	<b>17.33</b>	<b>16.35</b>	<b>9.75</b>	<b>11.61</b>
	<b>in %</b>	<b>23.5%</b>	<b>16.6%</b>	<b>16.3%</b>	<b>10.0%</b>	<b>12.2%</b>
3. Focus on terminal at State/Charging Zone level						
This analysis focuses on Sweden Terminal Charging Zone (TCZ) comprising only Stockholm-Arlanda (ESSA) airport.						
<b>Terminal unit cost</b>						
In 2019, the actual terminal unit cost in real terms (1 133.87 SEK2009 or 106.87 €2009) is +12.2% higher than planned in the PP (1 010.71 SEK2009 or 95.26 €2009). This results from the combination of slightly lower than planned TNSUs (-2.0%) and higher than planned terminal costs in real terms (+9.9%, or +1.5 ME2009).						
<b>Terminal service units</b>						
The traffic risk sharing mechanism does not apply in Sweden TCZ. In 2019, the actual TNSUs in Sweden TCZ are -2.0% lower than planned in the PP.						
<b>Terminal costs</b>						
In nominal terms, actual terminal costs are +6.8% (+12.2 MSEK) higher than planned. However, since the actual inflation index is lower than planned (-3.3 p.p.), actual terminal costs are +9.9% (+1.5 ME2009) above plans when expressed in real terms.						
The higher than planned terminal costs in real terms are driven by LFV (+9.7%, or +1.4 ME2009) and the MET service provider (+21.7%, or +0.1 ME2009), while the costs for the NSA (-5.8%) are lower than planned. A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +0.2 ME2009 corresponding to pensions. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for Sweden TCZ, actual TNSUs are +1.8% higher than planned, while actual costs in real terms are also +17.8% higher than the determined costs (some +13.1 ME2009). As a result, the weighted average actual unit cost over RP2 (1 244.53 SEK2009 or 117.30 €2009) is +15.8% higher than planned in the NPP (1 075.13 SEK2009 or 101.33 €2009).						



**SWEDEN: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	9.7%
Other ANSPs	-5.8%
METSP	21.7%
NSA	-
<b>Total</b>	<b>9.9%</b>

Costs by nature at ATSP level:

Staff	2.8%
Other operating costs	25.5%
Depreciation	-12.2%
Cost of capital	-
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>9.7%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	3 449	2 008	2 954	1 314	187
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	3 449	2 008	2 954	1 314	187
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>3 449</b>	<b>2 008</b>	<b>2 954</b>	<b>1 314</b>	<b>187</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

The terminal unit rate charged to airspace users (CUR) in 2019 is 1 077.20 SEK. This is -7.6% lower than the nominal DUC (1 165.91 SEK). The difference between these two figures (-88.71 SEK) relates to:

- the inflation adjustment (-28.47 SEK), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic adjustment (-60.04 SEK), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019; and
- an adjustment (-0.20 SEK) corresponding to the over recoveries incurred before the introduction of the Determined Costs method and carried-over to 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (1 171.07 SEK) is 0.4% higher than the nominal DUC (1 165.91 SEK). The difference between these two figures (5.16 SEK) is mainly due to:

- the inflation adjustment (-33.63 SEK), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic adjustment (+23.99 SEK), for the costs not subject to traffic risk sharing and the related under recoveries, to be charged to airspace users in future years; and
- the adjustment for costs exempt from cost-sharing (+14.81 SEK) for the costs incurred in 2019 and charged to airspace users in future reference period(s), if deemed eligible by the European Commission.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## SWEDEN: Terminal ATSP (LFV)

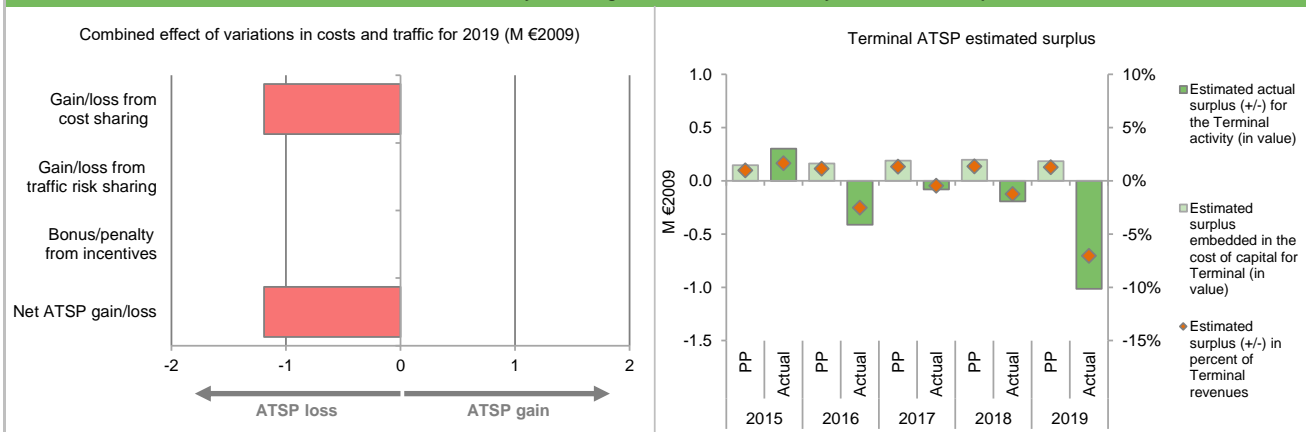
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	14 731	14 382	14 262	14 294	14 242
Actual costs for the ATSP	18 173	17 073	17 607	16 020	15 621
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-3 442	-2 691	-3 345	-1 727	-1 379
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	3 449	2 008	2 954	1 314	187
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>7</b>	<b>-683</b>	<b>-391</b>	<b>-412</b>	<b>-1 192</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>7</b>	<b>-683</b>	<b>-391</b>	<b>-412</b>	<b>-1 192</b>
	<i>*see Note 3</i>				
10. Focus on ATSP: Terminal ATSP estimated surplus *					
<small>* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&amp;L accounts of the ATSP.</small>					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	4 588	4 764	4 974	5 078	4 613
Estimated proportion of financing through equity (in %)	27.7%	29.7%	32.9%	33.5%	34.4%
Estimated proportion of financing through equity (in value)	1 273	1 416	1 639	1 701	1 586
Estimated proportion of financing through debt (in %)	72.3%	70.3%	67.1%	66.5%	65.6%
Estimated proportion of financing through debt (in value)	3 316	3 348	3 335	3 377	3 027
Cost of capital pre-tax (in value)	263	281	306	314	289
Average interest on debt (in %)	3.5%	3.5%	3.5%	3.5%	3.5%
Interest on debt (in value)	116	117	117	118	106
Determined RoE pre-tax rate (in %)	11.5%	11.5%	11.5%	11.5%	11.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	147	163	189	196	183
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>147</b>	<b>163</b>	<b>189</b>	<b>196</b>	<b>183</b>
	<i>*see Note 3</i>				
<b>Revenue/costs for the terminal activity</b>	<b>14 731</b>	<b>14 382</b>	<b>14 262</b>	<b>14 294</b>	<b>14 242</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>1.0%</b>	<b>1.1%</b>	<b>1.3%</b>	<b>1.4%</b>	<b>1.3%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>11.5%</b>	<b>11.5%</b>	<b>11.5%</b>	<b>11.5%</b>	<b>11.5%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	4 682	4 034	3 298	4 607	4 368
Estimated proportion of financing through equity (in %)	54.5%	58.1%	81.8%	41.4%	35.2%
Estimated proportion of financing through equity (in value)	2 553	2 344	2 698	1 907	1 537
Estimated proportion of financing through debt (in %)	45.5%	41.9%	18.2%	58.6%	64.8%
Estimated proportion of financing through debt (in value)	2 128	1 690	600	2 699	2 831
Cost of capital pre-tax (in value)	342	308	325	274	254
Average interest on debt (in %)	2.2%	2.2%	2.2%	2.0%	2.7%
Interest on debt (in value)	48	38	13	54	76
Determined RoE pre-tax rate (in %)	11.5%	11.5%	11.5%	11.5%	11.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	295	271	311	220	177
Net ATSP gain(+)/loss(-) on terminal activity	7	-683	-391	-412	-1 192
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>302</b>	<b>-413</b>	<b>-80</b>	<b>-192</b>	<b>-1 014</b>
	<i>*see Note 3</i>				
<b>Revenue/costs for the terminal activity</b>	<b>18 180</b>	<b>16 390</b>	<b>17 216</b>	<b>15 608</b>	<b>14 430</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>1.7%</b>	<b>-2.5%</b>	<b>-0.5%</b>	<b>-1.2%</b>	<b>-7.0%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>11.8%</b>	<b>-17.6%</b>	<b>-2.9%</b>	<b>-10.1%</b>	<b>-66.0%</b>

## SWEDEN: Terminal ATSP (LFV)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions \*see Note 3

## Actual 2019 ATSPs (LFV and Swedavia) terminal costs vs. PP

In 2019, ATSPs (LFV and Swedavia) actual terminal costs are +9.7% (+1.4 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- higher staff costs (+2.8%, or +0.3 M€2009) in real terms. It should be noted that actual staff costs in nominal terms are slightly below the plan (-0.1%), however appear higher when expressed in real terms due to much lower than planned inflation index (-3.3 p.p.);
- much higher other operating costs (+25.5%, or +1.0 M€2009);
- much higher depreciation costs (+26.6%, or +0.1 M€2009);
- much lower cost of capital (-12.2%, or -0.04 M€2009);

It is noteworthy that no capital related costs (depreciation and cost of capital) are reported for LFV in the terminal Reporting Tables. These costs are fully borne by the airport operator (Swedavia, see also **Note 3**) owning the CNS infrastructure used by LFV to provide terminal ANS.

According to the June 2020 terminal Reporting Tables "Swedavia's determined costs contain a calculation error which make the comparison of actual costs and determined costs by each row in the table [reported in additional information 1.k] not applicable for RP2. The actual costs 2018 were higher than determined costs. Among other things due to increased joint expertise in ATM centrally in Swedavia and to operational cost of procedures".

## ATSPs (LFV and Swedavia) net gain/loss on terminal activity in 2019

As shown in box 9, ATSPs (LFV and Swedavia) generated a net loss of -1.2 M€2009 on the terminal activity arising from the cost sharing mechanism.

The loss from cost sharing mentioned above (-1.2 M€2009) includes amounts reported by ATSPs for cost exempt from cost sharing (+0.2 M€2009). Should these costs not be deemed eligible by the European Commission, ATSPs would record a net loss of -1.4 M€2009 for the terminal activity in 2019.

## ATSPs (LFV and Swedavia) overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-1.2 M€2009) and the surplus embedded in the actual cost of capital (+0.2 M€2009) amounts to -1.0 M€2009 (7.0% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -66.0%, which indicates that the surplus embedded in the cost of capital (11.5%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019), ATSPs (LFV and Swedavia) generated cumulative losses in respect of cost sharing of -2.7 M€2009, as actual total costs for RP2 were higher than planned. Adding the estimated surplus embedded in the terminal cost of capital (+1.3 M€2009 over RP2) leads to an overall estimated surplus (loss) of -1.4 M€2009, which corresponds to an average ex-post return on equity of -12.7% (compared to 11.5% as initially planned in the NPP).

Finally, for completeness purposes, considering the fact that LFV does not report any cost of capital (i.e. there is no surplus embedded in the cost of capital), the 2019 overall economic surplus for LFV (excluding Swedavia's part) is equal to the an overall loss of -0.5 M€2009, as shown in the table below.

## 9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity

	2015	2016	2017	2018	2019
<b>Cost sharing ('000 €2009)</b>					
Determined costs for the ATSP (PP) - based on planned inflation	10 498	10 299	10 299	10 269	10 301
Actual costs for the ATSP	13 895	12 389	13 500	11 758	10 973
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-3 397	-2 091	-3 201	-1 490	-672
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	3 449	2 008	2 954	1 314	187
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>52</b>	<b>-83</b>	<b>-247</b>	<b>-175</b>	<b>-485</b>
<b>Traffic risk sharing ('000 €2009)</b>					
<b>Incentives ('000 €2009)</b>					
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bon</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>*see Note 2</b>	<b>52</b>	<b>-83</b>	<b>-247</b>	<b>-175</b>
					<b>-485</b>

## SWEDEN: Gate-to-gate

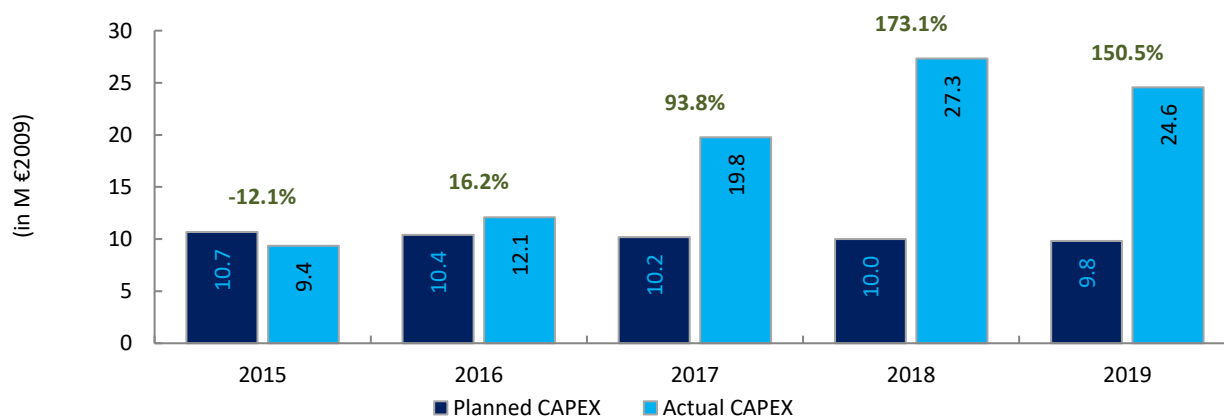
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Sweden: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	173 437 267	171 344 053	167 484 207	163 726 374	160 046 964																																							
Real terminal costs (EUR2009)	15 079 660	14 763 635	14 629 018	14 663 702	14 622 153																																							
Real gate-to-gate costs (EUR2009)	188 516 927	186 107 688	182 113 225	178 390 076	174 669 117																																							
En-route share (%)	92.0%	92.1%	92.0%	91.8%	91.6%																																							
<b>Sweden: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	213 271 212	186 922 451	199 387 531	185 494 775	183 239 644																																							
Real terminal costs (EUR2009)	18 688 047	17 486 251	17 944 387	16 698 180	16 073 224																																							
Real gate-to-gate costs (EUR2009)	231 959 259	204 408 702	217 331 918	202 192 955	199 312 868																																							
En-route share (%)	91.9%	91.4%	91.7%	91.7%	91.9%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	43 442 332	18 301 014	35 218 693	23 802 879	24 643 751																																							
in %	23.0%	9.8%	19.3%	13.3%	14.1%																																							
En-route share in p.p.	-0.1 p.p.	-0.6 p.p.	-0.2 p.p.	-0.0 p.p.	0.3 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +14.1% (+24.6 M€2009) higher than planned due to higher than planned en-route costs (+14.5%, or +23.2 M€2009) and terminal costs (+9.9%, or +1.5 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (91.9%) is in line with that planned in the PP for 2019 (91.6%).</p> <p>For LFV, the estimated gate-to-gate economic surplus in 2019 amounts to 3.3 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 2.1% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>92.0%</td> <td>8.0%</td> </tr> <tr> <td>Actual</td> <td>91.9%</td> <td>8.1%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>92.1%</td> <td>7.9%</td> </tr> <tr> <td>Actual</td> <td>91.4%</td> <td>8.6%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>92.0%</td> <td>8.0%</td> </tr> <tr> <td>Actual</td> <td>91.7%</td> <td>8.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>91.8%</td> <td>8.2%</td> </tr> <tr> <td>Actual</td> <td>91.7%</td> <td>8.3%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>91.6%</td> <td>8.4%</td> </tr> <tr> <td>Actual</td> <td>91.9%</td> <td>8.1%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	92.0%	8.0%	Actual	91.9%	8.1%	2016	Determined	92.1%	7.9%	Actual	91.4%	8.6%	2017	Determined	92.0%	8.0%	Actual	91.7%	8.3%	2018	Determined	91.8%	8.2%	Actual	91.7%	8.3%	2019	Determined	91.6%	8.4%	Actual	91.9%	8.1%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	92.0%	8.0%																																									
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	Actual	91.9%	8.1%																																									
<b>3. Technical notes on en-route and terminal information reported by Sweden</b>																																												
<b>Note 1: reporting of a new ANS provider - SDATS</b>																																												
<p>Sweden reported a new ANS provider –SDATS– in their submission of June 2020 en-route reporting tables. It is understood that the actual costs for SDATS reported in 2019 reflect the costs for part of the year (last three months).</p> <p>Furthermore, since this ANSP was not foreseen in the performance plan, no determined costs for SDATS are identified in the reporting tables, and, following a discussion with the Swedish NSA, it is understood that these costs were previously reflected under the main ANSP – LFV.</p> <p>However, considering the insignificant share of the reported actual costs for SDATS (some 0.4% of LFV costs) in 2019, for the purposes of this report, the actual costs are reflected under “Other ANSPs”. This in particular slightly affects the analysis presented in boxes 9, 10 and 12 for the en-route charging zone.</p>																																												
<b>Note 2: ATSP return on equity (RoE) and cost of capital</b>																																												
<p>In preparing this report, some ‘adjustments’ were made to the en-route data disclosed by Sweden relating to the LFV cost of capital. According to the Additional Information provided with the June 2020 en-route Reporting Tables “LFV has no financing through loans, the debt consists of the pensions debt. The used interest for this equals inflation in our waccalculations.” On the other hand, it is noted that the asset base does not include the pension debt. To reflect this, the table in box 10 has been amended, by changing the actual proportion of financing through equity to 100% and aligning the actual RoE pre-tax rate (in %) with the WACC pre-tax rate (in %).</p> <p>It is noted that the actual en-route cost of capital reported for LFV for 2019 is calculated using a lower RoE pre-tax rate (2.6%) compared to the planned one (4.3%, see also Note 3 below).</p>																																												
<b>Note 3: ATSP costs reported in en-route and terminal Reporting Tables</b>																																												
<p>In the en-route Reporting Tables, the data provided for the ATSPs (LFV and ACR) include also the costs relating to the CNS infrastructure owned by the airport operators. This reporting impairs the analysis of the overall estimated en-route surplus for LFV calculated in box 10.</p> <p>For compliance with the charging regulation, it is required to present separately the costs of the different ATSPs and other entities (i.e. here the airport operators).</p> <p>In the terminal Reporting Tables, the costs of the main terminal ATSP (LFV) and airport operator (Swedavia) are presented separately. For monitoring purposes, the overall estimated terminal surplus for ATSPs (LFV and Swedavia) is presented in box 10, while the separate estimation of LFV surplus is provided in box 12.</p>																																												

## SWEDEN

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: LFV						
FAB: DK-SE FAB						
Currency: SEK						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	120.0	120.0	120.0	120.0	120.0	600.0
Main CAPEX (in nominal M)	110.0	101.0	66.0	60.0	55.0	392.0
Inflation %	1.6%	2.4%	2.1%	2.0%	2.0%	
Inflation index (100 in 2009)	106.1	108.6	110.9	113.1	115.4	
Exchange rate 2009 (1 EUR =)	10.6102	10.6102	10.6102	10.6102	10.6102	
<b>Total CAPEX (in M €2009)</b>	<b>10.7</b>	<b>10.4</b>	<b>10.2</b>	<b>10.0</b>	<b>9.8</b>	<b>51.1</b>
Main CAPEX (in M €2009)	9.8	8.8	5.6	5.0	4.5	33.6
% Main of Total CAPEX	91.7%	84.2%	55.0%	50.0%	45.8%	65.9%
Real gate-to-gate ANSP costs (in M €2009)	157.3	154.4	150.3	146.5	142.8	751.3
Total CAPEX as % of Real gate-to-gate ANSP costs	6.8%	6.7%	6.8%	6.8%	6.9%	6.8%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	104.3	136.2	226.7	319.4	292.1	1 078.7
Main CAPEX (in nominal M)	47.9	89.4	134.6	232.6	171.3	675.7
Inflation %	0.7%	1.1%	1.9%	2.0%	1.7%	
Inflation index (100 in 2009)	104.9	106.0	108.1	110.2	112.1	
Exchange rate 2009 (1 EUR =)	10.6102	10.6102	10.6102	10.6102	10.6102	
<b>Total CAPEX (in M €2009)</b>	<b>9.4</b>	<b>12.1</b>	<b>19.8</b>	<b>27.3</b>	<b>24.6</b>	<b>93.1</b>
Main CAPEX (in M €2009)	4.3	7.9	11.7	19.9	14.4	58.3
% Main of Total CAPEX	45.9%	65.6%	59.4%	72.8%	58.6%	62.6%
Real gate-to-gate ANSP costs (in M €2009)	196.2	168.6	180.0	163.1	159.2	867.2
Total CAPEX as % of Real gate-to-gate ANSP costs	4.8%	7.2%	11.0%	16.7%	15.4%	10.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-15.7	16.2	106.7	199.4	172.1	478.7
Total CAPEX (in M €2009)	-1.3	1.7	9.6	17.3	14.8	42.0
<b>Total CAPEX (in %, M €2009)</b>	<b>-12.1%</b>	<b>16.2%</b>	<b>93.8%</b>	<b>173.1%</b>	<b>150.5%</b>	<b>82.3%</b>



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# Annual Monitoring Report 2019

Local level view

FAB CE

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## FAB CE

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management			2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs					C
	at ANSP level	For Safety Culture MO					C
		For all other MOs					D
FAB level	States / Regulatory authorities	For all MOs	B	B	B	B	B
	ANSPs	For Safety Culture MO	C	D	D	D	D
	ANSPs	For all other MOs	C	C	C	C	C
Application of the severity classification of the Risk Analysis Tool (RAT)			2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Ground Score							
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%		100%
	Runway Incursions (RIs)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	100%	96%	88%	100%
	Runway Incursions (RIs)		100%	100%	100%	100%	100%
Overall Score							
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	100%	97%	100%	100%
	Runway Incursions (RIs)		95%	100%	100%	100%	100%
	ATM Specific occurrences (ATM-S)		91%	85%	100%	100%	100%

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

#### Observations

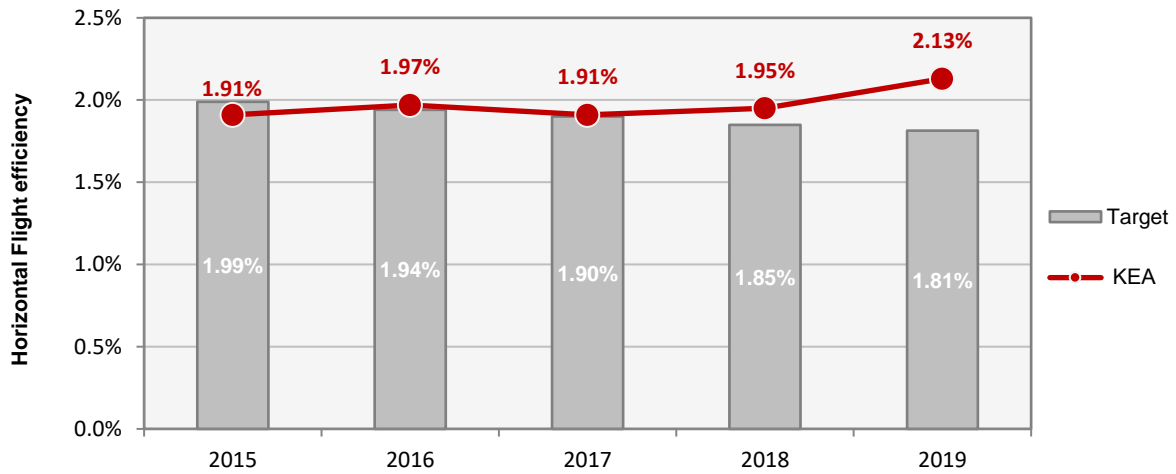
The lowest level in each EoSM Components/areas of the States is Level "B" which is below the 2019 EoSM target level. Safety Policy, Safety Risk Management and Safety Promotion met the 2019 EoSM target level.

With regards the ANSP EoSM level, the minimum level for all components met the 2019 EoSM target level.

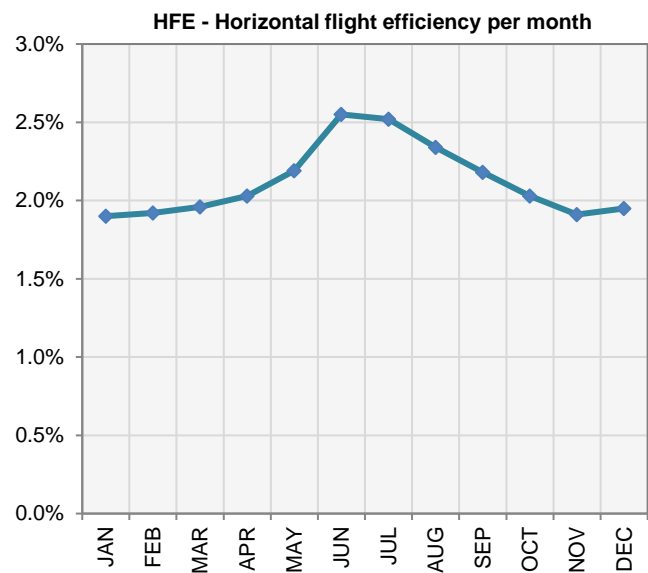
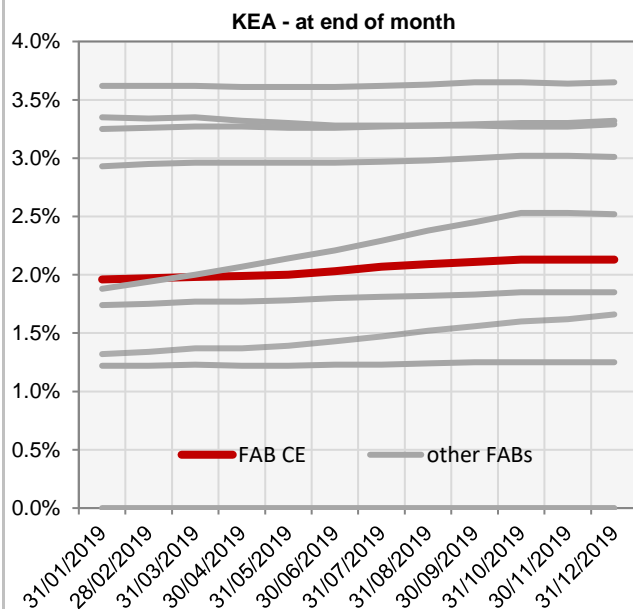
FAB CE

Monitoring of ENVIRONMENT for 2019

KEA					
	2015	2016	2017	2018	2019
FAB Target	1.99%	1.94%	1.90%	1.85%	1.81%
KEA Value	1.91%	1.97%	1.91%	1.95%	2.13%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KEA (at end of month)	1.96%	1.97%	1.98%	1.99%	2.00%	2.03%	2.07%	2.09%	2.11%	2.13%	2.13%	2.13%
HFE	1.90%	1.92%	1.96%	2.03%	2.19%	2.55%	2.52%	2.34%	2.18%	2.03%	1.91%	1.95%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.

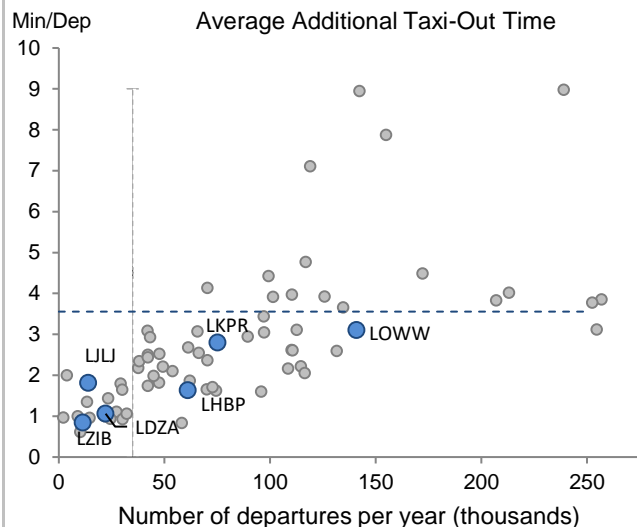
FAB CE

Monitoring of Airports Contribution to ENVIRONMENT for 2019

1. Overview

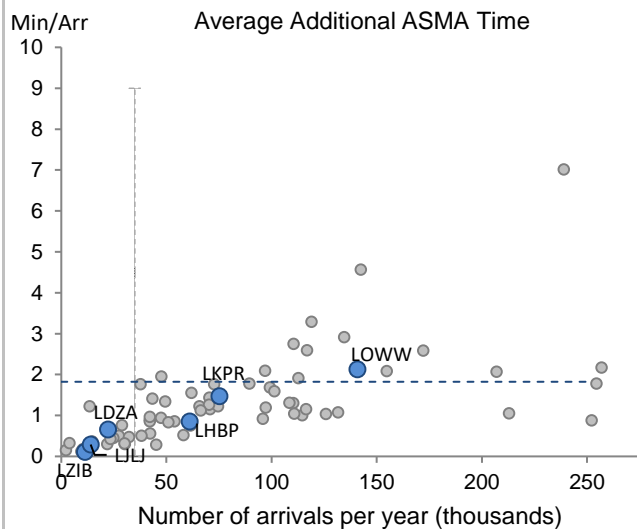
There are 16 airports in FAB CE under RP2 monitoring. Nevertheless, the monitoring of 10 of them cannot be performed due to the lack of data. Only 6 airports have properly established the Airport Operator Data Flow. These few airports that can be monitored show values in general in line with the European trend.

2. Additional Taxi-Out Time



Available data only allows for calculation of additional taxi-out times at Vienna (LOWW), Prague (LKPR), Budapest (LHBP), Zagreb (LDZA), Bratislava (LZIB) and Ljubljana (LJU). All of them show performances below the RP2 average.

3. Additional ASMA Time



The additional ASMA times at available airports in FAB CE are commensurate with the level of traffic. Only Vienna (LOWW) exceeds the SES average (1.82 min/arr.) but this performance is still in line with similar airports in terms of traffic.

## FAB CE

## Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
<b>FAB Reference Value</b>	0.30	0.29	0.29	0.29	0.29	FAB total includes post operations adjustment.
<b>FAB Target</b>	0.29	0.29	0.28	0.28	0.27	
<b>Actual performance</b>	0.21	0.08	0.18	0.82	1.57	

### FAB CE assessment of capacity performance

During the RP2, the Average ATFM delay per flight attributable to ANS measured on FAB CE level evolved as shown above. The capacity target was achieved during 2015 – 2017. Between 2018 and 2019, however, the actual value of delay increased beyond the declared FAB CE targets. The deviations of actual values from the FAB CE targets in the second half of RP2 were caused mainly by the overall lack of the EU ATM network's capacity that was unable to respond to the air traffic growth. The lack of capacity together with the negative exogenous factors resulted in knock-on effects along the European routes, extensive needs for air traffic rerouting and in shifting additional air traffic to areas and time blocks not planned for during the ATC pre-tactical phases.

Although the external issues could be accounted for the main factors which negatively impacted the situation in FAB CE, namely during the second half of the RP2, FAB CE faced capacity issues with the main causes include two categories that could be managed on the ANSP level ('ER Capacity ATC' representing 55% of the delay and 'ER Staffing ATC' representing 14% of the actual delay). Weather, however, contributed significantly to the performance, similarly as in the previous years, representing 30% of the actual delay.

During the RP3, the FAB CE Member States will strive to provide for effective capacity enhancement measures to improve overall EU network performance.

### Monitoring process for capacity performance

The FAB CE monitoring process is established through the FAB CE Network OPS Group (FNOPG) responsible for the development and annual maintenance of the FAB CE Network Operations Plan (FNOP), in line with the European Network Operations Plan (process coordinated and managed by the Network Manager and the Network Manager reports to the member states via the Single Sky Committee) and European Performance Scheme, satisfying FAB CE operational needs. The FNOP includes and considers ANSP strategic operational planning issues and state strategic operational planning (National Performance Plans).

### Application of Corrective Measures for Capacity

Any corrective measures are applied as necessary during the review process performed annually for regular updates of the FAB CE Network Operations Plan and the FAB CE Airspace Plan.

### Capacity Planning

Planned capacity enhancement measures of individual states are listed in detail in the European Network Operations Plan 2020-2024, as well as in the national LSSIPs (chapter 2) and updated version of the FAB CE Network Operations Plan 2020.

### Assessment of capacity performance

In 2019, FAB CE did not achieve the required level of en route capacity performance to be consistent with the union-wide target of 0.5 minutes average ATFM delay per flight. The FAB CE target was 0.27 minutes per flight, whereas the actual result was 1.57 minutes, for all causes of delay. The actual delay in 2019 was higher than predicted in the NOP 2019-2024 which itself was considerably higher than the prediction in NOP 2018-2022.

Traffic levels for FAB CE increased by just under 4% on 2018 which is slightly lower than the high traffic scenario forecasted by STATFOR in 2014 when the performance plans and associated capacity plans were being determined.

In Annex I to the Annual Network Operations Report 2019, IATA commented on the important contribution to the eNM measures from Zagreb ACC and praised Ljubljana ACC for handling the high traffic increase well. However IATA noted that Budapest ACC and Vienna ACC struggled with the amount of traffic, with ATC staffing being an issue.

Another representative of the airspace users, A4E, highlighted Vienna ACC, Budapest ACC and Zagreb ACC, among others, as generating the highest delay.

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	1 917		1 994		2 104		2 201		2 300		2 402	
<b>Base</b>	1 889	<b>1 928</b>	1 942	<b>2 001</b>	2 008	<b>2 060</b>	2 067	<b>2 153</b>	2 122	<b>2 311</b>	2 190	<b>2 394</b>
<b>Low</b>	1 861		1 889		1 912		1 936		1 962		1 991	

Delay forecast (with eNM/ANSPs measures for 2019/2020)						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.33	0.35	0.37	0.38	N/A	N/A
<b>NOP 2019 - 2024</b>	1.32	1.36	1.58 – 1.83			

### En route Capacity Incentive Scheme

Annex E of the revised FAB CE performance plan, submitted in July 2015, contained details of the en route capacity incentive scheme to be implemented within FAB CE during RP2. The incentive scheme would be based upon both FAB wide and national performance levels according to the formula: Bonus/Penalty = FAB PONDER x NATIONAL ANSP ELEMENT x 0.5% ANSP EN ROUTE REVENUE. In cases where the FAB capacity performance is better than the FAB target, then ONLY bonuses would be paid - no penalty would apply even if the local ANSP performed worse than the national target. (Vice versa, if FAB capacity performance was worse than the FAB target, then only penalties would be paid - no bonuses even if the local ANSP performed better than the national target.)

### Result of FAB Capacity Incentive Scheme

The FAB CE reports that the actual FAB delay of 1,57 minutes per flight, instead of the FAB target of 0,27 minutes per flight, results in a FAB PONDER of 100% to be applied to the four States that failed to meet their national capacity targets, by at least the 3pp dead-band: Austria; Croatia; Czech Republic and Hungary. No bonus, or penalty, will be applied to Slovenia or Slovakia; because although they exceeded their national targets, the overall FAB target was not achieved. Further details of capacity related incentives are presented in the national reports following.

### Update on Military dimension of the plan

No new information was provided by FAB CE.

### Observations on Military dimension of the plan

Nil

### Application of FUA

No new information was provided by FAB CE.

### Observations of the Application of FUA

In the annual monitoring report 2017, the PRB suggested that it could be useful for FAB CE to share information on how FUA level 3 practices in FAB CE has established procedures to avoid traffic peaks whilst still enabling military priorities when necessary. FAB CE did not provide any further information on this in the 2018 or 2019 annual monitoring reports.

FAB CE

Monitoring of Airports Contribution to CAPACITY for 2019

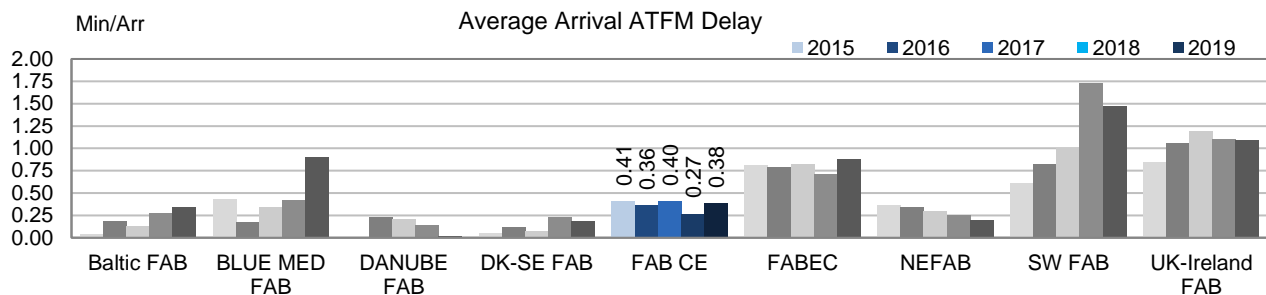
1. Overview

FAB CE contributes adequately to the airport-related ANS Capacity performance in Europe. The FAB aggregated value of arrival ATFM delay (0.38 min/arr.) shows a moderate increase in 2019 and it still ranges well below the European average (0.86 min/arr.).

The overall performance of the airports in FAB CE is driven primarily by Vienna (LOWW) and to a lesser extent by Prague (LKPR) and Budapest (LHBP)

The ANS performance at other FAB CE airports is commensurate with the level of traffic and shows no specific capacity constraint. These airports accrue negligible arrival ATFM delay and most of them demonstrate a best-in-class compliance with ATFM slots.

2. Arrival ATFM Delay



Across Europe, FAB CE achieves a good performance in terms of arrival ATFM delay of 0.38 min/arr. in 2018. The main contributor to these delays is Vienna (LOWW) where the arrival ATFM delay has been 0.91 min/arr. in 2019, lower than at the beginning of the reference period and primarily associated with weather.

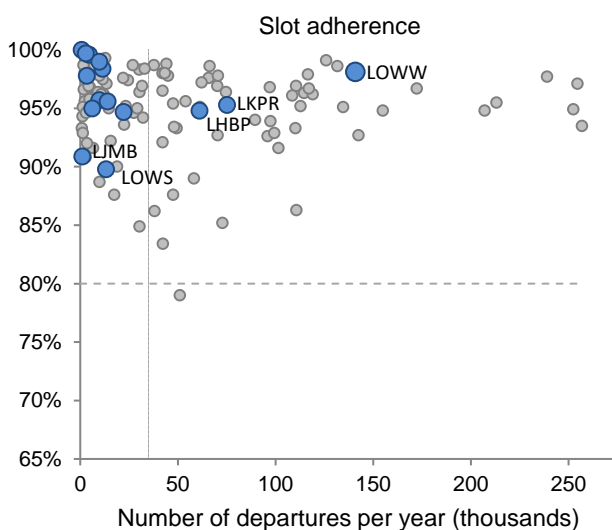
3. Arrival ATFM Delay – National Targets and Incentive Schemes

The plan sets a national target on arrival ATFM delay with a breakdown for each of the major airports per FAB CE Member State. For Austria, a challenging target has been established entailing an improvement of 0.5 minutes per arrival as of 2016.

All 6 states in the FAB have met their target on arrival ATFM delay in 2019 and in previous years of RP2, with the exception of Slovenia in 2018 with a negligible level of delay.

The FAB CE performance plan presents no (capacity) incentive scheme for the national target on arrival ATFM delay for FAB CE Member States.

4. ATFM Slot Adherence



While the majority of airports in FABCE range around and above 95% compliance with ATFM slots, only Salzburg sits just below the 90% (LOWS: 89.8%). In general, the adherence to ATFM slots is excellent in FABCE.

5. ATC Pre-departure Delay

Across FAB CE the implementation of the Airport Operator Data Flow is still limited. FAB CE is encouraged to strengthen the effort to ensure the timely implementation and consistency of monitoring of pre-departure delay.



# Annual Monitoring Report 2019

## Local level view

### Austria

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## AUSTRIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	69	C	C	D	C	C
Austro Control	91	E	E	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	AustroControl					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	6	1				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>16</b>	<b>2</b>				
Austro Control	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	6	2				
<b>TOTAL</b>	<b>21</b>	<b>3</b>				
Observations						
All safety targets have been met.						

## AUSTRIA

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

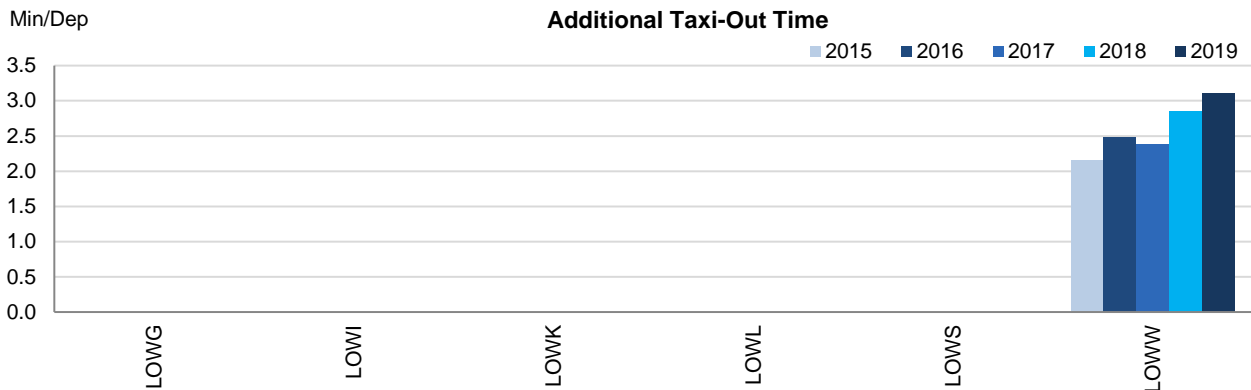
## 1. Overview

Austria identified six airports as subject to RP2 monitoring. However there is only data available from Vienna (LOWW) as the rest of airports have not yet established the Airport Operator Data Flow.

Vienna's traffic increased significantly in the last two years (+12% in 2019 vs 2017) due in part to the opening of a base by Wizzair in June 2018 and new operation by Anisec. The increase in traffic seems to have a detrimental impact on the additional times, that have both increased in 2019.

The rest of Austrian airports should implement the APDF for an adequate monitoring.

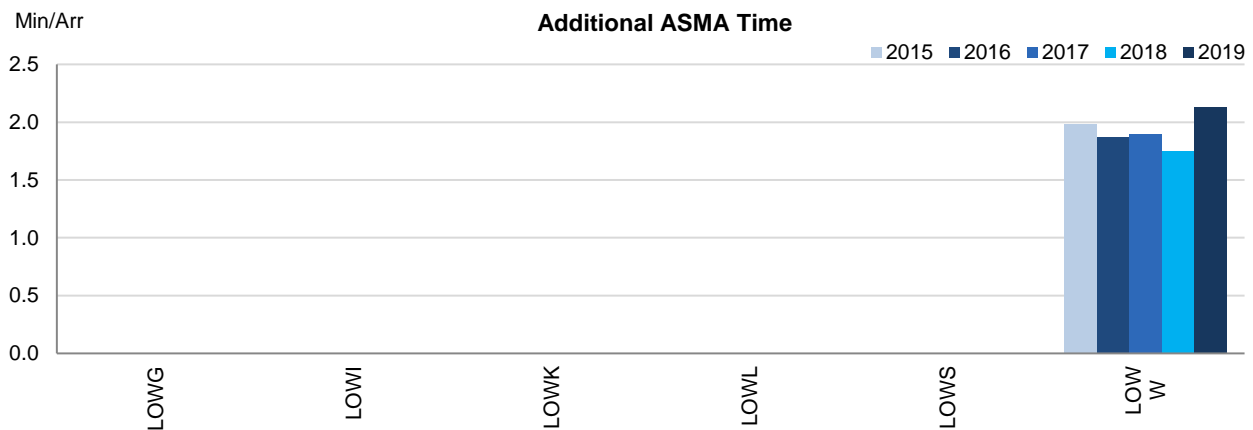
## 2. Additional Taxi-Out Time



Average additional taxi-out time at Vienna has increased again in 2019 (LOWW; 2018: 2.85 min/dep.; 2019: 3.1 min/dep.), but it still sits below the SES average of 3.56 min/dep.

As usual the longest additional taxi-out times can be observed in the winter months (January and December), probably related to de-icing procedures.

## 3. Additional ASMA Time



Additional times in the terminal airspace for LOWW have notably increased in 2019 and surpass now the RP2 average (1.82 min/arr.) with 2.13 min/arr.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Graz	LOWG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Innsbruck	LOWI	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Klagenfurt	LOWK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Linz	LOWL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Salzburg	LOWS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Vienna	LOWW	2.15	2.48	2.38	2.85	3.10	1.98	1.87	1.90	1.75	2.13

**AUSTRIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
<b>National Capacity target</b>	0.21	0.21	0.20	0.19	0.19	FAB CE reports national performance for Austria according to the Vienna FIR, consistent with the FAB CE performance plan. National total includes post operations adjustment.
<b>Deadband +/-</b>	0.03	0.03	0.03	0.03	0.03	
<b>Actual performance</b>	0.06	0.05	0.20	0.54	1.12	

**National capacity incentive scheme**

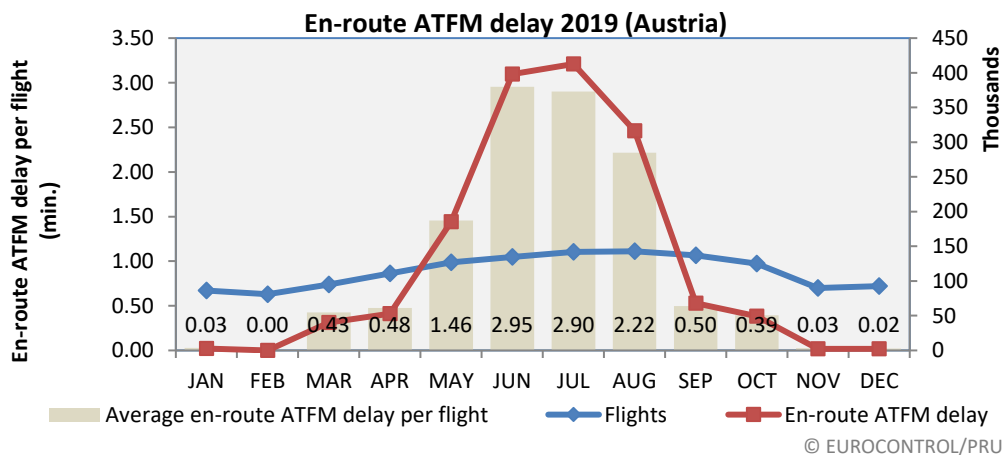
National target: 0.19 minutes.

Actual result: 1.12 min at national level (ATFM delay calculation at FIR level), taking into account a deduction of 217,004 minutes approved for reassignment during the post-ops adjustment.

Both the FAB CE target and the national target were missed by more than 100%. In such cases, a FAB CE ANSP is subject to a maximum penalisation capped at 0.5% of en-route ANS revenue.

Outcome of 2019: Penalty of €1 126 748.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1.10	0.97	1.23	0.18	0.13	0.21	0.02	0.06	0.05	0.20	0.54	1.12

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	1 132		1 183		1 242		1 293		1 346		1 397	
<b>Base</b>	1 116	1 152	1 153	1 168	1 188	1 174	1 218	1 232	1 248	1 301	1 284	1 365
<b>Low</b>	1 099		1 121		1 132		1 143		1 157		1 172	

Although traffic levels grew by almost 5% on 2018 levels they remained below the high traffic scenario forecasted by STATFOR back in 2014 when the FAB performance plans, and associated capacity plans were being determined. The 5% increase in traffic resulted in a doubling of delay to 1.28 minutes of delay per flight (including the 200k of minutes reassigned in the post operations process). The actual delays were significantly higher than predicted in the NOP 2019-2024.

36% of original delays were attributed to ATC capacity; 41% were attributed to adverse weather and 23% of delays were attributed to ATC staffing.

The airspace users highlighted ATC staffing as an important factor for high delays in Vienna ACC and also in Karlsruhe UAC which provides air traffic services over the Tyrol region of Vienna FIR.

Delay forecast - Austro Control						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.21	0.20	0.20	0.19	N/A	N/A
<b>NOP 2019 - 2024</b>	1.07	1.07	1.07 - 1.08			

### Planning and Effective Use of CDRs

Not applicable since AIRAC Nov 2016, Austria has declared Free Route Airspace from GND-UNL.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
70%	73%	70%	75%	68%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

**AUSTRIA**

**Monitoring of Airports Contribution to CAPACITY for 2019**

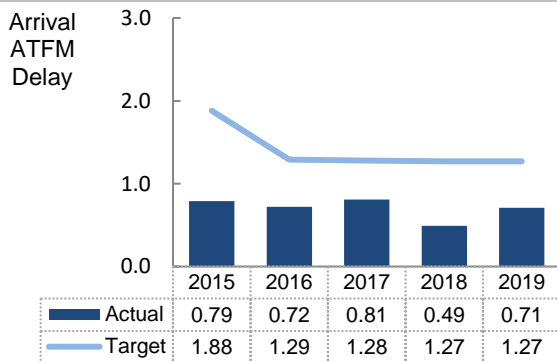
**1. Overview**

In Austria, ANS at a total of 6 airports are subject to RP2 monitoring. Traffic levels at these airports have significantly increased during RP2 (+10.5% with respect to 2015), mainly in the last year, thanks to the new Wizzair and Anisec operation in Vienna that has resulted in a notable increase in traffic during 2019 (10%)

In terms of arrival ATFM delays, the values have remained quite similar along RP2 despite that increase in traffic. Austria established a national target on Arrival ATFM delay but no associated incentive scheme.

ATFM slot adherence has drastically improved (2015: 87.1%; 2019: 97.4%) and is now amongst the best in class above 95%.

**2. Arrival ATFM Delay**



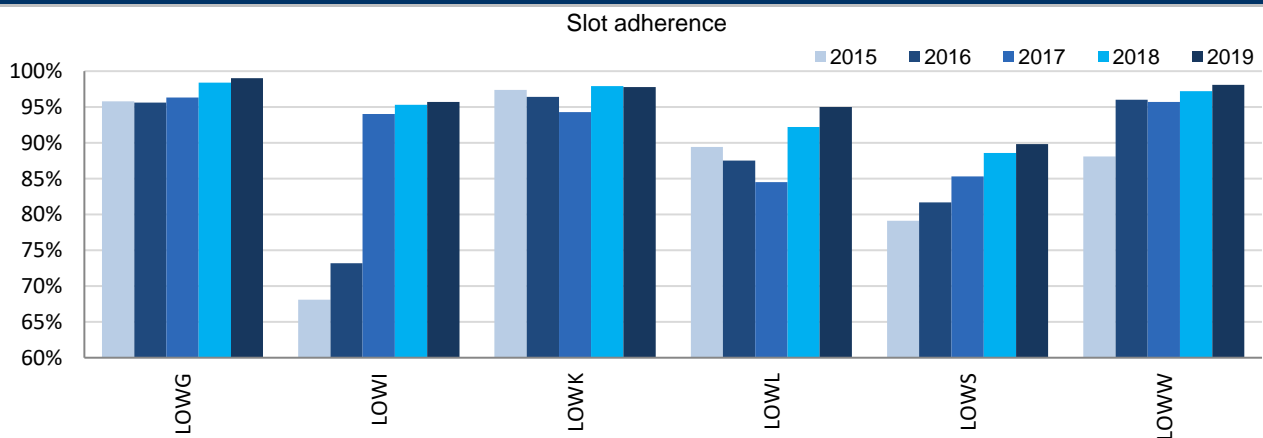
During 2019, arrival ATFM delays in Austria have increased with respect to the previous year (2018: 0.49 min/arr, 2019: 0.71 min/arr) but remain similar to the values in the first years of the RP2. The increase at national level in 2019 is driven by the performance at Vienna (LOWW), where weather reasons are associated with 77% of the delays spread throughout the year. In addition, ATC staffing issues caused 18% of the delays, also distributed along the year.

**3. Arrival ATFM Delay – National Target and Incentive Scheme**

The FAB CE performance plan sets a national target on arrival ATFM delay for Austria. This target was fully met in every year of the RP2.

The performance plan presents no (capacity) incentive scheme for the national target on arrival ATFM delay for Austria, so no bonuses apply.

**4. ATFM Slot Adherence**



Slot adherence at almost all Austrian airports has increased once more in 2019. The improvements along RP2 have positioned most of the Austrian airports in the best in class group with excellent adherence above 95%.

**5. ATC Pre-departure Delay**

The Airport Operator Data Flow, required for the monitoring of ATC pre-departure delay, is currently only established for Vienna (LOWW).

The observed performance at LOWW has slightly improved in 2019 (2018: 1.62 min/dep.; 2019: 1.56 min/dep.), but is still the fifth highest ATC pre-departure delay in the SES area.

## 6. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

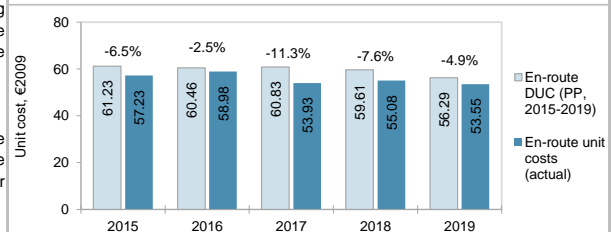
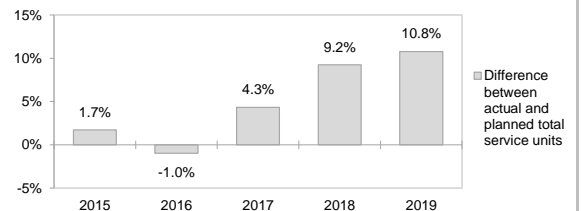
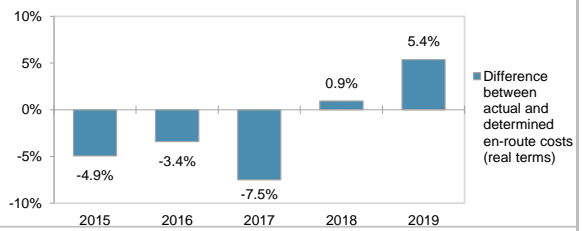
Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Graz	LOWG	0.00	0.00	0.00	0.00	0.00	95.8%	95.6%	96.3%	98.4%	99.0%	n/a	n/a	n/a	n/a	n/a
Innsbruck	LOWI	0.01	0.05	0.22	0.15	0.08	68.1%	73.2%	94.0%	95.3%	95.7%	n/a	n/a	n/a	n/a	n/a
Klagenfurt	LOWK	0.00	0.00	0.00	0.00	0.00	97.4%	96.4%	94.3%	97.9%	97.8%	n/a	n/a	n/a	n/a	n/a
Linz	LOWL	0.00	0.00	0.00	0.00	0.00	89.4%	87.5%	84.5%	92.2%	95.0%	n/a	n/a	n/a	n/a	n/a
Salzburg	LOWS	0.07	0.12	0.05	0.11	0.04	79.1%	81.7%	85.3%	88.6%	89.8%	n/a	n/a	n/a	n/a	n/a
Vienna	LOWW	1.06	0.96	1.08	0.64	0.91	88.1%	96.0%	95.7%	97.2%	98.1%	1.00	1.16	1.07	1.62	1.56



## AUSTRIA: En-route charging zone

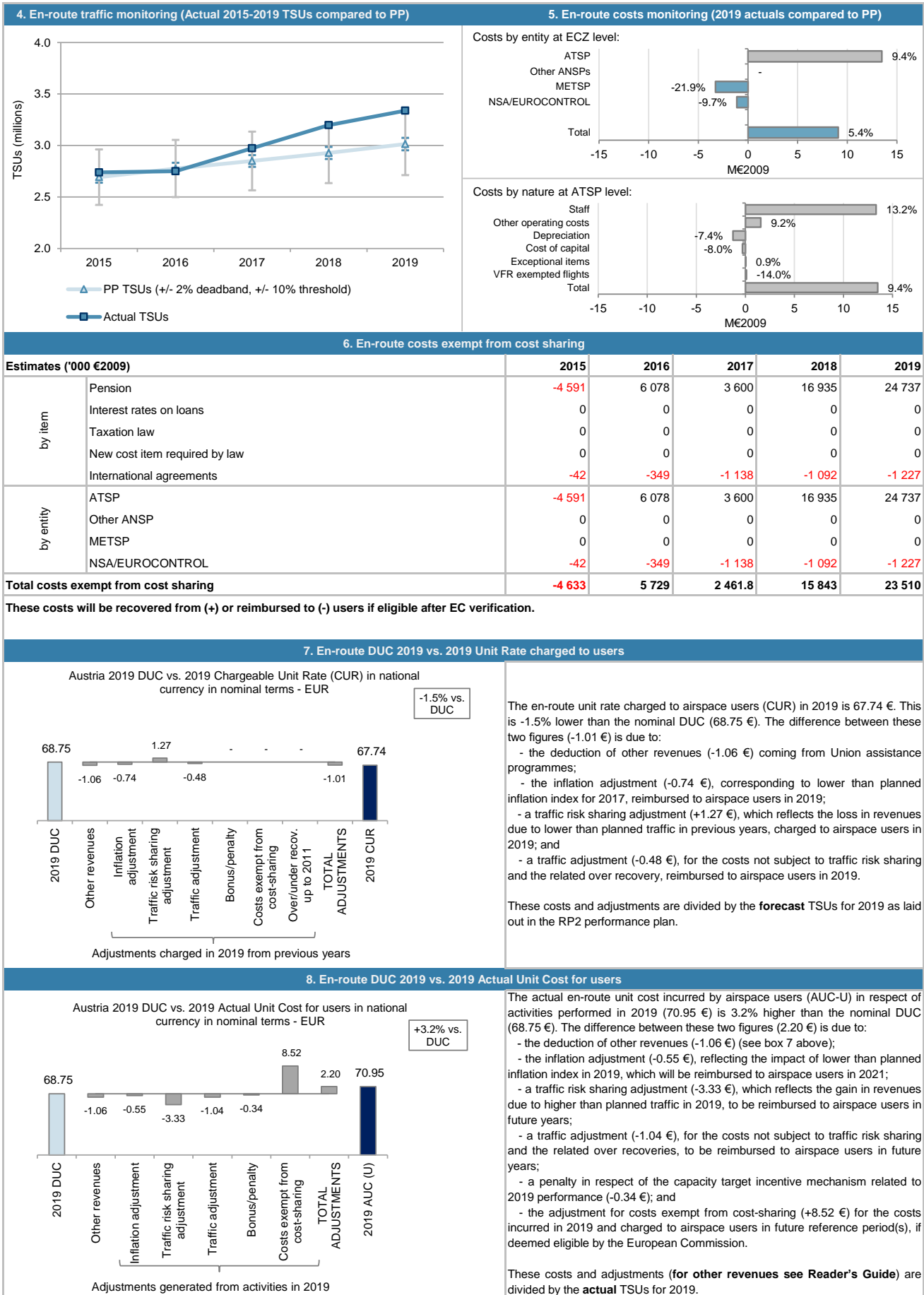
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Austria ECZ represents 2.8% of the SES en-route ANS determined costs in 2019					
· ATSP: Austro Control					
· FAB: FAB CE					
· National currency: EUR					
2. En-route DUC monitoring at Charging Zone level					
Austria: Data from RP2 Performance Plan (EC Decision 2016/599 of 15 April 2016)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	188 243 000	194 934 000	204 696 000	209 564 000	207 200 000
Inflation %	1.7%	1.7%	1.7%	1.7%	1.7%
Inflation index (100 in 2009)	114.2	116.1	118.1	120.1	122.1
Real en-route costs (EUR2009)	164 901 573	167 908 470	173 369 786	174 525 859	169 672 673
Total en-route Service Units	2 693 000	2 777 000	2 850 000	2 928 000	3 014 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>61.23</b>	<b>60.46</b>	<b>60.83</b>	<b>59.61</b>	<b>56.29</b>
Austria: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	177 369 528	185 344 157	187 301 607	210 038 747	216 362 306
Inflation %	0.8%	1.0%	2.2%	2.1%	1.5%
Inflation index (100 in 2009)	113.1	114.3	116.8	119.2	121.0
Real en-route costs (EUR2009)	156 763 660	162 189 938	160 374 611	176 143 974	178 765 592
Total en-route Service Units	2 739 285	2 749 863	2 973 819	3 198 238	3 338 330
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>57.23</b>	<b>58.98</b>	<b>53.93</b>	<b>55.08</b>	<b>53.55</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)	-10 873 472	-9 589 843	-17 394 393	474 747	9 162 306
in value					
in %	-5.8%	-4.9%	-8.5%	0.2%	4.4%
Inflation %	-0.9 p.p.	-0.7 p.p.	0.5 p.p.	0.4 p.p.	-0.2 p.p.
in p.p.					
Inflation index (100 in 2009)	-1.0 p.p.	-1.8 p.p.	-1.3 p.p.	-0.8 p.p.	-1.1 p.p.
in p.p.					
Real en-route costs (EUR2009)	-8 137 913	-5 718 531	-12 995 175	1 618 116	9 092 919
in value					
in %	-4.9%	-3.4%	-7.5%	0.9%	5.4%
Total en-route Service Units	46 285	-27 137	123 819	270 238	324 330
in value					
in %	1.7%	-1.0%	4.3%	9.2%	10.8%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-4.01</b>	<b>-1.48</b>	<b>-6.90</b>	<b>-4.53</b>	<b>-2.75</b>
in value					
in %	<b>-6.5%</b>	<b>-2.5%</b>	<b>-11.3%</b>	<b>-7.6%</b>	<b>-4.9%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (53.55 €2009) is -4.9% lower than planned in the PP (56.29 €2009). This results from the combination of much higher than planned TSUs (+10.8%) and higher than planned en-route costs in real terms (+5.4%, or +9.1 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+10.8%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Austro Control) retaining an amount of +6.4 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are +4.4% (+9.2 M€) higher than planned. However, since the actual inflation index is lower than planned (-1.1 p.p.), actual en-route costs are +5.4% (+9.1 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by Austro Control (+9.4%, or +13.5 M€2009), while the costs for the MET service provider (-21.9%, or -3.3 M€2009) and the NSA/EUROCONTROL (-9.7%, or -1.1 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +23.5 M€2009 comprising +24.7 M€2009 for pensions and -1.2 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for the Austria charging zone, actual en-route TSUs are +5.2% higher than planned, while actual costs in real terms are -1.9% lower than the determined costs (some -16.1 M€2009). As a result, the weighted average actual unit cost over RP2 (55.62 €2009) is -6.7% lower than planned in the NPP (59.63 €2009).					



**AUSTRIA: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## AUSTRIA: En-route ATSP (Austro Control)

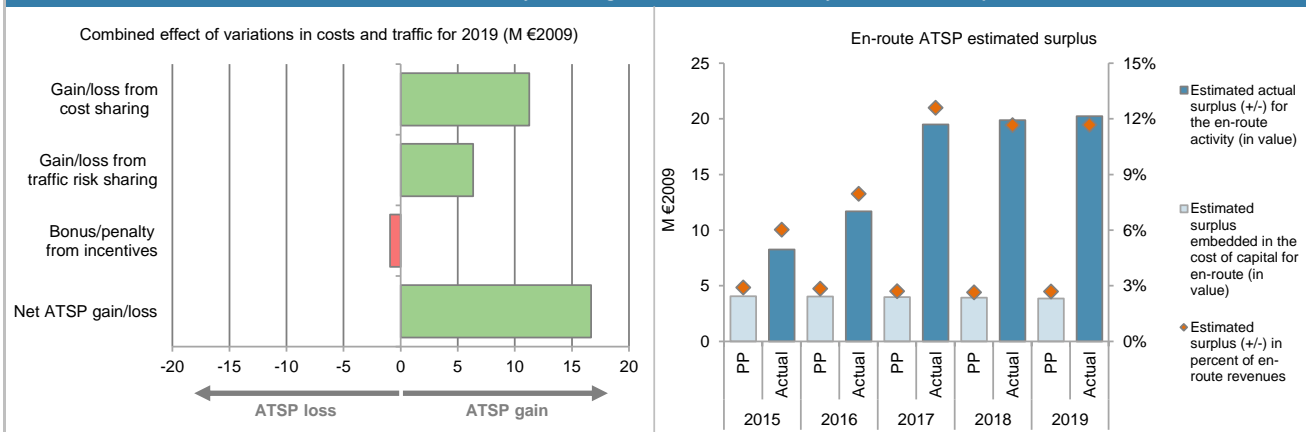
## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	139 252	141 598	147 184	148 168	143 170
Actual costs for the ATSP	133 108	139 005	139 274	154 136	156 650
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	6 144	2 593	7 911	-5 968	-13 481
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-4 591	6 078	3 600	16 935	24 737
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 554</b>	<b>8 671</b>	<b>11 510</b>	<b>10 967</b>	<b>11 257</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.7%	-1.0%	4.3%	9.2%	10.8%
Determined costs for the ATSP (PP) - based on actual inflation	140 496	143 853	148 796	149 203	144 454
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>2 415</b>	<b>-1 406</b>	<b>4 022</b>	<b>6 220</b>	<b>6 356</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>127</b>	<b>337</b>	<b>0</b>	<b>-957</b>	<b>-931</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>4 095</b>	<b>7 603</b>	<b>15 533</b>	<b>16 230</b>	<b>16 682</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	101 595	100 801	99 772	98 292	96 669
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	101 595	100 801	99 772	98 292	96 669
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	4 064	4 032	3 991	3 932	3 867
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	4 064	4 032	3 991	3 932	3 867
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>4 064</b>	<b>4 032</b>	<b>3 991</b>	<b>3 932</b>	<b>3 867</b>
<b>Revenue/costs for the en-route activity</b>	<b>139 252</b>	<b>141 598</b>	<b>147 184</b>	<b>148 168</b>	<b>143 170</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>2.9%</b>	<b>2.8%</b>	<b>2.7%</b>	<b>2.7%</b>	<b>2.7%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>4.0%</b>	<b>4.0%</b>	<b>4.0%</b>	<b>4.0%</b>	<b>4.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	104 379	102 024	99 324	91 386	88 933
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	104 379	102 024	99 324	91 386	88 933
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	4 175	4 081	3 973	3 655	3 557
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	4 175	4 081	3 973	3 655	3 557
Net ATSP gain(+)/loss(-) on en-route activity	4 095	7 603	15 533	16 230	16 682
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>8 270</b>	<b>11 684</b>	<b>19 506</b>	<b>19 886</b>	<b>20 239</b>
<b>Revenue/costs for the en-route activity</b>	<b>137 203</b>	<b>146 608</b>	<b>154 806</b>	<b>170 366</b>	<b>173 332</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.0%</b>	<b>8.0%</b>	<b>12.6%</b>	<b>11.7%</b>	<b>11.7%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>7.9%</b>	<b>11.5%</b>	<b>19.6%</b>	<b>21.8%</b>	<b>22.8%</b>

## AUSTRIA: En-route ATSP (Austro Control)

## Monitoring of en-route COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on en-route activity and estimated surplus



## 12. Focus on en-route ATSP: General conclusions

## Actual 2019 Austro Control en-route costs vs. PP

In 2019, Austro Control actual en-route costs are +9.4% (+13.5 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- much higher staff costs (+13.2%, or +13.3 M€2009), "as presented in the user consultation and as agreed the ATCO, buildup for the coming years has been initiated. Staff costs have been impacted by changed actuarial parameters which for some parts according to the regulation are not costs exempted and therefore had to be included in actual costs";
- higher other operating costs (+9.2%, or +1.6 M€2009) "due to one time effects such as much higher allocations of adjustments for impairments and other effects such as higher training costs due to ATCO staff buildup";
- lower depreciation costs (-7.4%, or -1.3 M€2009) "due to delayed invest in RP2";
- lower cost of capital (-8.0%, or -0.3 M€2009) driven by lower than planned asset base in real terms (-8.0%, or -7.7 M€2009); and
- slightly higher exceptional costs (+0.9%, or +0.04 M€2009).

## Austro Control net gain/loss on en-route activity in 2019

As shown in box 9, Austro Control generated a net gain of +16.7 M€2009 on the en-route activity. This is a combination of three elements:

- a gain of +11.3 M€2009 arising from the cost sharing mechanism;
- a gain of +6.4 M€2009 arising from the traffic risk sharing mechanism; and
- a loss of -0.9 M€2009 (or -1.13 M€ in nominal terms), corresponding to a penalty as part of the en-route capacity target incentive mechanism. This amount corresponds to 0.6% of Austro Control en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this penalty in the chargeable cost base will be examined by the European Commission.

The gain from cost sharing mentioned above (+11.3 M€2009) includes amounts reported by Austro Control for cost exempt from cost sharing (+24.7 M€2009). Should these costs not be deemed eligible by the European Commission, Austro Control would record a net loss of -8.1 M€2009 for the en-route activity in 2019.

## Austro Control overall estimated surplus for the en-route activity

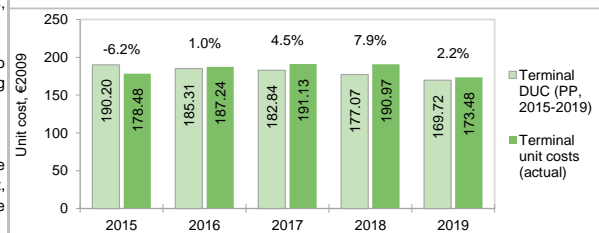
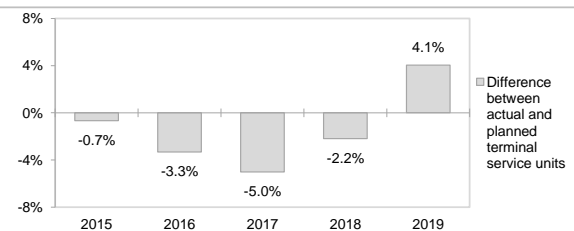
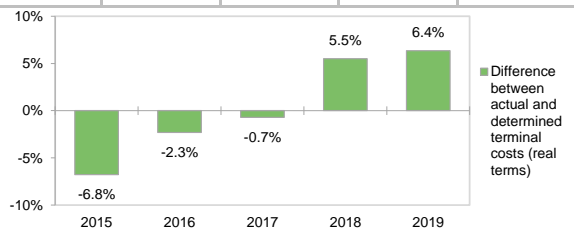
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+16.7 M€2009) and the surplus embedded in the actual cost of capital (+3.6 M€2009) amounts to +20.2 M€2009 (11.7% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 22.8%, which is much higher than the 4.0% planned in the PP.

When considering the whole of RP2 (2015-2019), Austro Control generated cumulative gains in respect of cost sharing of +44.0 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +17.6 M€2009, which reflects the fact that actual traffic was in general terms +5.2% higher than planned during RP2. Adding the loss of -1.4 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+19.4 M€2009 over RP2) leads to an overall estimated surplus of +79.6 M€2009, which corresponds to an average ex-post return on equity of 16.4% (compared to 4.0% as initially planned in the NPP).

## AUSTRIA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services						
· Austria TCZ represents 3.3% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes		
· ATSP:	Austro Control	· Airports with fewer than 70,000 IFRs ATMs:		5		
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0		
· Number of airports in charging zone in 2019:	6,	of which:	· Airports with more than 225,000 IFRs ATMs:	1		
2. Terminal DUC monitoring at Charging Zone level						
Austria: Data from RP2 Performance Plan						
	2015D	2016D	2017D	2018D	2019D	
Terminal costs (nominal EUR)	39 907 000	40 897 000	42 355 000	43 033 000	43 359 000	
Inflation %	1.7%	1.7%	1.7%	1.7%	1.7%	
Inflation index (100 in 2009)	114.2	116.1	118.1	120.1	122.1	
Real terminal costs (EUR2009)	34 958 681	35 227 065	35 873 086	35 838 079	35 505 972	
Total terminal Service Units	183 800	190 100	196 200	202 400	209 200	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>190.20</b>	<b>185.31</b>	<b>182.84</b>	<b>177.07</b>	<b>169.72</b>	
Austria: Actual data from Reporting Tables						
	2015A	2016A	2017A	2018A	2019A	
Terminal costs (nominal EUR)	36 870 804	39 327 723	41 599 715	45 087 018	45 704 921	
Inflation %	0.8%	1.0%	2.2%	2.1%	1.5%	
Inflation index (100 in 2009)	113.1	114.3	116.8	119.2	121.0	
Real terminal costs (EUR2009)	32 587 346	34 414 686	35 619 225	37 811 150	37 762 896	
Total terminal Service Units	182 586	183 801	186 361	197 998	217 677	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>178.48</b>	<b>187.24</b>	<b>191.13</b>	<b>190.97</b>	<b>173.48</b>	
Difference between Actuals and Planned						
	2015	2016	2017	2018	2019	
Terminal costs (nominal EUR)	-3 036 196	-1 569 277	-755 285	2 054 018	2 345 921	
	in value					
	in %	-7.6%	-3.8%	-1.8%	4.8%	5.4%
Inflation %	-0.9 p.p.	-0.7 p.p.	0.5 p.p.	0.4 p.p.	-0.2 p.p.	
Inflation index (100 in 2009)	-1.0 p.p.	-1.8 p.p.	-1.3 p.p.	-0.8 p.p.	-1.1 p.p.	
Real terminal costs (EUR2009)	-2 371 335	-812 379	-253 861	1 973 071	2 256 924	
	in value					
	in %	-6.8%	-2.3%	-0.7%	5.5%	6.4%
Total terminal Service Units	-1 214	-6 299	-9 839	-4 402	8 477	
	in value					
	in %	-0.7%	-3.3%	-5.0%	-2.2%	4.1%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-11.72</b>	<b>1.93</b>	<b>8.29</b>	<b>13.90</b>	<b>3.76</b>	
	in value					
	in %	-6.2%	1.0%	4.5%	7.9%	2.2%
3. Focus on terminal at State/Charging Zone level						
This analysis focuses on Austria Terminal Charging Zone (TCZ) comprising 6 airports.						
<b>Terminal unit cost</b>						
In 2019, the actual terminal unit cost in real terms (173.48 €2009) is +2.2% higher than planned in the PP (169.72 €2009). This results from the combination of higher than planned TNSUs (+4.1%) and higher than planned terminal costs in real terms (+6.4%, or +2.3 M€2009). According to the NSA monitoring report 2019, "cost-saving measures had been successfully implemented in operating costs and depreciation as in previous years. Contrasting to these implemented savings, staff costs had been additionally impacted by changed actuarial parameters."						
<b>Terminal service units</b>						
The traffic risk sharing mechanism applies in Austria TCZ. The difference between actual and planned TNSUs (+4.1%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Austro Control) retaining +0.8 M€2009.						
<b>Terminal costs</b>						
In nominal terms, actual terminal costs are +5.4% (+2.3 M€) higher than planned. However, since the actual inflation index is lower than planned (-1.1 p.p.), actual terminal costs are +6.4% (+2.3 M€2009) above plans when expressed in real terms.						
The higher than planned terminal costs in real terms are driven by Austro Control (+7.6%, or +2.4 M€2009) and the NSA (+54.2%, or +0.1 M€2009), while the costs for the MET service provider (-6.4%, or -0.2 M€2009) are lower than planned. A detailed analysis is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +5.5 M€2009 corresponding to pensions. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019), actual TNSUs are -1.4% lower than planned, while actual costs in real terms are +0.4% higher than the determined costs (some +0.8 M€2009). As a result, the weighted average actual unit cost over RP2 (184.01 €2009) is +1.8% higher than planned in the NPP (180.71 €2009).						



**AUSTRIA: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	7.6%
Other ANSPs	-
METSP	-6.4%
NSA	54.2%
Total	6.4%

Costs by nature at ATSP level:

Staff	11.7%
Other operating costs	-
Depreciation	-5.8%
Cost of capital	-24.1%
Exceptional items	-
VFR exempted flights	-
Total	7.6%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	-1 017	1 348	798	3 754	5 483
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	-1 017	1 348	798	3 754	5 483
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>-1 017</b>	<b>1 348</b>	<b>798</b>	<b>3 754</b>	<b>5 483</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Austria 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 215.35 €. This is 3.9% higher than the nominal DUC (207.26 €). The difference between these two figures (8.09 €) relates to:

- the deduction of other revenues (-3.39 €) coming from Union assistance programmes;
- the inflation adjustment (-2.19 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (+3.83 €), which reflects the loss in revenues due to lower than planned traffic in previous years, charged to airspace users in 2019;
- a traffic adjustment (+1.08 €), for the costs not subject to traffic risk sharing and the related under recovery, charged to airspace users in 2019; and
- an adjustment (+8.76 €) corresponding to the under recoveries incurred before the introduction of the Determined Costs method and carried-over to 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Austria 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (229.18 €) is 10.6% higher than the nominal DUC (207.26 €). The difference between these two figures (21.92 €) is due to:

- the deduction of other revenues (-3.39 €) (see box 7 above);
- the inflation adjustment (-1.77 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic risk sharing adjustment (-2.56 €), which reflects the gain in revenues due to higher than planned traffic in 2019, to be reimbursed to airspace users in future years;
- a traffic adjustment (-0.84 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years; and
- the adjustment for costs exempt from cost-sharing (+30.49 €) for the costs incurred in 2019 and charged to airspace users in future reference period(s), if deemed eligible by the European Commission.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

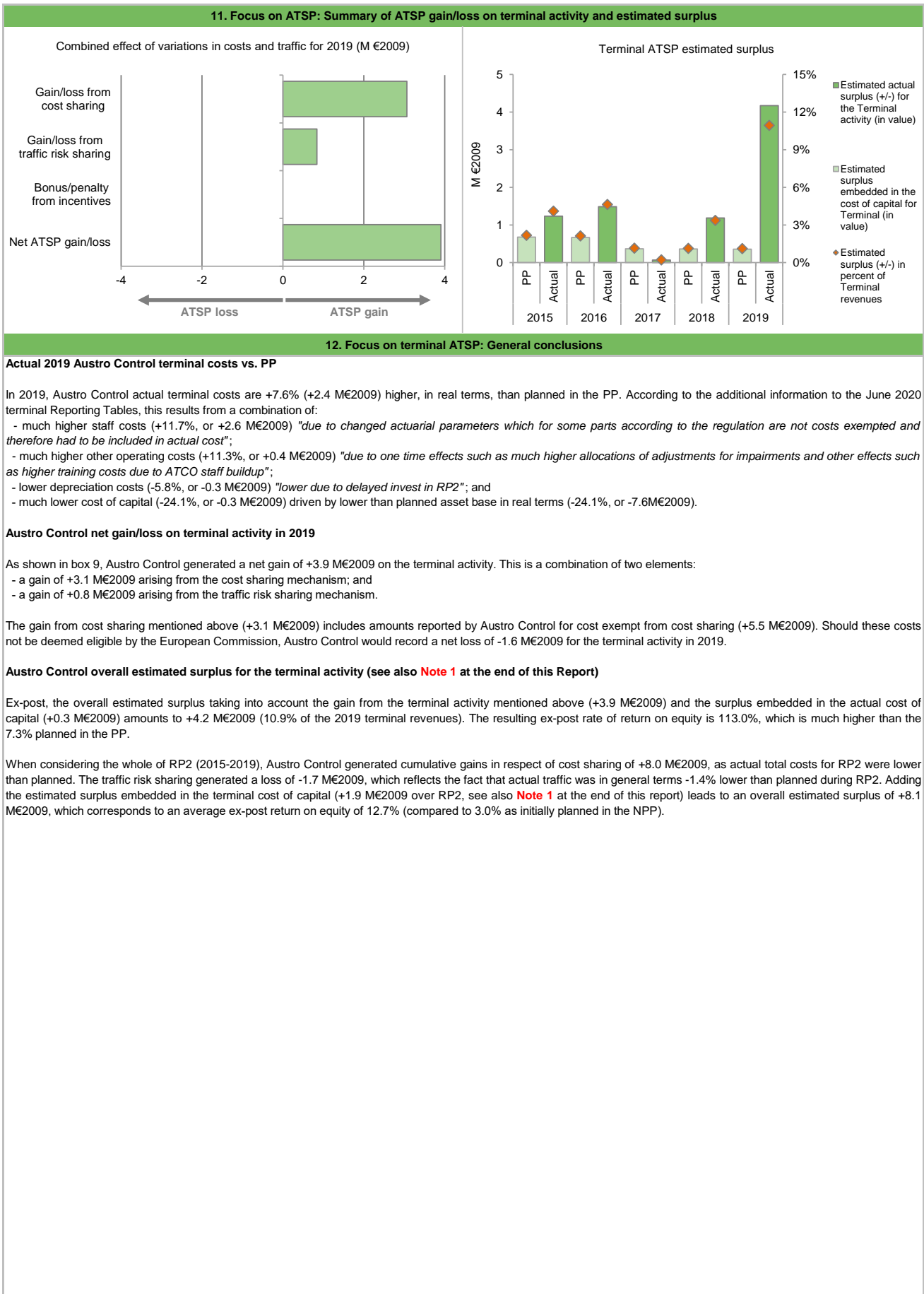
## AUSTRIA: Terminal ATSP (Austro Control)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	31 251	31 502	32 138	32 118	31 805
Actual costs for the ATSP	29 324	31 110	32 252	34 305	34 223
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 928	392	-114	-2 187	-2 419
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-1 017	1 348	798	3 754	5 483
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>910</b>	<b>1 740</b>	<b>684</b>	<b>1 567</b>	<b>3 064</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.7%	-3.3%	-5.0%	-2.2%	4.1%
Determined costs for the ATSP (PP) - based on actual inflation	31 530	32 003	32 490	32 342	32 090
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-208</b>	<b>-766</b>	<b>-944</b>	<b>-664</b>	<b>839</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>702</b>	<b>973</b>	<b>-259</b>	<b>903</b>	<b>3 904</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	33 945	33 378	32 714	32 167	31 629
Estimated proportion of financing through equity (in %)	100.0%	100.0%	15.4%	15.4%	15.4%
Estimated proportion of financing through equity (in value)	33 945	33 378	5 033	4 949	4 866
Estimated proportion of financing through debt (in %)	0.0%	0.0%	84.6%	84.6%	84.6%
Estimated proportion of financing through debt (in value)	0	0	27 681	27 218	26 763
Cost of capital pre-tax (in value)	679	668	1 309	1 287	1 265
Average interest on debt (in %)	0.0%	0.0%	3.4%	3.4%	3.4%
Interest on debt (in value)	0	0	941	925	910
Determined RoE pre-tax rate (in %)	2.0%	2.0%	7.3%	7.3%	7.3%
Estimated surplus embedded in the cost of capital for terminal (in value)	679	668	367	361	355
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>679</b>	<b>668</b>	<b>367</b>	<b>361</b>	<b>355</b>
<b>Revenue/costs for the terminal activity</b>	<b>31 251</b>	<b>31 502</b>	<b>32 138</b>	<b>32 118</b>	<b>31 805</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.2%</b>	<b>2.1%</b>	<b>1.1%</b>	<b>1.1%</b>	<b>1.1%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>2.0%</b>	<b>2.0%</b>	<b>7.3%</b>	<b>7.3%</b>	<b>7.3%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	26 555	25 514	29 048	24 941	24 003
Estimated proportion of financing through equity (in %) <i>*see Note 1</i>	100.0%	100.0%	15.4%	15.4%	15.4%
Estimated proportion of financing through equity (in value)	26 555	25 514	4 469	3 837	3 693
Estimated proportion of financing through debt (in %)	0.0%	0.0%	84.6%	84.6%	84.6%
Estimated proportion of financing through debt (in value)	0	0	24 579	21 104	20 310
Cost of capital pre-tax (in value)	531	510	1 162	998	960
Average interest on debt (in %)	0.0%	0.0%	3.4%	3.4%	3.4%
Interest on debt (in value)	0	0	836	718	691
Determined RoE pre-tax rate (in %)	2.0%	2.0%	7.3%	7.3%	7.3%
Estimated surplus embedded in the cost of capital for terminal (in value) <i>*see Note 1</i>	531	510	326	280	270
Net ATSP gain(+)/loss(-) on terminal activity	702	973	-259	903	3 904
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 233</b>	<b>1 484</b>	<b>67</b>	<b>1 183</b>	<b>4 173</b>
<b>Revenue/costs for the terminal activity</b>	<b>30 026</b>	<b>32 083</b>	<b>31 992</b>	<b>35 208</b>	<b>38 127</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>4.1%</b>	<b>4.6%</b>	<b>0.2%</b>	<b>3.4%</b>	<b>10.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>4.6%</b>	<b>5.8%</b>	<b>1.5%</b>	<b>30.8%</b>	<b>113.0%</b>

**AUSTRIA: Terminal ATSP (Austro Control)**

**Monitoring of terminal COST-EFFICIENCY for 2019**





## AUSTRIA: Gate-to-gate

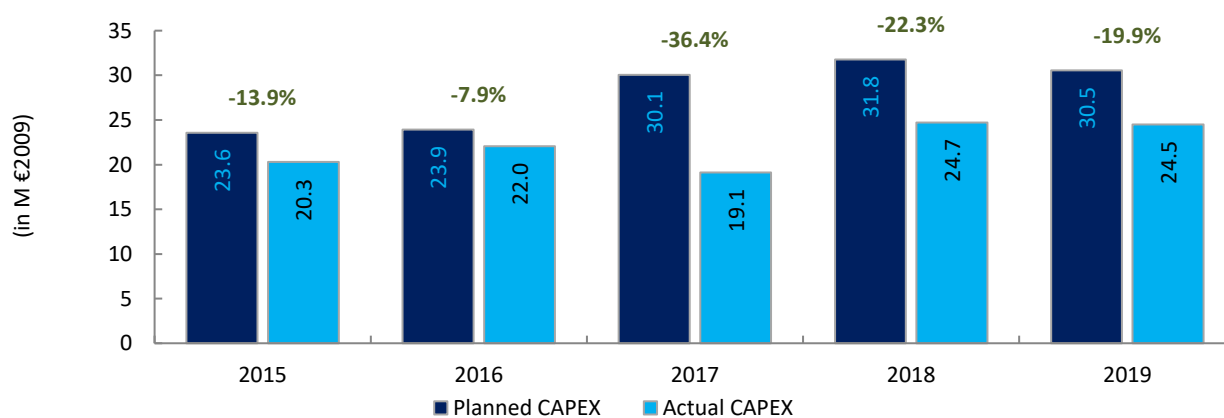
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																																																																																					
<b>Austria: Data from RP2 Performance Plan</b>																																																																																																					
	2015D	2016D	2017D	2018D	2019D																																																																																																
Real en-route costs (EUR2009)	164 901 573	167 908 470	173 369 786	174 525 859	169 672 673																																																																																																
Real terminal costs (EUR2009)	34 958 681	35 227 065	35 873 086	35 838 079	35 505 972																																																																																																
Real gate-to-gate costs (EUR2009)	199 860 254	203 135 535	209 242 872	210 363 938	205 178 645																																																																																																
En-route share (%)	82.5%	82.7%	82.9%	83.0%	82.7%																																																																																																
<b>Austria: Actual data from Reporting Tables</b>																																																																																																					
	2015A	2016A	2017A	2018A	2019A																																																																																																
Real en-route costs (EUR2009)	156 763 660	162 189 938	160 374 611	176 143 974	178 765 592																																																																																																
Real terminal costs (EUR2009)	32 587 346	34 414 686	35 619 225	37 811 150	37 762 896																																																																																																
Real gate-to-gate costs (EUR2009)	189 351 006	196 604 624	195 993 837	213 955 125	216 528 488																																																																																																
En-route share (%)	82.8%	82.5%	81.8%	82.3%	82.6%																																																																																																
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																																																																																					
	2015	2016	2017	2018	2019																																																																																																
Real gate-to-gate costs (EUR2009) in value	-10 509 249	-6 530 910	-13 249 036	3 591 187	11 349 843																																																																																																
in %	-5.3%	-3.2%	-6.3%	1.7%	5.5%																																																																																																
En-route share in p.p.	0.3 p.p.	-0.2 p.p.	-1.0 p.p.	-0.6 p.p.	-0.1 p.p.																																																																																																
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																																																																																					
<p>In 2019, actual gate-to-gate ANS costs are +5.5% (+11.3 M€2009) higher than planned due to higher than planned en-route costs (+5.4%, or +9.1 M€2009) and terminal costs (+6.4%, or +2.3 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (82.6%) is in line with that planned in the PP for 2019 (82.7%).</p> <p>For Austro Control, the estimated gate-to-gate economic surplus in 2019 amounts to 24.4 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 11.5% of gate-to-gate ANS revenues (see also <a href="#">Note 1</a> below).</p>																																																																																																					
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Category</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>82.5%</td> <td>17.5%</td> </tr> <tr> <td>Actual</td> <td>82.8%</td> <td>17.2%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>82.7%</td> <td>17.3%</td> </tr> <tr> <td>Actual</td> <td>82.5%</td> <td>17.5%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>82.9%</td> <td>17.1%</td> </tr> <tr> <td>Actual</td> <td>81.8%</td> <td>18.2%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>83.0%</td> <td>17.0%</td> </tr> <tr> <td>Actual</td> <td>82.3%</td> <td>17.7%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>82.7%</td> <td>17.3%</td> </tr> <tr> <td>Actual</td> <td>82.6%</td> <td>17.4%</td> </tr> </tbody> </table>						Year	Category	En-route (%)	Terminal (%)	2015	Determined	82.5%	17.5%	Actual	82.8%	17.2%	2016	Determined	82.7%	17.3%	Actual	82.5%	17.5%	2017	Determined	82.9%	17.1%	Actual	81.8%	18.2%	2018	Determined	83.0%	17.0%	Actual	82.3%	17.7%	2019	Determined	82.7%	17.3%	Actual	82.6%	17.4%																																																									
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## AUSTRIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: Austro Control						
FAB: FAB CE						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	26.9	27.8	35.5	38.2	37.3	165.6
Main CAPEX (in nominal M)	23.1	20.7	30.5	33.4	33.3	140.9
Inflation %	1.7%	1.7%	1.7%	1.7%	1.7%	
Inflation index (100 in 2009)	114.2	116.1	118.1	120.1	122.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>23.6</b>	<b>23.9</b>	<b>30.1</b>	<b>31.8</b>	<b>30.5</b>	<b>139.9</b>
Main CAPEX (in M €2009)	20.3	17.8	25.8	27.8	27.2	118.9
% Main of Total CAPEX	85.9%	74.5%	85.9%	87.4%	89.2%	85.0%
Real gate-to-gate ANSP costs (in M €2009)	170.5	173.1	179.3	180.3	175.0	878.2
Total CAPEX as % of Real gate-to-gate ANSP costs	13.8%	13.8%	16.8%	17.6%	17.5%	15.9%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	23.0	25.2	22.3	29.5	29.6	129.6
Main CAPEX (in nominal M)	19.2	22.1	19.3	26.1	23.9	110.6
Inflation %	0.8%	1.0%	2.2%	2.1%	1.5%	
Inflation index (100 in 2009)	113.1	114.3	116.8	119.2	121.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>20.3</b>	<b>22.0</b>	<b>19.1</b>	<b>24.7</b>	<b>24.5</b>	<b>110.6</b>
Main CAPEX (in M €2009)	17.0	19.3	16.6	21.9	19.8	94.5
% Main of Total CAPEX	83.6%	87.7%	86.6%	88.5%	80.7%	85.4%
Real gate-to-gate ANSP costs (in M €2009)	162.4	170.1	171.5	188.4	190.9	883.4
Total CAPEX as % of Real gate-to-gate ANSP costs	12.5%	13.0%	11.1%	13.1%	12.8%	12.5%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-4.0	-2.6	-13.2	-8.7	-7.7	-36.1
Total CAPEX (in M €2009)	-3.3	-1.9	-10.9	-7.1	-6.1	-29.3
<b>Total CAPEX (in %, M €2009)</b>	<b>-13.9%</b>	<b>-7.9%</b>	<b>-36.4%</b>	<b>-22.3%</b>	<b>-19.9%</b>	<b>-20.9%</b>



# Annual Monitoring Report 2019

## Local level view

### Croatia

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## CROATIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	57	C	C	C	C	C
Croatia Control	92	D	D	D	D	D

Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.

Application of the severity classification of the Risk Analysis Tool (RAT)		
	RAT application (%)	
	ATM Ground	ATM Overall
Separation Minima Infringements (SMIs)	100%	100%
Runway Incursions (RIs)	100%	100%
ATM Specific Occurrences (ATM-S)		100%
Source of RAT data:	TAIA	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

Just culture		
State level	Number of questions answered	
	YES	NO
Policy and its implementation	6	3
Legal/Judiciary	5	2
Occurrence reporting and Investigation	2	0
<b>TOTAL</b>	<b>13</b>	<b>5</b>

Croatia Control	Number of questions answered	
	YES	NO
Policy and its implementation	12	1
Legal/Judiciary	2	1
Occurrence reporting and Investigation	6	2
<b>TOTAL</b>	<b>20</b>	<b>4</b>

Observations
All safety targets have been met.

## CROATIA

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

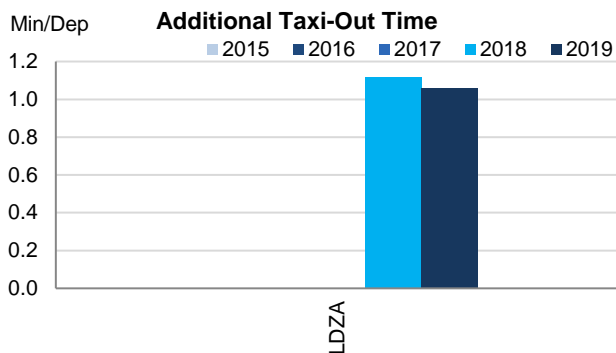
## 1. Overview

Initially 2 Croatian airports, Zagreb and Lucko, were subject to RP2 monitoring. In 2016 Lucko was removed from the list leaving only the main national airport Zagreb.

Zagreb (LDZA) implemented the Airport Operator Data Flow, necessary for the proper monitoring of the terminal and airports performance, in August 2017, so both environmental indicators can be analysed for 2018 and 2019.

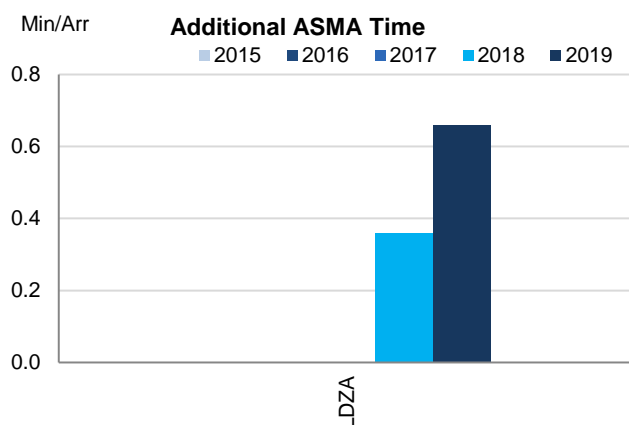
Additional taxi-out times at Zagreb are low and commensurate with the level of traffic. Additional ASMA times have worsened and are slightly higher than similar airports in terms of annual movements.

## 2. Additional Taxi-Out Time



The additional taxi-out times in Zagreb in 2019 have not changed much with respect to 2018 (LDZA; 2018: 1.12 min/dep.; 2019: 1.06 min/dep.)

## 3. Additional ASMA Time



Additional ASMA times in Zagreb have almost doubled in 2019 with respect to 2018 (LDZA; 2018: 0.36 min/arr.; 2019: 0.66 min/arr.)

The highest values are observed in May and December, when the averages reached the minute per arrival.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Zagreb	LDZA	n/a	n/a	n/a	1.12	1.06	n/a	n/a	n/a	0.36	0.66

**CROATIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
<b>National Capacity target</b>	0.23	0.22	0.21	0.21	0.19	Actual national performance for Croatia according to the Zagreb FIR, consistent with the FAB CE performance plan. National total includes post operations adjustment.
<b>Deadband +/-</b>	0.03	0.03	0.03	0.03	0.03	
<b>Actual performance</b>	0.54	0.04	0.12	0.60	0.75	

**National capacity incentive scheme**

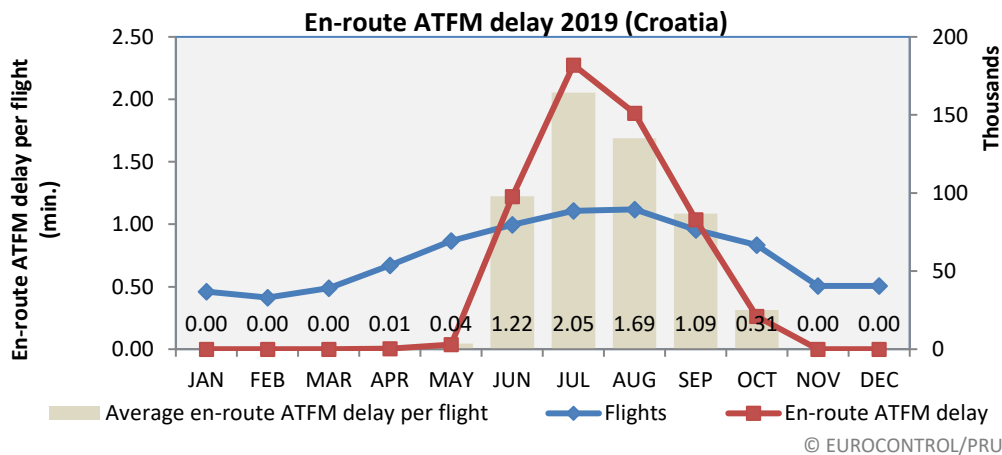
National target: 0.19 minutes.

Actual result: 0.75 min at national level (ATFM delay calculation at FIR level), taking into account a deduction of 85,917 minutes approved for reassignment during the post-ops adjustment.

Both the FAB CE target and the national target were missed by more than 100%. In such cases, a FAB CE ANSP is subject to a maximum penalisation capped at 0.5% of en-route ANS revenue.

Outcome of 2019: Penalty of 3 135 043 HRK

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1.96	0.67	1.03	0.52	0.26	0.09	0.31	0.54	0.04	0.12	0.60	0.75

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	519		544		573		599		625		654	
<b>Base</b>	511	<b>520</b>	530	<b>535</b>	548	<b>540</b>	565	<b>587</b>	580	<b>647</b>	600	<b>714</b>
<b>Low</b>	503		515		522		530		538		548	

Traffic levels grew by just over 10% on 2018 levels to 9% above the high traffic scenario for 2019 forecasted by STATFOR back in 2014 when the FAB performance plans, and associated capacity plans were being determined.

When the 86k minutes of delay reassigned in the post operations process are included, it takes the total delay in Zagreb FIR to 625 918 minutes for 2019, a 46% increase on the total delays from 2018 (388 534 minutes) . Actual delays were significantly higher than predicted in the NOP 2019-2024.

58% of delays were attributed to ATC capacity and 36% attributed to adverse weather 2% attributed to staffing.

The airspace users commented on the good contribution to network performance from Zagreb ACC, even though they were identified as one of the ACCs with high delays.

Delay forecast - Croatia Control						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.24	0.26	0.25	0.23	N/A	N/A
<b>NOP 2019 - 2024</b>	0.49	0.44	0.42 - 0.43			

### Planning and Effective Use of CDRs

Not applicable due to no CDRs in Croatian airspace.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
97%	86%	90%	89%	90%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
0%	1%	1%	2%	4%

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
100%	100%	100%	96%	98%

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.



## CROATIA

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

In Croatia, as of 2016 only ANS at Zagreb (LDZA) are subject to RP2 monitoring, where traffic levels have moderately increased during RP2 (+15.9% with respect to 2015).

No arrival ATFM delays have been observed at Zagreb in the last 4 years, and Croatia has fully met the established national target in every year of RP2.

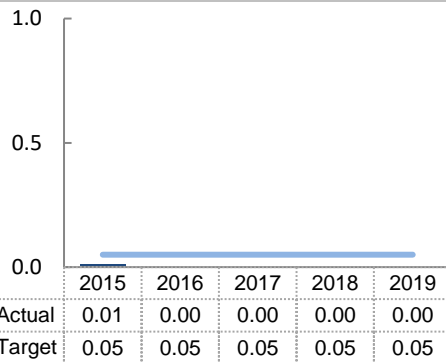
At the same time, the ATFM slot adherence has significantly improved during the reference period (2015: 89.7%; 2019: 94.7%).

Zagreb implemented the Airport Operator Data Flow, necessary for the proper monitoring of the terminal and airports performance, in August 2017. This allows for the monitoring of the ATC pre-departure since 2018.

Croatia contributes adequately to the airport related ANS Capacity performance in FAB CE and Europe.

## 2. Arrival ATFM Delay

Arrival  
ATFM  
Delay



Croatia has established a national target on arrival ATFM delay of 0.05 min/arr. for the whole reference period.

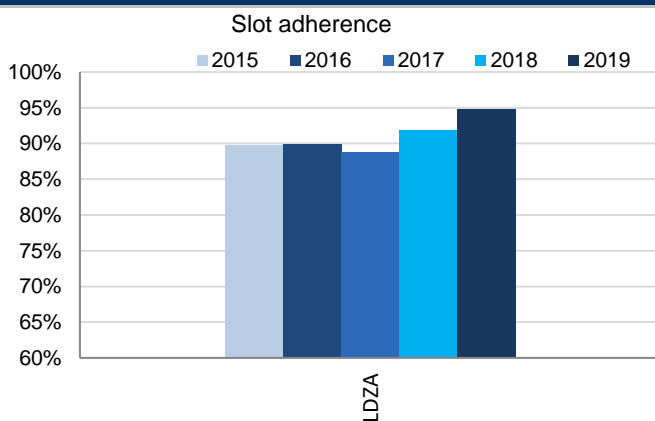
The achieved performance remained stable with zero arrival ATFM delay in 2016, 2017, 2018 and 2019, demonstrating the absence of capacity constraints at LDZA.

The national target is fully met.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The FAB CE performance plan sets a national target on arrival ATFM delay for Croatia but no associated incentive scheme, so although the national target is met, no bonus applies.

## 4. ATFM Slot Adherence



The adherence to ATFM slots at Zagreb has improved in once more in 2019, reaching excellent performance, close to 95%.

## 5. ATC Pre-departure Delay

The accrued level of ATC pre-departure delay in Zagreb during 2019 has slightly increased but remains very low in line with the lack of capacity constraints.

## 6. Appendix

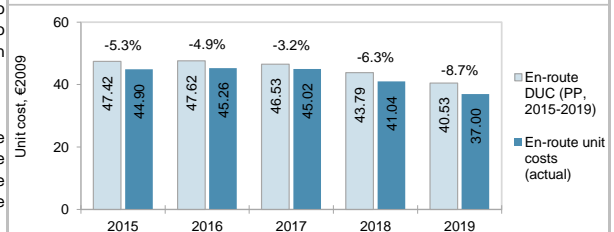
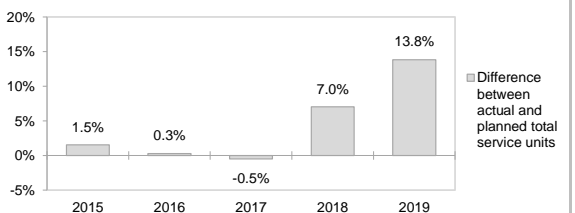
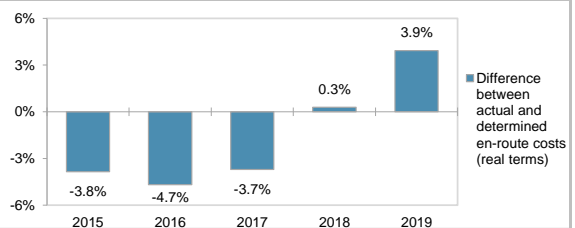
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Zagreb	LDZA	0.01	0.00	0.00	0.00	0.00	89.7%	89.9%	88.7%	91.9%	94.7%	n/a	n/a	n/a	0.09	0.10

## CROATIA: En-route charging zone

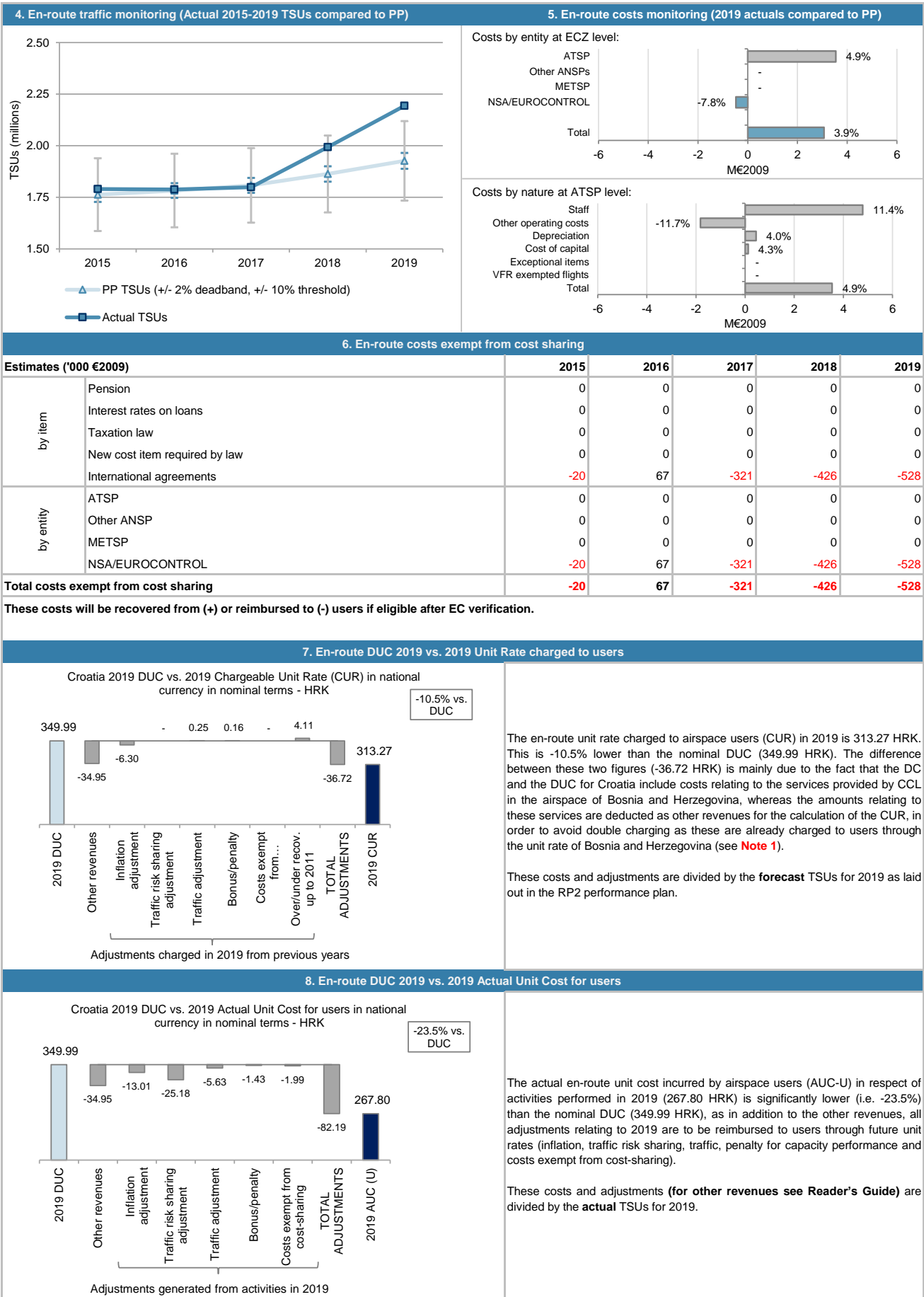
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Croatia ECZ represents 1.3% of the SES en-route ANS determined costs in 2019					
· ATSP: Croatia Control					
· FAB: FAB CE					
· National currency: HRK Exchange rate 2009: 1 EUR = 7.33804 HRK					
2. En-route DUC monitoring at Charging Zone level					
Croatia: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal HRK)	670 066 531	687 516 987	691 440 691	687 394 177	674 346 800
Inflation %	0.2%	1.0%	1.5%	2.5%	2.5%
Inflation index (100 in 2009)	109.2	110.4	112.0	114.8	117.7
Real en-route costs (HRK2009)	613 414 184	622 991 131	617 287 272	598 707 050	573 017 597
Total en-route Service Units	1 763 000	1 783 000	1 808 000	1 863 185	1 926 787
<b>Real en-route unit cost per Service Unit (HRK2009)</b>	<b>347.94</b>	<b>349.41</b>	<b>341.42</b>	<b>321.34</b>	<b>297.40</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>47.42</b>	<b>47.62</b>	<b>46.53</b>	<b>43.79</b>	<b>40.53</b>
Croatia: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal HRK)	644 631 574	645 102 631	654 094 149	671 356 104	671 173 047
Inflation %	-0.3%	-0.6%	1.3%	1.6%	0.8%
Inflation index (100 in 2009)	109.3	108.6	110.0	111.8	112.7
Real en-route costs (HRK2009)	589 828 471	593 822 416	594 372 343	600 450 986	595 523 079
Total en-route Service Units	1 790 210	1 787 992	1 799 166	1 993 898	2 193 426
<b>Real en-route unit cost per Service Unit (HRK2009)</b>	<b>329.47</b>	<b>332.12</b>	<b>330.36</b>	<b>301.14</b>	<b>271.50</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>44.90</b>	<b>45.26</b>	<b>45.02</b>	<b>41.04</b>	<b>37.00</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal HRK)	-25 434 957	-42 414 356	-37 346 542	-16 038 073	-3 173 753
in value					
in %	-3.8%	-6.2%	-5.4%	-2.3%	-0.5%
Inflation %	-0.5 p.p.	-1.6 p.p.	-0.2 p.p.	-0.9 p.p.	-1.7 p.p.
in p.p.					
Inflation index (100 in 2009)	0.1 p.p.	-1.7 p.p.	-2.0 p.p.	-3.0 p.p.	-5.0 p.p.
in p.p.					
Real en-route costs (HRK2009)	-23 585 713	-29 168 716	-22 914 930	1 743 936	22 505 482
in value					
in %	-3.8%	-4.7%	-3.7%	0.3%	3.9%
Total en-route Service Units	27 210	4 992	-8 834	130 713	266 638
in value					
in %	1.5%	0.3%	-0.5%	7.0%	13.8%
<b>Real en-route unit cost per Service Unit (HRK2009)</b>	<b>-18.46</b>	<b>-17.29</b>	<b>-11.06</b>	<b>-20.19</b>	<b>-25.89</b>
in value					
in %	-5.3%	-4.9%	-3.2%	-6.3%	-8.7%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-2.52</b>	<b>-2.36</b>	<b>-1.51</b>	<b>-2.75</b>	<b>-3.53</b>
in value					
in %	-5.3%	-4.9%	-3.2%	-6.3%	-8.7%
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (271.50 HRK2009 or 37.00 €2009) is -8.7% lower than planned in the PP (297.40 HRK2009 or 40.53 €2009). This results from the combination of much higher than planned TSUs (+13.8%) and higher than planned en-route costs in real terms (+3.9%, or +3.1 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+13.8%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Croatia Control) retaining an amount of +3.1 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -0.5% (-3.2 MHRK) lower than planned. However, since the actual inflation index is also lower than planned (-5.0 p.p.), actual en-route costs are +3.9% (+3.1 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by Croatia Control (+4.9%, or +3.5 M€2009), while the costs for the NSA/EUROCONTROL (-7.8%, or -0.5 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -0.5 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for the Croatia charging zone, actual en-route TSUs are +4.6% higher than planned, while actual costs in real terms are -1.7% lower than the determined costs (some -51.4 MHRK2009 or -7.0 M€2009). As a result, the weighted average actual unit cost over RP2 (310.93 HRK2009 or 42.37 €2009) is -6.0% lower than planned in the NPP (330.86 HRK2009 or 45.09 €2009).					



CROATIA: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



## CROATIA: En-route ATSP (Croatia Control)

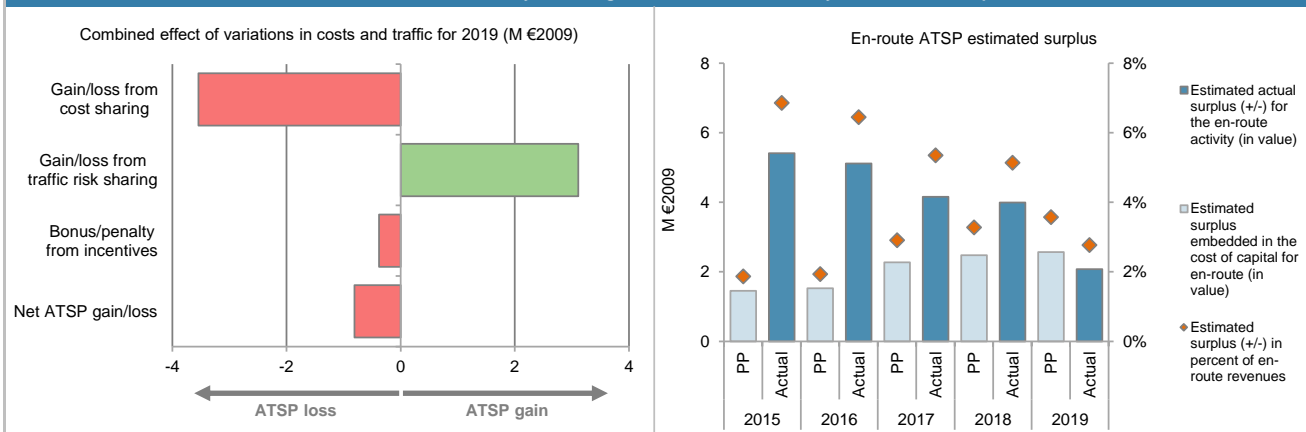
## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	77 773	78 951	77 953	75 442	71 962
Actual costs for the ATSP	74 864	75 529	75 535	76 205	75 505
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	2 909	3 422	2 418	-763	-3 543
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>2 909</b>	<b>3 422</b>	<b>2 418</b>	<b>-763</b>	<b>-3 543</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.5%	0.3%	-0.5%	7.0%	13.8%
Determined costs for the ATSP (PP) - based on actual inflation	73 265	75 582	74 758	72 934	70 747
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>1 131</b>	<b>212</b>	<b>-365</b>	<b>2 556</b>	<b>3 113</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>152</b>	<b>38</b>	<b>-372</b>	<b>-379</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>4 040</b>	<b>3 785</b>	<b>2 091</b>	<b>1 421</b>	<b>-810</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	73 705	69 855	64 242	57 466	51 076
Estimated proportion of financing through equity (in %)	57.7%	61.9%	66.8%	71.3%	76.4%
Estimated proportion of financing through equity (in value)	42 525	43 240	42 916	40 974	39 023
Estimated proportion of financing through debt (in %)	42.3%	38.1%	33.2%	28.7%	23.6%
Estimated proportion of financing through debt (in value)	31 180	26 614	21 325	16 492	12 053
Cost of capital pre-tax (in value)	2 185	2 148	2 768	2 860	2 852
Average interest on debt (in %)	2.3%	2.3%	2.3%	2.3%	2.3%
Interest on debt (in value)	727	620	497	384	281
Determined RoE pre-tax rate (in %)	3.4%	3.5%	5.3%	6.0%	6.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 458	1 528	2 271	2 476	2 572
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 458</b>	<b>1 528</b>	<b>2 271</b>	<b>2 476</b>	<b>2 572</b>
<b>Revenue/costs for the en-route activity</b>	<b>77 773</b>	<b>78 951</b>	<b>77 953</b>	<b>75 442</b>	<b>71 962</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>1.9%</b>	<b>1.9%</b>	<b>2.9%</b>	<b>3.3%</b>	<b>3.6%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>3.4%</b>	<b>3.5%</b>	<b>5.3%</b>	<b>6.0%</b>	<b>6.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	66 166	58 867	55 072	55 370	53 884
Estimated proportion of financing through equity (in %)	60.6%	64.0%	70.9%	76.8%	81.2%
Estimated proportion of financing through equity (in value)	40 097	37 658	39 055	42 523	43 768
Estimated proportion of financing through debt (in %)	39.4%	36.0%	29.1%	23.2%	18.8%
Estimated proportion of financing through debt (in value)	26 069	21 209	16 018	12 847	10 115
Cost of capital pre-tax (in value)	1 733	1 595	2 227	2 683	2 976
Average interest on debt (in %)	1.4%	1.2%	1.0%	0.9%	0.9%
Interest on debt (in value)	359	264	161	113	91
Determined RoE pre-tax rate (in %)	3.4%	3.5%	5.3%	6.0%	6.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 375	1 331	2 067	2 570	2 885
Net ATSP gain(+)/loss(-) on en-route activity	4 040	3 785	2 091	1 421	-810
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>5 415</b>	<b>5 116</b>	<b>4 158</b>	<b>3 991</b>	<b>2 075</b>
<b>Revenue/costs for the en-route activity</b>	<b>78 904</b>	<b>79 314</b>	<b>77 626</b>	<b>77 626</b>	<b>74 696</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.9%</b>	<b>6.5%</b>	<b>5.4%</b>	<b>5.1%</b>	<b>2.8%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>13.5%</b>	<b>13.6%</b>	<b>10.6%</b>	<b>9.4%</b>	<b>4.7%</b>

## CROATIA: En-route ATSP (Croatia Control)

## Monitoring of en-route COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on en-route activity and estimated surplus



## 12. Focus on en-route ATSP: General conclusions

## Actual 2019 Croatia Control en-route costs vs. PP

In 2019, Croatia Control actual en-route costs are +4.9% (+3.5 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- higher staff costs (+11.4%, or +4.8 M€2009) "as a result of accommodating a significantly higher YoY traffic demand than expected for RP2. In addition to this, 2019 indirect costs were also affected by substantially intensified investment activities which recorded a RP2 historical highest (realised was +48,4% compared to determined 2019 PP)";
- lower other operating costs (-11.7%, or -1.8 M€2009) "due to savings realised in external services consumed (based on the 2017/2018 favourable outcomes of the price down push associated with the extensive public procurement processes undertaken). Due to absence of significant additional (chargeable) provisions following the previously created funds in prior periods which proved substantially adequate for the future business risk reflected in 2019A and due to normalised level of short term asset value impairment. Furthermore, due to limitations of the public procurement process in 2019, where two international tenders turned with no bidders, therefore ATCO trainees' recruitment and associated OPEX (e.g. tuition fee, daily allowances, accommodation, transport etc.) was postponed.";
- higher depreciation costs (+4.0%, or +0.5 M€2009) since "aiming at full delivery of the RP2 CAPEX plan, 2019A CAPEX activity was characterised as the most dynamic one during RP2, where 2019 CAPEX realisation was substantially above the PP level (+48,4%). It fully offset the CAPEX gap recorded in the beginning of RP2 then together with recorded combination of asset structure and actually applied depreciation rates mix"; and
- higher cost of capital (+4.3%, or +0.1 M€2009) "for the reason that CAPEX gap recorded in the beginning of RP2 has been fully offset in the second half of RP2 resulting in the total asset base at the level planned for 2019PP (Atc/Plan +1,0%)".

## Croatia Control net gain/loss on en-route activity in 2019

As shown in box 9, Croatia Control generated a net loss of -0.8 M€2009 on the en-route activity. This is a combination of three elements:

- a loss of -3.5 M€2009 arising from the cost sharing mechanism;
- a gain of +3.1 M€2009 arising from the traffic risk sharing mechanism; and
- a loss of -0.4 M€2009 (or -3.14 MHRK in nominal terms), corresponding to a penalty as part of the en-route capacity target incentive mechanism. This amount corresponds to 0.5% of Croatia Control en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this penalty in the chargeable cost base will be examined by the European Commission.

## Croatia Control overall estimated surplus for the en-route activity

Ex-post, the overall estimated surplus taking into account the net loss from the en-route activity mentioned above (-0.8 M€2009) and the surplus embedded in the actual cost of capital (+2.9 M€2009) amounts to +2.1 M€2009 (2.8% of the 2019 en-route revenues). The resulting ex-post rate of return on equity (RoE) is 4.7%, which is lower than the 6.6% planned in the PP.

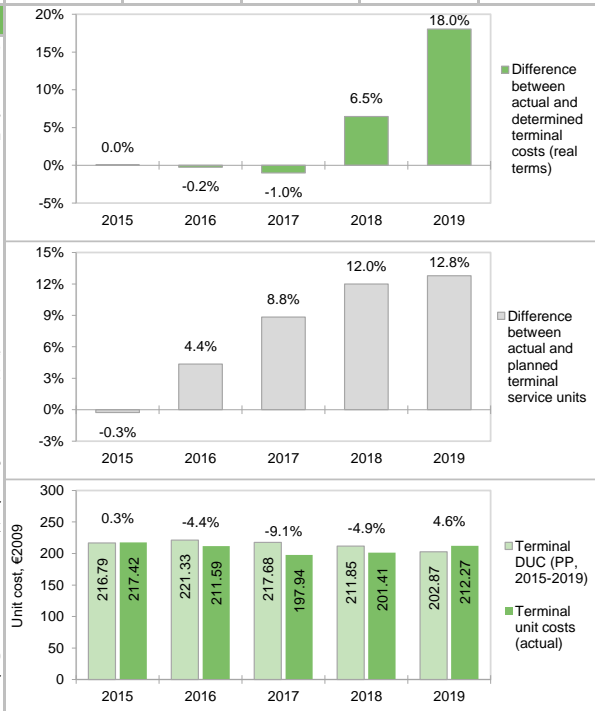
When considering the whole of RP2 (2015-2019), Croatia Control generated cumulative gains in respect of cost sharing of +4.4 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +6.6 M€2009, which reflects the fact that actual traffic was in general terms +4.6% higher than planned during RP2. Adding the loss of -0.6 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+10.2 M€2009 over RP2) leads to an overall estimated surplus of +20.8 M€2009, which corresponds to an average ex-post return on equity of 10.2% (compared to 4.9% as initially planned in the NPP).

However, Croatia did not plan neither did charge eligible (i.e. higher) RoE% during RP2, but for the purpose of keeping the users charges stable, it implied, i.e. charged, lower than eligible RoE/CoC rates. Should this have not been the case, recorded difference between actual vs. planned overall estimated surplus would be significantly lower than calculated (see **Note 2**).

## CROATIA: Terminal charging zone

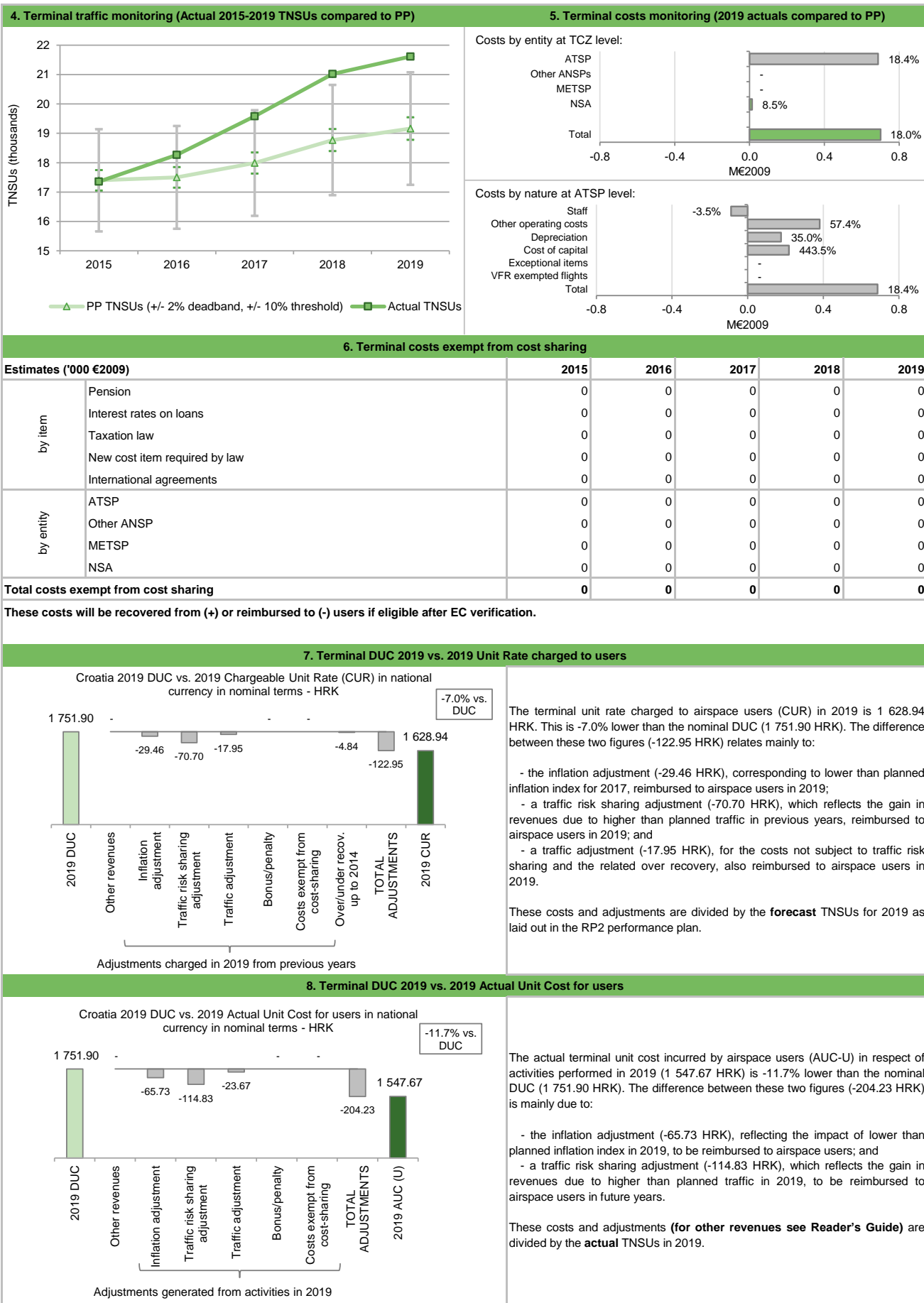
## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Croatia TCZ represents 0.4% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes	
ATSP:	Croatia Control	Airports with fewer than 70,000 IFRs ATMs:		1	
National currency:	HRK	Airports with between 70,000 and 225,000 IFRs ATMs:		0	
Number of airports in charging zone in 2019:	1,	of which:		Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Croatia: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal HRK)	30 236 645	31 366 706	32 186 136	33 503 704	33 569 846
Inflation %	0.2%	1.0%	1.5%	2.5%	2.5%
Inflation index (100 in 2009)	109.2	110.4	112.0	114.8	117.7
Real terminal costs (HRK2009)	27 680 217	28 422 832	28 734 340	29 181 079	28 525 549
Total terminal Service Units	17 400	17 500	17 989	18 771	19 162
<b>Real terminal unit cost per Service Unit (HRK2009)</b>	<b>1 590.82</b>	<b>1 624.16</b>	<b>1 597.34</b>	<b>1 554.59</b>	<b>1 488.65</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>216.79</b>	<b>221.33</b>	<b>217.68</b>	<b>211.85</b>	<b>202.87</b>
Croatia: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal HRK)	30 261 203	30 803 249	31 297 535	34 735 536	37 943 419
Inflation %	-0.3%	-0.6%	1.3%	1.6%	0.8%
Inflation index (100 in 2009)	109.3	108.6	110.0	111.8	112.7
Real terminal costs (HRK2009)	27 688 558	28 354 651	28 439 926	31 066 950	33 666 700
Total terminal Service Units	17 355	18 262	19 580	21 020	21 613
<b>Real terminal unit cost per Service Unit (HRK2009)</b>	<b>1 595.42</b>	<b>1 552.65</b>	<b>1 452.49</b>	<b>1 477.97</b>	<b>1 557.68</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>217.42</b>	<b>211.59</b>	<b>197.94</b>	<b>201.41</b>	<b>212.27</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal HRK)	in value 24 557	-563 457	-888 600	1 231 832	4 373 573
	in % 0.1%	-1.8%	-2.8%	3.7%	13.0%
Inflation %	in p.p. -0.5 p.p.	-1.6 p.p.	-0.2 p.p.	-0.9 p.p.	-1.7 p.p.
Inflation index (100 in 2009)	in p.p. 0.1 p.p.	-1.7 p.p.	-2.0 p.p.	-3.0 p.p.	-5.0 p.p.
Real terminal costs (HRK2009)	in value 8 341	-68 181	-294 414	1 885 872	5 141 152
	in % 0.0%	-0.2%	-1.0%	6.5%	18.0%
Total terminal Service Units	in value -45	762	1 591	2 249	2 451
	in % -0.3%	4.4%	8.8%	12.0%	12.8%
<b>Real terminal unit cost per Service Unit (HRK2009)</b>	<b>in value 4.61</b>	<b>-71.51</b>	<b>-144.85</b>	<b>-76.62</b>	<b>69.03</b>
	<b>in % 0.3%</b>	<b>-4.4%</b>	<b>-9.1%</b>	<b>-4.9%</b>	<b>4.6%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value 0.63</b>	<b>-9.75</b>	<b>-19.74</b>	<b>-10.44</b>	<b>9.41</b>
	<b>in % 0.3%</b>	<b>-4.4%</b>	<b>-9.1%</b>	<b>-4.9%</b>	<b>4.6%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Croatia Terminal Charging Zone comprising Zagreb/Pleso (LDZA) airport (including Zagreb/Lucko airfield).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (1 557.68 HRK2009 or 212.27 €2009) is +4.6% higher than planned in the PP (1 488.65 HRK2009 or 202.87 €2009). This results from the combination of much higher than planned TNSUs (+12.8%) offset by even higher than planned terminal costs in real terms (+18.0%, or +0.7 M€2009). According to the information provided in the NSA monitoring report 2019: "Given that terminal CEFF targets were substantially overachieved in previous years of the referent period and given the external and substantially adverse cumulative CPI cost effect on the 2019A CEFF result, no specific actions are neither required nor assumed."					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Croatia TCZ. The difference between actual and planned TNSUs (+12.8%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Croatia Control) retaining an amount of +0.2 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +13.0% (+4.4 MHRK) higher than planned. However, since the actual inflation index is lower than planned (-5.0 p.p.), actual terminal costs are +18.0% (+0.7 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by Croatia Control (+18.4%, or +0.7 M€2009) and the NSA (+8.5%, or +0.01 M€2009). A detailed analysis is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual TNSUs are +7.7% higher than planned, while actual costs in real terms are +4.7% higher than the determined costs (some +0.9 M€2009). As a result, the weighted average actual unit cost over RP2 (1 525.26 HRK2009 or 207.86 €2009) is -2.8% lower than planned in the NPP (1 569.49 HRK2009 or 213.88 €2009).					



**CROATIA: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## CROATIA: Terminal ATSP (Croatia Control)

## Monitoring of terminal COST-EFFICIENCY for 2019

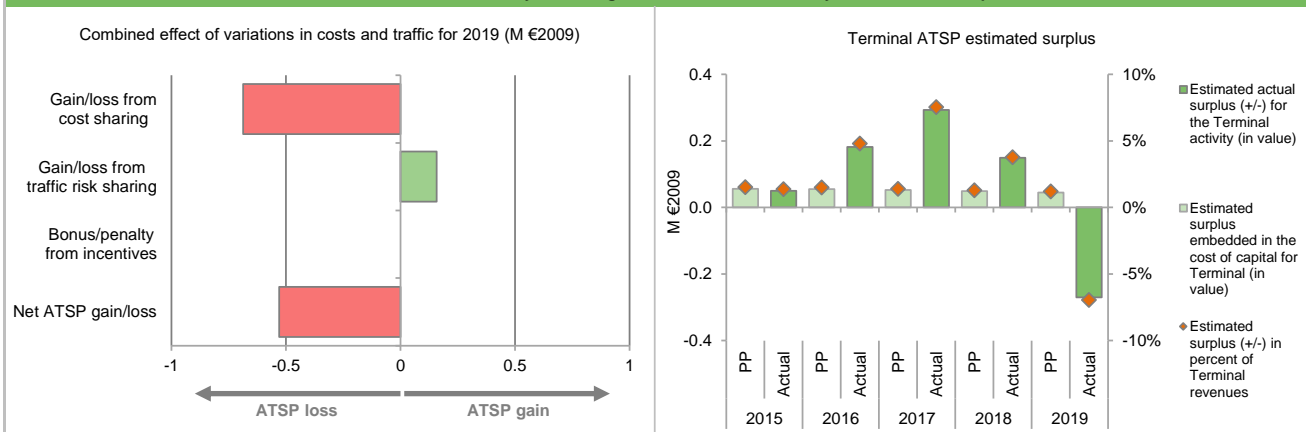
9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	3 646	3 695	3 742	3 810	3 727
Actual costs for the ATSP	3 671	3 713	3 720	4 074	4 414
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-25	-18	22	-264	-687
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-25</b>	<b>-18</b>	<b>22</b>	<b>-264</b>	<b>-687</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.3%	4.4%	8.8%	12.0%	12.8%
Determined costs for the ATSP (PP) - based on actual inflation	3 348	3 447	3 501	3 593	3 576
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-9</b>	<b>93</b>	<b>142</b>	<b>158</b>	<b>157</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-34</b>	<b>75</b>	<b>164</b>	<b>-106</b>	<b>-530</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	1 180	1 118	1 028	920	817
Estimated proportion of financing through equity (in %)	57.7%	61.9%	66.8%	71.3%	76.4%
Estimated proportion of financing through equity (in value)	681	692	687	656	625
Estimated proportion of financing through debt (in %)	42.3%	38.1%	33.2%	28.7%	23.6%
Estimated proportion of financing through debt (in value)	499	426	341	264	193
Cost of capital pre-tax (in value)	67	65	61	55	49
Average interest on debt (in %)	2.3%	2.3%	2.3%	2.3%	2.3%
Interest on debt (in value)	12	10	8	6	4
Determined RoE pre-tax rate (in %)	8.2%	8.0%	7.7%	7.5%	7.2%
Estimated surplus embedded in the cost of capital for terminal (in value)	56	55	53	49	45
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>56</b>	<b>55</b>	<b>53</b>	<b>49</b>	<b>45</b>
<b>Revenue/costs for the terminal activity</b>	<b>3 646</b>	<b>3 695</b>	<b>3 742</b>	<b>3 810</b>	<b>3 727</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>1.5%</b>	<b>1.5%</b>	<b>1.4%</b>	<b>1.3%</b>	<b>1.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.2%</b>	<b>8.0%</b>	<b>7.7%</b>	<b>7.5%</b>	<b>7.2%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	1 675	2 082	2 375	4 452	4 469
Estimated proportion of financing through equity (in %)	60.6%	64.0%	70.9%	76.8%	81.2%
Estimated proportion of financing through equity (in value)	1 015	1 332	1 684	3 419	3 630
Estimated proportion of financing through debt (in %)	39.4%	36.0%	29.1%	23.2%	18.8%
Estimated proportion of financing through debt (in value)	660	750	691	1 033	839
Cost of capital pre-tax (in value)	92	116	136	264	267
Average interest on debt (in %)	1.4%	1.2%	1.0%	0.9%	0.9%
Interest on debt (in value)	9	9	7	9	8
Determined RoE pre-tax rate (in %)	8.2%	8.0%	7.7%	7.5%	7.2%
Estimated surplus embedded in the cost of capital for terminal (in value)	83	106	129	255	260
Net ATSP gain(+)/loss(-) on terminal activity	-34	75	164	-106	-530
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>50</b>	<b>182</b>	<b>293</b>	<b>149</b>	<b>-270</b>
<b>Revenue/costs for the terminal activity</b>	<b>3 637</b>	<b>3 789</b>	<b>3 884</b>	<b>3 968</b>	<b>3 884</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>1.4%</b>	<b>4.8%</b>	<b>7.5%</b>	<b>3.8%</b>	<b>-7.0%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>4.9%</b>	<b>13.6%</b>	<b>17.4%</b>	<b>4.4%</b>	<b>-7.4%</b>



## CROATIA: Terminal ATSP (Croatia Control)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 Croatia Control terminal costs vs. PP

In 2019, Croatia Control actual terminal costs are +18.4% (+0.7 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- lower staff costs (-3.5%, or -0.09 M€2009) "as a result of a cost management initiatives conducted earlier with specific focus on flexing up the terminal operational capacity scale and magnitude more than initially planned for RP2, all subsequently engaged for seasonal demand especially";
- higher other operating costs (+57.4%, or +0.4 M€2009) "due to structure and scale of general overhead cost drivers which contributed to somewhat relatively higher 2019 actual OPEX absorption rate for Zone1 then planned at the level of terminal activity for RP2";
- higher depreciation costs (+35.0%, or +0.2 M€2009) as "2019A recorded significant depreciation costs pressure given the RP2 CAPEX plan nonlinear realisation in the second half of RP2 period (...). Recorded 2019A depreciation costs incremental push relate to the terminal exclusive EU funded project (ASMGCS), whose associated EU funds are being transferred towards the AUs following the cost pattern"; and,
- higher cost of capital (+443.5%, or +0.2 M€2009) "mostly for the reason of realised increase in capital employed (mostly fixed assets) value above the planned level".

The additional information to the June 2020 terminal Reporting tables also notes that, as it can be see above, "given the scale and the structure of the Z1 terminal cost base, small and immaterial absolute changes could lead to significant change in relative terms."

## Croatia Control net gain/loss on terminal activity in 2019

As shown in box 9, Croatia Control generated a net loss of -0.5 M€2009 on the terminal activity. This is a combination of two elements:

- a loss of -0.7 M€2009 arising from the cost sharing mechanism; and
- a gain of +0.2 M€2009 arising from the traffic risk sharing mechanism.

## Croatia Control overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-0.5 M€2009) and the surplus embedded in the actual cost of capital (+0.3 M€2009) amounts to -0.3 M€2009 (7.0% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -7.4%, which indicates that the surplus embedded in the cost of capital (7.2%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019), Croatia Control generated cumulative losses in respect of cost sharing of -1.0 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +0.5 M€2009, which reflects the fact that actual traffic was in general terms higher than planned during RP2. Adding the estimated surplus embedded in the terminal cost of capital (+0.8 M€2009 over RP2) leads to an overall estimated surplus of +0.4 M€2009, which corresponds to an average ex-post return on equity of 3.6% (compared to 7.7% as initially planned in the NPP).

However, Croatia did not plan neither did charge eligible (i.e. higher) RoE% during RP2, but for the purpose of keeping the users charges stable, it implied, i.e. charged, lower than eligible RoE/CoC rates. Should this have not been the case then even now lower than planned actual return on equity would have been even lower compared to planned return (see Note 2).

## CROATIA: Gate-to-gate

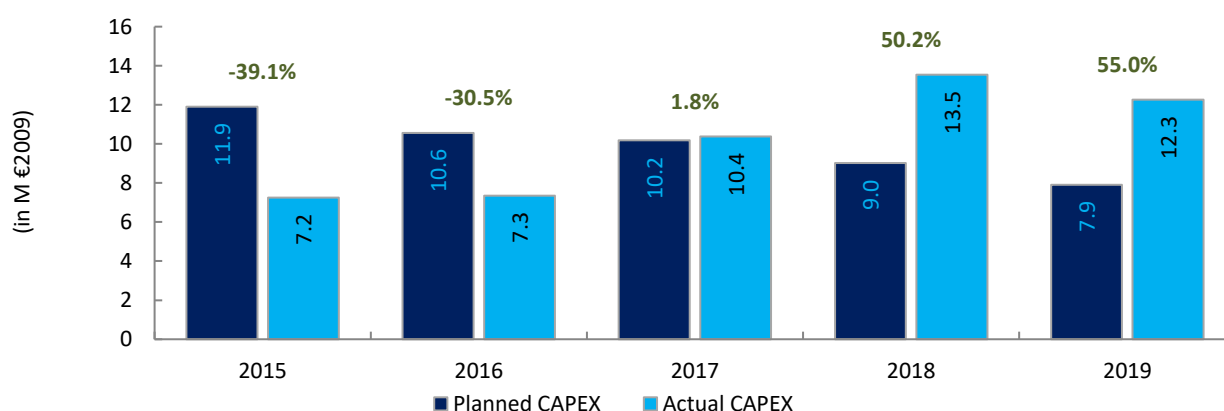
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																													
<b>Croatia: Data from RP2 Performance Plan</b>																													
	2015D	2016D	2017D	2018D	2019D																								
Real en-route costs (EUR2009)	83 593 737	84 898 846	84 121 546	81 589 505	78 088 644																								
Real terminal costs (EUR2009)	3 772 154	3 873 355	3 915 806	3 976 686	3 887 353																								
Real gate-to-gate costs (EUR2009)	87 365 891	88 772 201	88 037 352	85 566 191	81 975 997																								
En-route share (%)	95.7%	95.6%	95.6%	95.4%	95.3%																								
<b>Croatia: Actual data from Reporting Tables</b>																													
	2015A	2016A	2017A	2018A	2019A																								
Real en-route costs (EUR2009)	80 379 566	80 923 846	80 998 788	81 827 162	81 155 605																								
Real terminal costs (EUR2009)	3 773 291	3 864 063	3 875 684	4 233 685	4 587 969																								
Real gate-to-gate costs (EUR2009)	84 152 857	84 787 909	84 874 472	86 060 847	85 743 574																								
En-route share (%)	95.5%	95.4%	95.4%	95.1%	94.6%																								
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																													
	2015	2016	2017	2018	2019																								
Real gate-to-gate costs (EUR2009) in value	-3 213 034	-3 984 292	-3 162 880	494 656	3 767 577																								
in %	-3.7%	-4.5%	-3.6%	0.6%	4.6%																								
En-route share in p.p.	-0.2 p.p.	-0.2 p.p.	-0.1 p.p.	-0.3 p.p.	-0.6 p.p.																								
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																													
<p>In 2019, actual gate-to-gate ANS costs are +4.6% (+3.8 M€2009) higher than planned due to higher than planned en-route costs (+3.9%, or +3.1 M€2009) and terminal costs (+18.0%, or +0.7 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (94.6%) is slightly lower than planned in the PP for 2019 (95.3%).</p> <p>For Croatia Control, the estimated gate-to-gate economic surplus in 2019 amounts to 1.8 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 2.3% of gate-to-gate ANS revenues.</p> <p>However, Croatia did not plan neither did charge eligible (i.e. higher) RoE% during RP2, but for the purpose of keeping the users charges stable, it implied, i.e. charged, lower than eligible RoE/CoC rates. Should this have not been the case then even now lower than planned actual return on equity would have been even lower compared to planned return (see <b>Note 2</b>).</p>																													
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Determined En-route (%)</th> <th>Actual En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>95.7%</td> <td>95.5%</td> <td>4.3%</td> </tr> <tr> <td>2016</td> <td>95.6%</td> <td>95.4%</td> <td>4.4%</td> </tr> <tr> <td>2017</td> <td>95.6%</td> <td>95.4%</td> <td>4.4%</td> </tr> <tr> <td>2018</td> <td>95.4%</td> <td>95.1%</td> <td>4.6%</td> </tr> <tr> <td>2019</td> <td>95.3%</td> <td>94.6%</td> <td>4.7%</td> </tr> </tbody> </table>						Year	Determined En-route (%)	Actual En-route (%)	Terminal (%)	2015	95.7%	95.5%	4.3%	2016	95.6%	95.4%	4.4%	2017	95.6%	95.4%	4.4%	2018	95.4%	95.1%	4.6%	2019	95.3%	94.6%	4.7%
Year	Determined En-route (%)	Actual En-route (%)	Terminal (%)																										
2015	95.7%	95.5%	4.3%																										
2016	95.6%	95.4%	4.4%																										
2017	95.6%	95.4%	4.4%																										
2018	95.4%	95.1%	4.6%																										
2019	95.3%	94.6%	4.7%																										
<b>3. Technical notes on en-route and terminal information reported by Croatia</b>																													
<b>Note 1: ANS provision in Sarajevo FIR (Bosnia and Herzegovina - BiH)</b>																													
Croatia's determined and actual en-route costs for RP2 include costs for services provided by CCL in Sarajevo FIR (Bosnia and Herzegovina - BiH). In agreement with the European Commission, Croatia committed to deduct the income received for the services provided to the Sarajevo FIR (Bosnia and Herzegovina - BiH) as 'other revenues' in the Croatian cost base to avoid double charging. This ensures that these amounts are only charged once (through the BiH unit rate, outside the SES area).																													
<b>Note 2: Charged vs implied (eligible) RoE for Croatia Control</b>																													
As indicated in the additional information of the June 2020 Reporting tables, "Implied RoE% planned (i.e. charged) for PP 2019D represents a part of eligible PP 2019D RoE%, recalculated down in order to fit in the chargeable (i.e. implied) CoC% for PP 2019D".																													

## CROATIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: Croatia Control						
FAB: FAB CE						
Currency: HRK						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	95.4	85.6	83.7	76.0	68.3	409.1
Main CAPEX (in nominal M)	75.8	69.3	67.5	63.3	56.6	332.4
Inflation %	0.2%	1.0%	1.5%	2.5%	2.5%	
Inflation index (100 in 2009)	109.2	110.4	112.0	114.8	117.7	
Exchange rate 2009 (1 EUR =)	7.33804	7.33804	7.33804	7.33804	7.33804	
<b>Total CAPEX (in M €2009)</b>	<b>11.9</b>	<b>10.6</b>	<b>10.2</b>	<b>9.0</b>	<b>7.9</b>	<b>49.6</b>
Main CAPEX (in M €2009)	9.5	8.6	8.2	7.5	6.6	40.3
% Main of Total CAPEX	79.4%	81.0%	80.6%	83.2%	82.8%	81.2%
Real gate-to-gate ANSP costs (in M €2009)	81.4	82.6	81.7	79.3	75.7	400.7
Total CAPEX as % of Real gate-to-gate ANSP costs	14.6%	12.8%	12.5%	11.4%	10.5%	12.4%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	58.1	58.6	83.8	111.2	101.4	413.0
Main CAPEX (in nominal M)	41.5	45.3	69.2	95.7	86.4	338.0
Inflation %	-0.3%	-0.6%	1.3%	1.6%	0.8%	
Inflation index (100 in 2009)	109.3	108.6	110.0	111.8	112.7	
Exchange rate 2009 (1 EUR =)	7.33804	7.33804	7.33804	7.33804	7.33804	
<b>Total CAPEX (in M €2009)</b>	<b>7.2</b>	<b>7.3</b>	<b>10.4</b>	<b>13.5</b>	<b>12.3</b>	<b>50.8</b>
Main CAPEX (in M €2009)	5.2	5.7	8.6	11.7	10.4	41.5
% Main of Total CAPEX	71.3%	77.3%	82.6%	86.1%	85.2%	81.8%
Real gate-to-gate ANSP costs (in M €2009)	78.5	79.2	79.3	80.3	79.9	397.2
Total CAPEX as % of Real gate-to-gate ANSP costs	9.2%	9.3%	13.1%	16.9%	15.3%	12.8%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-37.3	-27.0	0.1	35.1	33.1	4.0
Total CAPEX (in M €2009)	-4.7	-3.2	0.2	4.5	4.4	1.2
<b>Total CAPEX (in %, M €2009)</b>	<b>-39.1%</b>	<b>-30.5%</b>	<b>1.8%</b>	<b>50.2%</b>	<b>55.0%</b>	<b>2.4%</b>



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# **Annual Monitoring Report 2019**

Local level view  
Czech Republic

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## CZECH REPUBLIC

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	80	C	C	C	D	D
ANS CR	83	D	E	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	UZPLN					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	5	4				
Legal/Judiciary	6	1				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>13</b>	<b>5</b>				
ANS CR	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>23</b>	<b>1</b>				
Observations						
All safety targets have been met.						

## CZECH REPUBLIC

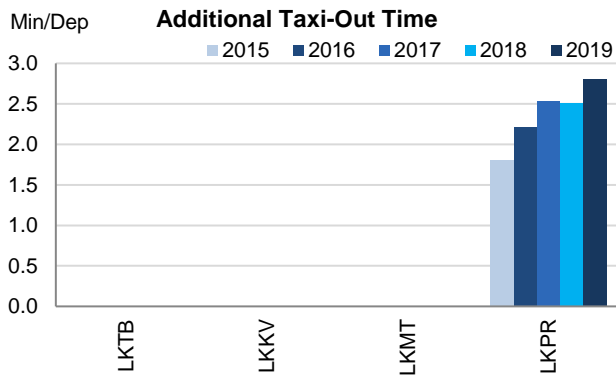
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

There are four airports in Czech Republic subject to RP2 monitoring. Nevertheless, the airport operator data flow is only established for Prague. The implementation of the APDF at the rest of Czech airports is required to be able to monitor the performance.

The indicators show that Prague performs in line with the general European trend, although both indicators have significantly worsened since the beginning of RP2, with a 18% traffic increase with respect to 2015.

## 2. Additional Taxi-Out Time

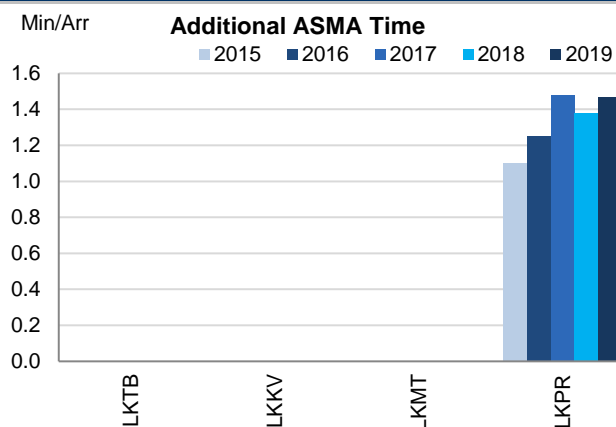


The performance regarding additional taxi-out times at Prague (LKPR) has worsened once more in 2019, reaching 2.8 min/dep., one minute more than in the beginning of the reference period.

The worsening is mainly driven by the performance in January, when the additional TXOT averaged almost 6 min/dep.

FABCE reports that *the increase of values has been caused by civil works on the airport's operational areas throughout entire year.*

## 3. Additional ASMA Time



Additional times in the terminal area of Prague have slightly increased with respect to 2018 (LKPR; 2018: 1.38 min/arr.; 2019: 1.47 min/arr.)

The highest additional ASMA times are observed in September and October, when they exceeded the 1.8 min/arr.

According to the FABCE monitoring report, *the negligible increase of values has been caused by the limited runway capacity.*

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Brno-Tuřany	LKTB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Karlovy Vary	LKKV	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ostrava	LKMT	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Prague	LKPR	1.81	2.22	2.53	2.51	2.80	1.10	1.25	1.48	1.38	1.47



**CZECH REPUBLIC**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						Observations
	2015	2016	2017	2018	2019	
National Capacity target	0.09	0.10	0.09	0.10	0.10	National total includes post operations adjustment.
Deadband +/-	0.03	0.03	0.03	0.03	0.03	
Actual performance	0.01	0.01	0.05	0.38	0.21	

**National capacity incentive scheme**

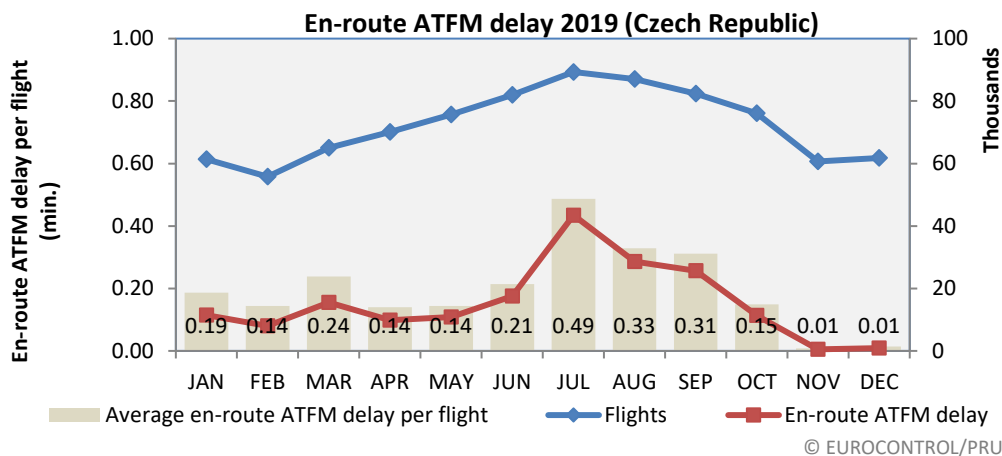
National target: 0.10 minutes.

Actual result: 0.21 min at national level (ATFM delay calculation at FIR level), taking into account a deduction of 45,691 minutes approved for reassignment during the post-ops adjustment.

Both the FAB CE target and the national target were missed by more than 100%. In such cases, a FAB CE ANSP is subject to a maximum penalisation capped at 0.5% of en-route ANS revenue.

Outcome of 2019: Penalty of 14 897 825 CZK

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.44	0.29	0.15	0.01	0.00	0.04	0.01	0.01	0.01	0.05	0.38	0.21

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	702		739		784		823		864		905	
Base	692	700	719	746	746	797	770	817	791	877	817	867
Low	682		699		709		719		728		738	

Traffic levels in the Czech Republic decreased by just over 1% from 2018 levels to approximately midway between the baseline and high traffic scenario for 2019 forecasted by STATFOR back in 2014 when the FAB performance plans, and associated capacity plans were being determined.

The 1% decrease in traffic corresponded with a 46% decrease in en route ATFM delays to 0.26 minutes per flight (including the 46k of minutes of delay reassigned in the post operations process.) from 0.48 minutes delay per flight in 2018. However, this was still more than twice the national target and significantly higher than the levels of delay from the first part of the reference period. Nevertheless, the actual delay was significantly lower than predicted in the NOP 2019 - 2024.

38% of delays were attributed to ATC capacity; 35% attributed to adverse weather and 27% attributed to staffing.

Delay forecast - ANS CR						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.34	0.37	0.39	0.39	N/A	N/A
<b>NOP 2019 - 2024</b>	0.81	0.86	0.94 - 1.28			

### Planning and Effective Use of CDRs

This data is not monitored in ANS CR.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
41%	37%	45%	42%	41%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## CZECH REPUBLIC

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

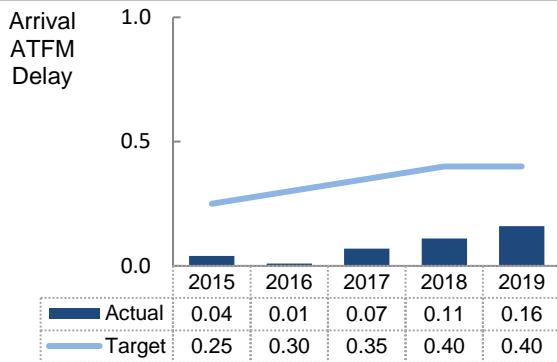
ANS at a total of 4 airports are subject to RP2 monitoring in the Czech Republic. Traffic levels at these airports have increased by 17.8% during RP2.

In terms of arrival ATFM delays, values have significantly higher than at the beginning of the reference period, while ATFM slot adherence has further improved and continues to range within the top class across Europe (2015: 94.2%; 2019: 95.7%).

Pre-departure delay can only be monitored at the time being for Prague (LKPR).

The Airport Operator Data Flow is currently only established for LKPR. The Czech Republic may consider the establishment of the data flow for the other airports.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Czech Republic have once more moderately increased with respect to the previous year (2018: 0.11 min/arr, 2019: 0.16 min/arr), but the established national target (0.40 min/arr.) is still fully met.

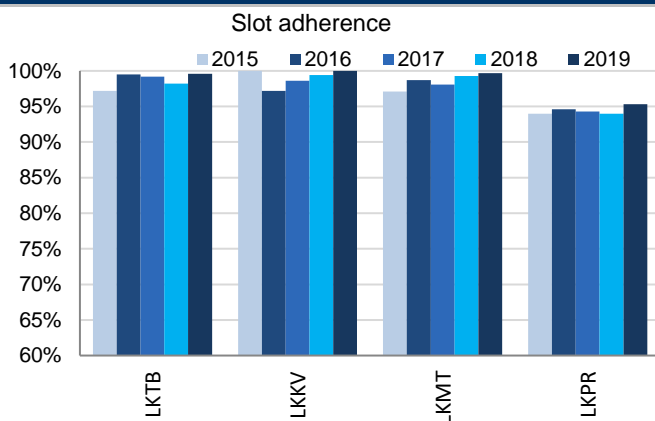
The national performance is completely driven by Prague (LKPR) as the rest of Czech airports do not present any arrival ATFM delays.

The majority of the delays at LKPR are attributed to weather, except for the month of September, where the high delays were the result of a mix of aerodrome capacity issues, ATC staffing and capacity and weather.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The FAB CE performance plan sets a national target on arrival ATFM delay for Czech Republic but no associated incentive scheme, so although the national target is met, no bonus applies.

## 4. ATFM Slot Adherence



Slot adherence at Czech airports is quite stable across RP2 years. The performance at Prague (LKPR) surpasses in 2019 the 95% threshold which is also exceeded by all other airports. This national outcome is amongst the best-in-class across Europe.

It is noteworthy that this also applies for the smaller airports in terms of traffic well below 10 000 movements a year. This is not common across Europe.

## 5. ATC Pre-departure Delay

ATC pre-departure at Prague (LKPR) delay increased slightly in 2018 to 0.48 min/dep., faintly higher than at other airports in the same range of movements.

To ensure the consistency of the monitoring, Czech Republic may consider the establishment of the data flow for the other airports.

## 6. Appendix

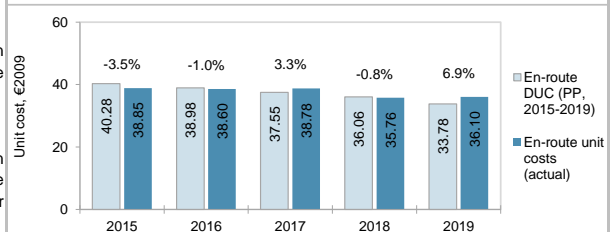
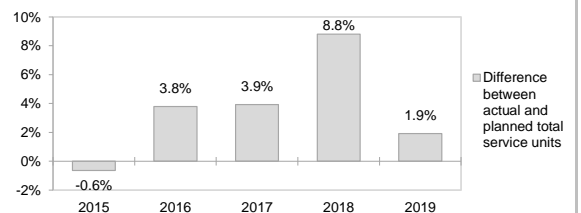
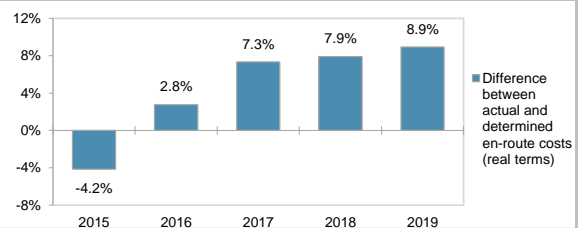
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Brno-Tuřany	LKTB	0.00	0.00	0.00	0.00	0.00	97.2%	99.5%	99.2%	98.2%	99.6%	n/a	n/a	n/a	n/a	n/a
Karlovy Vary	LKKV	0.00	0.00	0.00	0.00	0.00	100.0%	97.2%	98.6%	99.4%	100.0%	n/a	n/a	n/a	n/a	n/a
Ostrava	LKMT	0.00	0.00	0.00	0.00	0.00	97.1%	98.7%	98.1%	99.3%	99.7%	n/a	n/a	n/a	n/a	n/a
Prague	LKPR	0.04	0.02	0.08	0.13	0.18	94.0%	94.6%	94.3%	94.0%	95.3%	0.36	0.53	0.55	0.48	0.52

## CZECH REPUBLIC: En-route charging zone

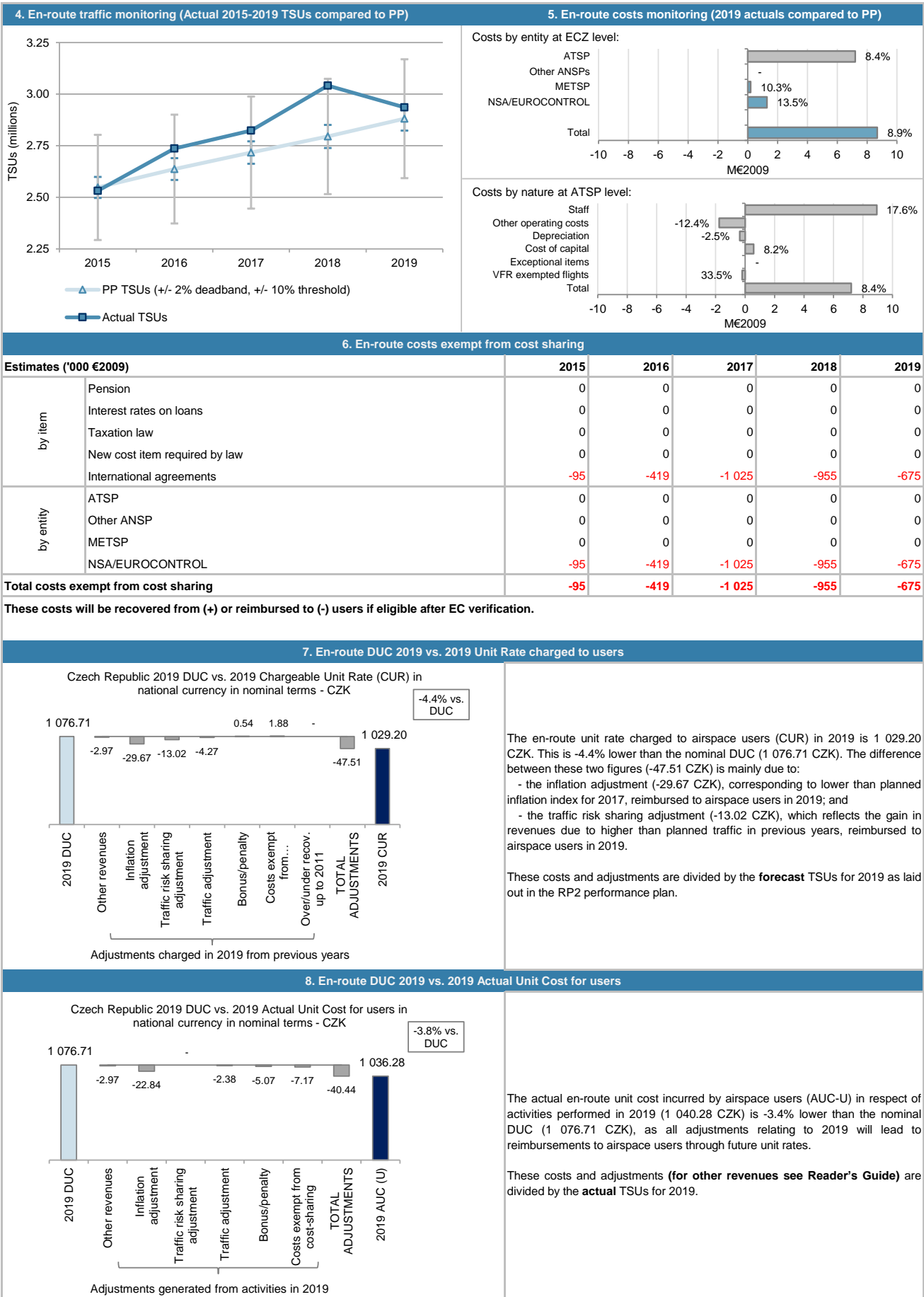
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Czech Republic ECZ represents 1.6% of the SES en-route ANS determined costs in 2019					
· ATSP:	ANS CR				
· FAB:	FAB CE				
· National currency:	CZK Exchange rate 2009: 1 EUR = 26.4147 CZK				
2. En-route DUC monitoring at Charging Zone level					
Czech Republic: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal CZK)	3 022 287 900	3 087 882 700	3 126 037 100	3 149 817 800	3 102 014 900
Inflation %	1.9%	2.0%	2.0%	2.0%	2.0%
Inflation index (100 in 2009)	111.5	113.7	116.0	118.3	120.7
Real en-route costs (CZK2009)	2 710 775 667	2 715 303 433	2 694 955 079	2 662 212 166	2 570 401 338
Total en-route Service Units	2 548 000	2 637 000	2 717 000	2 795 000	2 881 000
<b>Real en-route unit cost per Service Unit (CZK2009)</b>	<b>1 063.88</b>	<b>1 029.69</b>	<b>991.89</b>	<b>952.49</b>	<b>892.19</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>40.28</b>	<b>38.98</b>	<b>37.55</b>	<b>36.06</b>	<b>33.78</b>
Czech Republic: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal CZK)	2 845 608 972	3 074 649 841	3 263 571 568	3 306 391 242	3 305 843 079
Inflation %	0.3%	0.6%	2.4%	2.0%	2.6%
Inflation index (100 in 2009)	109.5	110.2	112.8	115.1	118.1
Real en-route costs (CZK2009)	2 598 187 485	2 790 570 169	2 892 613 899	2 873 104 338	2 799 832 367
Total en-route Service Units	2 531 815	2 737 047	2 823 895	3 041 481	2 936 186
<b>Real en-route unit cost per Service Unit (CZK2009)</b>	<b>1 026.22</b>	<b>1 019.56</b>	<b>1 024.33</b>	<b>944.64</b>	<b>953.56</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>38.85</b>	<b>38.60</b>	<b>38.78</b>	<b>35.76</b>	<b>36.10</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal CZK)	-176 678 928	-13 232 859	137 534 468	156 573 442	203 828 179
in value					
in %	-5.8%	-0.4%	4.4%	5.0%	6.6%
Inflation %	-1.6 p.p.	-1.4 p.p.	0.4 p.p.	0.0 p.p.	0.6 p.p.
in p.p.					
Inflation index (100 in 2009)	-2.0 p.p.	-3.5 p.p.	-3.2 p.p.	-3.2 p.p.	-2.6 p.p.
in p.p.					
Real en-route costs (CZK2009)	-112 588 182	75 266 735	197 658 819	210 892 172	229 431 029
in value					
in %	-4.2%	2.8%	7.3%	7.9%	8.9%
Total en-route Service Units	-16 185	100 047	106 895	246 481	55 186
in value					
in %	-0.6%	3.8%	3.9%	8.8%	1.9%
<b>Real en-route unit cost per Service Unit (CZK2009)</b>	<b>-37.67</b>	<b>-10.14</b>	<b>32.45</b>	<b>-7.85</b>	<b>61.37</b>
in value					
in %	<b>-3.5%</b>	<b>-1.0%</b>	<b>3.3%</b>	<b>-0.8%</b>	<b>6.9%</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-1.43</b>	<b>-0.38</b>	<b>1.23</b>	<b>-0.30</b>	<b>2.32</b>
in value					
in %	<b>-3.5%</b>	<b>-1.0%</b>	<b>3.3%</b>	<b>-0.8%</b>	<b>6.9%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (953.56 CZK2009 or 36.10 €2009) is +6.9% higher than planned in the PP (892.19 CZK2009 or 33.78 €2009). This results from the combination of slightly higher than planned TSUs (+1.9%) and higher than planned en-route costs in real terms (+8.9%, or +8.7 M€2009). According to the NSA monitoring report 2019, "The development of unit costs was mainly driven by a decrease of traffic (-3.5% compared to 2018A). The change of traffic development was recorded in April 2019 and continued till the end of the year. (...) As soon as this trend was recognised, the ANSP implemented cost-cutting measures."					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+1.9%) falls inside the ±2% dead band foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues (+1.7 M€2009) is therefore fully retained by the main ATSP (ANS CR).					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are +6.6% (+203.8 MCZK) higher than planned. However, since the actual inflation index is lower than planned (-2.6 p.p.), actual en-route costs are +8.9% (+8.7 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by ANS CR (+8.4%, or +7.2 M€2009), the MET service provider (+10.3%, or +0.2 M€2009) and the NSA/EUROCONTROL (+13.5%, or +1.3 M€2009). A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for -0.7 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +3.6% higher than planned, while actual costs in real terms are also +4.5% higher than the determined costs (some +600.7 MCZK2009 or +22.7 M€2009). As a result, the weighted average actual unit cost over RP2 (37.55 €2009) is +0.8% higher than planned in the NPP (37.23 €2009).					



**CZECH REPUBLIC: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



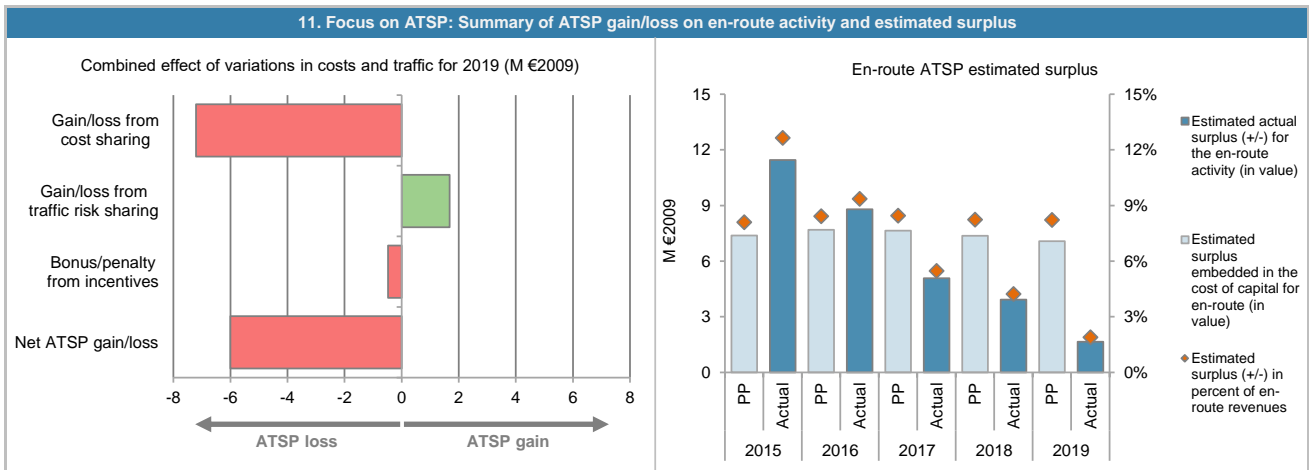
## CZECH REPUBLIC: En-route ATSP (ANS CR)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	91 070	91 337	90 424	89 284	85 879
Actual costs for the ATSP	86 485	93 260	96 195	97 140	93 086
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	4 585	-1 923	-5 771	-7 856	-7 206
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>4 585</b>	<b>-1 923</b>	<b>-5 771</b>	<b>-7 856</b>	<b>-7 206</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.6%	3.8%	3.9%	8.8%	1.9%
Determined costs for the ATSP (PP) - based on actual inflation	92 707	94 273	92 966	91 794	87 777
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-589</b>	<b>2 393</b>	<b>2 399</b>	<b>3 714</b>	<b>1 681</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>101</b>	<b>213</b>	<b>52</b>	<b>-473</b>	<b>-478</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>4 097</b>	<b>683</b>	<b>-3 320</b>	<b>-4 615</b>	<b>-6 003</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	113 529	118 314	117 666	113 293	108 744
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	113 529	118 314	117 666	113 294	108 744
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	7 379	7 690	7 648	7 364	7 068
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.5%	6.5%	6.5%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	7 379	7 690	7 648	7 364	7 068
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>7 379</b>	<b>7 690</b>	<b>7 648</b>	<b>7 364</b>	<b>7 068</b>
<b>Revenue/costs for the en-route activity</b>	<b>91 070</b>	<b>91 337</b>	<b>90 424</b>	<b>89 284</b>	<b>85 879</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>8.1%</b>	<b>8.4%</b>	<b>8.5%</b>	<b>8.2%</b>	<b>8.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	113 202	124 797	129 313	131 349	117 707
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	113 202	124 797	129 314	131 349	117 707
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	7 358	8 112	8 405	8 538	7 651
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.5%	6.5%	6.5%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	7 358	8 112	8 405	8 538	7 651
Net ATSP gain(+)/loss(-) on en-route activity	4 097	683	-3 320	-4 615	-6 003
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>11 456</b>	<b>8 795</b>	<b>5 085</b>	<b>3 922</b>	<b>1 648</b>
<b>Revenue/costs for the en-route activity</b>	<b>90 582</b>	<b>93 943</b>	<b>92 875</b>	<b>92 524</b>	<b>87 083</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>12.6%</b>	<b>9.4%</b>	<b>5.5%</b>	<b>4.2%</b>	<b>1.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>10.1%</b>	<b>7.0%</b>	<b>3.9%</b>	<b>3.0%</b>	<b>1.4%</b>

**CZECH REPUBLIC: En-route ATSP (ANS CR)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 ANS CR en-route costs vs. PP**

In 2019, ANS CR actual en-route costs are +8.4% (+7.2 M€2009) higher, in real terms, than planned in the PP. This results from a combination of:

- much higher staff costs (+17.6%, or +8.9 M€2009);
- much lower other operating costs (-12.4%, or -1.8 M€2009);
- slightly lower depreciation costs (-2.5%, or -0.4 M€2009); and
- higher cost of capital (+8.2%, or +0.6 M€2009).

No explanatory information for the on the drivers for the variations noted above was provided in the additional information to the June 2020 en-route Reporting Tables. According to the NSA monitoring report 2019, "The development of unit costs was mainly driven by a decrease of traffic (-3.5% compared to 2018A). The change of traffic development was recorded in April 2019 and continued till the end of the year. (...) As soon as this trend was recognised, the ANSP implemented cost-cutting measures."

**ANS CR net gain/loss on en-route activity in 2019**

As shown in box 9, ANS CR generated a net loss of -6.0 M€2009 on the en-route activity. This is a combination of three elements:

- a loss of -7.2 M€2009 arising from the cost sharing mechanism;
- a gain of +1.7 M€2009 arising from the traffic risk sharing mechanism; and
- a loss of -0.5 M€2009 (or -14.90 MCZK in nominal terms), corresponding to a penalty as part of the en-route capacity target incentive mechanism. This amount corresponds to 0.6% of ANS CR en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this penalty in the chargeable cost base will be examined by the European Commission.

**ANS CR overall estimated surplus for the en-route activity**

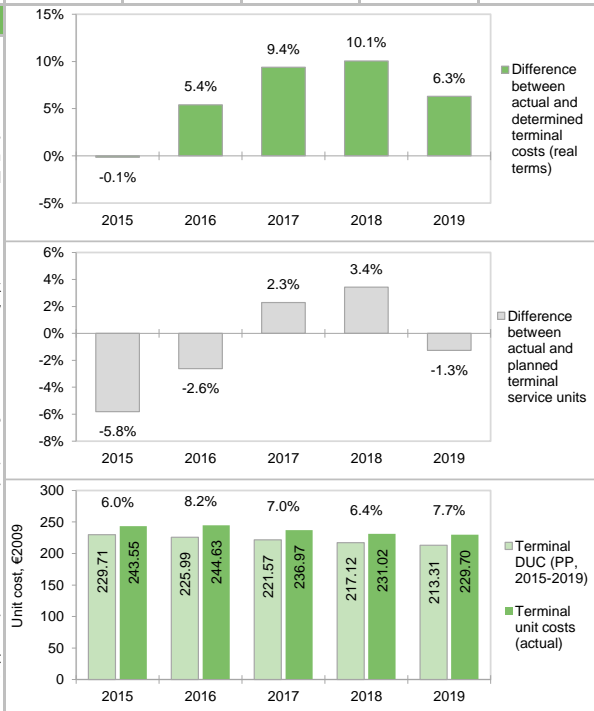
Ex-post, the overall estimated surplus taking into account the net loss from the en-route activity mentioned above (-6.0 M€2009) and the surplus embedded in the actual cost of capital (+7.7 M€2009) amounts to +1.6 M€2009 (1.9% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 1.4%, which is much lower than the 6.5% planned in the PP.

When considering the whole of RP2 (2015-2019), ANS CR generated cumulative losses in respect of cost sharing of -18.2 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +9.6 M€2009, which reflects the fact that actual traffic was in general terms +3.6% higher than planned during RP2. Adding the loss of -0.6 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+40.1 M€2009 over RP2) leads to an overall estimated surplus of +30.9 M€2009, which corresponds to an average ex-post return on equity of 5.0% (compared to 6.5% as initially planned in the NPP).

## CZECH REPUBLIC: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Czech_Republic TCZ represents 2.0% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes	
ATSP:	ANS CR	Airports with fewer than 70,000 IFRs ATMs:		3	
National currency:	CZK	Airports with between 70,000 and 225,000 IFRs ATMs:		1	
Number of airports in charging zone in 2019:	4,	of which:		Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Czech_Republic: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal CZK)	547 963 000	574 984 000	605 574 000	639 886 000	682 085 000
Inflation %	1.9%	2.0%	2.0%	2.0%	2.0%
Inflation index (100 in 2009)	111.5	113.7	116.0	118.3	120.7
Real terminal costs (CZK2009)	491 483 544	505 607 298	522 065 054	540 828 836	565 191 417
Total terminal Service Units	81 000	84 700	89 200	94 300	100 307
<b>Real terminal unit cost per Service Unit (CZK2009)</b>	<b>6 067.70</b>	<b>5 969.39</b>	<b>5 852.75</b>	<b>5 735.19</b>	<b>5 634.64</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>229.71</b>	<b>225.99</b>	<b>221.57</b>	<b>217.12</b>	<b>213.31</b>
Czech_Republic: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal CZK)	537 535 000	587 224 000	644 361 000	684 983 000	709 501 000
Inflation %	0.3%	0.6%	2.4%	2.0%	2.6%
Inflation index (100 in 2009)	109.5	110.2	112.8	115.1	118.1
Real terminal costs (CZK2009)	490 797 128	532 967 935	571 118 955	595 219 224	600 900 834
Total terminal Service Units	76 290	82 481	91 240	97 540	99 036
<b>Real terminal unit cost per Service Unit (CZK2009)</b>	<b>6 433.29</b>	<b>6 461.73</b>	<b>6 259.52</b>	<b>6 102.29</b>	<b>6 067.48</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>243.55</b>	<b>244.63</b>	<b>236.97</b>	<b>231.02</b>	<b>229.70</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal CZK)	-10 428 000	12 240 000	38 787 000	45 097 000	27 416 000
	in %	-1.9%	2.1%	6.4%	7.0%
Inflation %	-1.6 p.p.	-1.4 p.p.	0.4 p.p.	0.0 p.p.	0.6 p.p.
Inflation index (100 in 2009)	-2.0 p.p.	-3.5 p.p.	-3.2 p.p.	-3.2 p.p.	-2.6 p.p.
Real terminal costs (CZK2009)	-686 416	27 360 637	49 053 901	54 390 388	35 709 417
	in %	-0.1%	5.4%	9.4%	10.1%
Total terminal Service Units	-4 710	-2 219	2 040	3 240	-1 270
	in %	-5.8%	-2.6%	2.3%	3.4%
<b>Real terminal unit cost per Service Unit (CZK2009)</b>	<b>365.59</b>	<b>492.34</b>	<b>406.78</b>	<b>367.10</b>	<b>432.84</b>
	in %	<b>6.0%</b>	<b>8.2%</b>	<b>7.0%</b>	<b>6.4%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>13.84</b>	<b>18.64</b>	<b>15.40</b>	<b>13.90</b>	<b>16.39</b>
	in %	<b>6.0%</b>	<b>8.2%</b>	<b>7.0%</b>	<b>6.4%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Czech Republic Terminal Charging Zone (TCZ) comprising 4 airports: Praha/Ruzyně (LKPR), Karlovy/Vary (LKKV), Ostrava/Mosnov (LKMT) and Brno/Turany (LKTb).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (6 067.48 CZK2009 or 229.70 €2009) is +7.7% higher than planned in the PP (5 634.64 CZK2009 or 213.31 €2009). This results from the combination of slightly lower than planned TNSUs (-1.3%) and higher than planned terminal costs in real terms (+6.3%, or +1.4 ME2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Czech Republic TCZ. The difference between actual and planned TNSUs (-1.3%) falls inside the ±2% dead band foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues (-0.3 ME2009) is therefore fully borne by the ATSP (ANS CR).					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +4.0% (+27.4 MCZK) higher than planned. However, since the actual inflation index is lower than planned (-2.6 p.p.), actual terminal costs are +6.3% (+1.4 ME2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by ANS CR (+6.8%, or +1.4 ME2009), while the costs for the MET service provider (-8.5%, or -0.05 ME2009) and the NSA (-1.4%) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Czech Republic TCZ, actual TNSUs are -0.6% lower than planned, while actual costs in real terms are +6.3% higher than the determined costs (some +165.8 MCZK2009 or +6.3 ME2009). As a result, the weighted average actual unit cost over RP2 (6 249.62 CZK2009 or 236.60 €2009) is +7.0% higher than planned in the NPP (5 840.13 CZK2009 or 221.09 €2009).					





**CZECH REPUBLIC: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

Legend: ▲ PP TNSUs (+/- 2% deadband, +/- 10% threshold) ■ Actual TNSUs

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	6.8%
Other ANSPs	-
METSP	-8.5%
NSA	-1.4%
<b>Total</b>	<b>6.3%</b>

Costs by nature at ATSP level:

Staff	11.5%
Other operating costs	-
Depreciation	-6.6%
Cost of capital	-
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>6.8%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

The terminal unit rate charged to airspace users (CUR) in 2019 is 6 609.61 CZK. This is -2.8% lower than the nominal DUC (6 800.00 CZK). The difference between these two figures (-190.39 CZK) is mainly due to the inflation adjustment (-165.07 CZK), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019.

It should be noted that the Czech Republic decided to cap its terminal unit rate at a maximum level of CZK 6 800 (in nominal terms) for the whole RP2. For 2019, due to the adjustments described on the left, the CUR was actually lower than the maximum established. See also **Note 1** at the end of this Report.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (6 652.01 CZK) is -2.2% lower than the nominal DUC (6 800.00 CZK). The difference between these two figures (-147.99 CZK) is mainly due to the inflation adjustment (-148.91 CZK), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

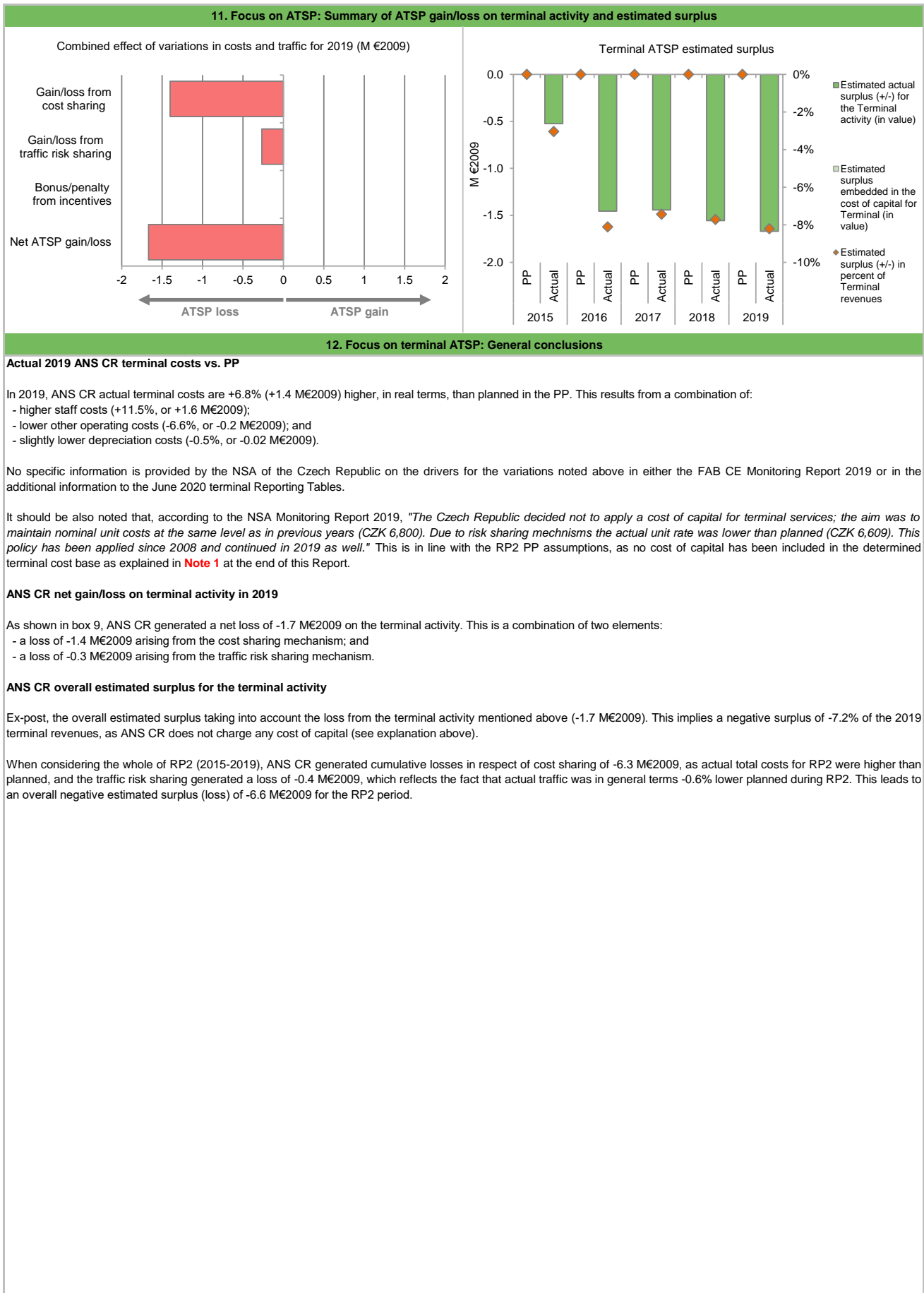
## CZECH REPUBLIC: Terminal ATSP (ANS CR)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	17 817	18 352	18 973	19 683	20 610
Actual costs for the ATSP	17 770	19 394	20 821	21 731	22 011
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	47	-1 042	-1 849	-2 049	-1 402
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>47</b>	<b>-1 042</b>	<b>-1 849</b>	<b>-2 049</b>	<b>-1 402</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-5.8%	-2.6%	2.3%	3.4%	-1.3%
Determined costs for the ATSP (PP) - based on actual inflation	18 137	18 942	19 506	20 236	21 065
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-570</b>	<b>-414</b>	<b>407</b>	<b>492</b>	<b>-267</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-523</b>	<b>-1 456</b>	<b>-1 442</b>	<b>-1 557</b>	<b>-1 669</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	21 235	22 661	22 677	22 017	22 522
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	21 235	22 661	22 677	22 017	22 522
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value) <i>*see Note 1</i>	0	0	0	0	0
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	-	-	-	-	-
Estimated surplus embedded in the cost of capital for terminal (in value)	0	0	0	0	0
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Revenue/costs for the terminal activity</b>	<b>17 817</b>	<b>18 352</b>	<b>18 973</b>	<b>19 683</b>	<b>20 610</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b> <i>*see Note 1</i>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	21 189	23 474	24 693	25 240	30 800
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	21 189	23 474	24 693	25 240	30 800
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value) <i>*see Note 1</i>	0	0	0	0	0
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	-	-	-	-	-
Estimated surplus embedded in the cost of capital for terminal (in value)	0	0	0	0	0
Net ATSP gain(+)/loss(-) on terminal activity	-523	-1 456	-1 442	-1 557	-1 669
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>-523</b>	<b>-1 456</b>	<b>-1 442</b>	<b>-1 557</b>	<b>-1 669</b>
<b>Revenue/costs for the terminal activity</b>	<b>17 246</b>	<b>17 938</b>	<b>19 379</b>	<b>20 175</b>	<b>20 343</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>-3.0%</b>	<b>-8.1%</b>	<b>-7.4%</b>	<b>-7.7%</b>	<b>-8.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b> <i>*see Note 1</i>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**CZECH REPUBLIC: Terminal ATSP (ANS CR)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## CZECH REPUBLIC: Gate-to-gate

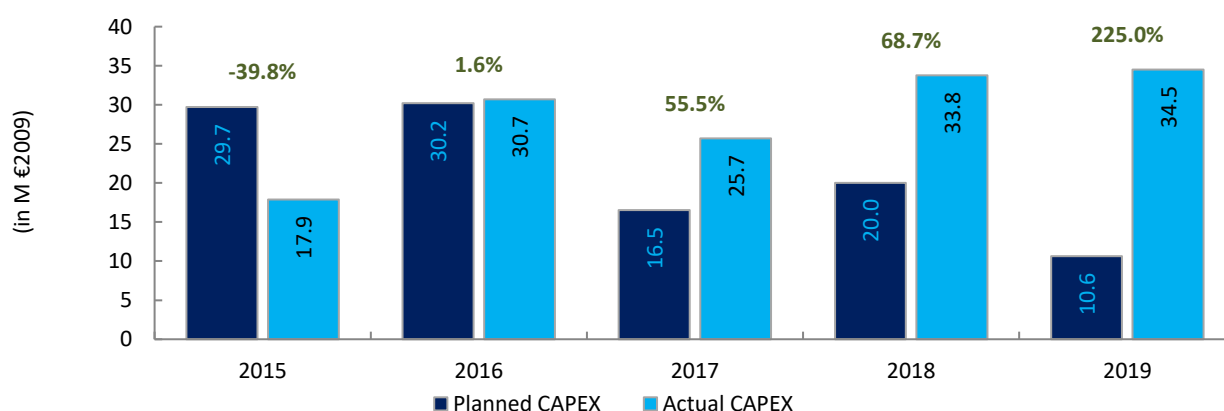
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Czech Republic: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	102 623 754	102 795 165	102 024 823	100 785 251	97 309 503																																							
Real terminal costs (EUR2009)	18 606 440	19 141 133	19 764 186	20 474 540	21 396 852																																							
Real gate-to-gate costs (EUR2009)	121 230 194	121 936 298	121 789 009	121 259 791	118 706 355																																							
En-route share (%)	84.7%	84.3%	83.8%	83.1%	82.0%																																							
<b>Czech Republic: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	98 361 423	105 644 591	109 507 732	108 769 145	105 995 236																																							
Real terminal costs (EUR2009)	18 580 454	20 176 944	21 621 255	22 533 636	22 748 728																																							
Real gate-to-gate costs (EUR2009)	116 941 878	125 821 535	131 128 987	131 302 781	128 743 965																																							
En-route share (%)	84.1%	84.0%	83.5%	82.8%	82.3%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	-4 288 317	3 885 237	9 339 978	10 042 990	10 037 610																																							
in %	-3.5%	3.2%	7.7%	8.3%	8.5%																																							
En-route share in p.p.	-0.5 p.p.	-0.3 p.p.	-0.3 p.p.	-0.3 p.p.	0.4 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +8.5% (+10.0 M€2009) higher than planned due to higher than planned en-route costs (+8.9%, or +8.7 M€2009) and terminal costs (+6.3%, or +1.4 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (82.3%) is in line with that planned in the PP for 2019 (82.0%).</p> <p>For ANS CR, the estimated gate-to-gate economic surplus in 2019 amounts to -0.02 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 0.02% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>84.7%</td> <td>15.3%</td> </tr> <tr> <td>Actual</td> <td>84.1%</td> <td>15.9%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>84.3%</td> <td>15.7%</td> </tr> <tr> <td>Actual</td> <td>84.0%</td> <td>16.0%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>83.8%</td> <td>16.2%</td> </tr> <tr> <td>Actual</td> <td>83.5%</td> <td>16.5%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>83.1%</td> <td>16.9%</td> </tr> <tr> <td>Actual</td> <td>82.8%</td> <td>17.2%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>82.0%</td> <td>18.0%</td> </tr> <tr> <td>Actual</td> <td>82.3%</td> <td>17.7%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	84.7%	15.3%	Actual	84.1%	15.9%	2016	Determined	84.3%	15.7%	Actual	84.0%	16.0%	2017	Determined	83.8%	16.2%	Actual	83.5%	16.5%	2018	Determined	83.1%	16.9%	Actual	82.8%	17.2%	2019	Determined	82.0%	18.0%	Actual	82.3%	17.7%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	84.7%	15.3%																																									
	Actual	84.1%	15.9%																																									
2016	Determined	84.3%	15.7%																																									
	Actual	84.0%	16.0%																																									
2017	Determined	83.8%	16.2%																																									
	Actual	83.5%	16.5%																																									
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	Actual	82.8%	17.2%																																									
2019	Determined	82.0%	18.0%																																									
	Actual	82.3%	17.7%																																									
<b>3. Technical notes on en-route and terminal information reported by Czech Republic</b>																																												
<b>Note 1: Terminal unit rate and cost of capital of ANS CR in TCZ</b>																																												
<p>The Czech Republic decided to cap its terminal unit rate at a maximum level of 6 800 CZK (in nominal terms) annually for the whole of RP2 (2015-19). Due to targeting the unit rate at the level not higher than 6 800 CZK (in nominal terms), the Czech Republic decided not to include the cost of capital of ANS CR in the cost base of the terminal charging zone for the whole of RP2.</p>																																												

## CZECH REPUBLIC

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: ANS CR						
FAB: FAB CE						
Currency: CZK						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	874.9	908.0	506.3	625.6	338.6	3 253.4
Main CAPEX (in nominal M)	818.2	846.4	450.6	556.0	286.6	2 957.8
Inflation %	1.9%	2.0%	2.0%	2.0%	2.0%	
Inflation index (100 in 2009)	111.5	113.7	116.0	118.3	120.7	
Exchange rate 2009 (1 EUR =)	26.4147	26.4147	26.4147	26.4147	26.4147	
<b>Total CAPEX (in M €2009)</b>	<b>29.7</b>	<b>30.2</b>	<b>16.5</b>	<b>20.0</b>	<b>10.6</b>	<b>107.1</b>
Main CAPEX (in M €2009)	27.8	28.2	14.7	17.8	9.0	97.4
% Main of Total CAPEX	93.5%	93.2%	89.0%	88.9%	84.6%	91.0%
Real gate-to-gate ANSP costs (in M €2009)	108.9	109.7	109.4	109.0	106.5	543.4
Total CAPEX as % of Real gate-to-gate ANSP costs	27.3%	27.6%	15.1%	18.4%	10.0%	19.7%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	517.2	893.8	765.7	1 026.5	1 076.6	4 279.8
Main CAPEX (in nominal M)	466.2	824.1	403.7	777.4	740.1	3 211.5
Inflation %	0.3%	0.6%	2.4%	2.0%	2.6%	
Inflation index (100 in 2009)	109.5	110.2	112.8	115.1	118.1	
Exchange rate 2009 (1 EUR =)	26.4147	26.4147	26.4147	26.4147	26.4147	
<b>Total CAPEX (in M €2009)</b>	<b>17.9</b>	<b>30.7</b>	<b>25.7</b>	<b>33.8</b>	<b>34.5</b>	<b>142.6</b>
Main CAPEX (in M €2009)	16.1	28.3	13.5	25.6	23.7	107.3
% Main of Total CAPEX	90.1%	92.2%	52.7%	75.7%	68.7%	75.2%
Real gate-to-gate ANSP costs (in M €2009)	104.3	112.7	117.0	118.9	115.1	567.9
Total CAPEX as % of Real gate-to-gate ANSP costs	17.1%	27.3%	22.0%	28.4%	30.0%	25.1%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-357.7	-14.2	259.4	400.9	738.0	1 026.4
Total CAPEX (in M €2009)	-11.8	0.5	9.2	13.8	23.9	35.5
<b>Total CAPEX (in %, M €2009)</b>	<b>-39.8%</b>	<b>1.6%</b>	<b>55.5%</b>	<b>68.7%</b>	<b>225.0%</b>	<b>33.1%</b>



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# Annual Monitoring Report 2019

## Local level view

### Hungary

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## HUNGARY

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	52	C	C	C	C	C
Hungarocontrol	84	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	KBSZ					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	2	7				
Legal/Judiciary	3	4				
Occurrence reporting and Investigation	1	1				
<b>TOTAL</b>	<b>6</b>	<b>12</b>				
Hungarocontrol	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>23</b>	<b>1</b>				
Observations						
All safety targets have been met.						

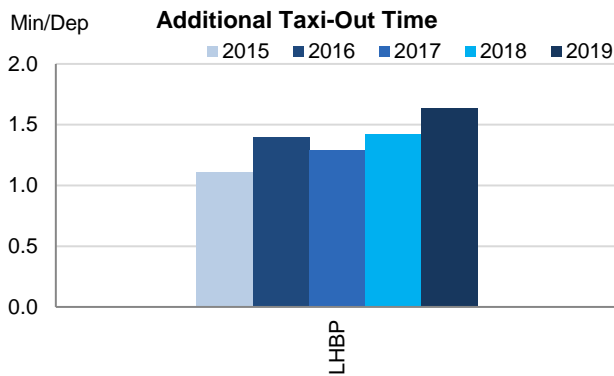
**HUNGARY**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

Hungary identified only its main airport Budapest as subject to RP2 monitoring. The Airport Operator Data Flow is correctly established and, with a significant 33% increase in movements in RP2 (2019 vs 2015) (+33% with respect to 2015), additional times has moderately worsened, but performance is still better than most similar airports in terms of movements.

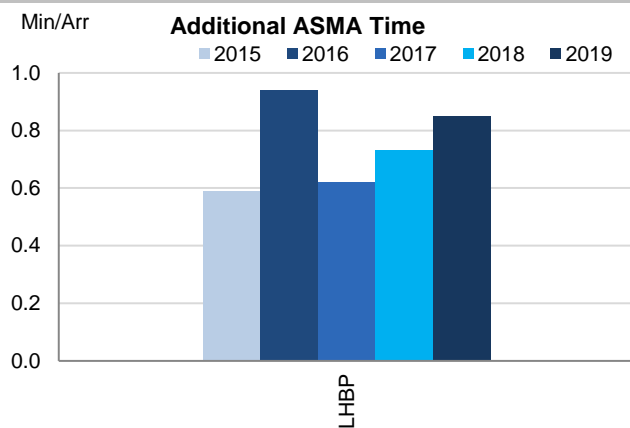
**2. Additional Taxi-Out Time**



Additional taxi-out times in Budapest have once more slightly increased with respect to the previous year (LHBP; 2018: 1.42 min/dep.; 2019: 1.63 min/dep.), but still show very good performance compared to similar airports in terms of movements.

The annual increase is driven by the performance in May and June, when during the replacement of the ILS on RWY13L, this runway was closed resulting in increased taxi times.

**3. Additional ASMA Time**



The additional times in the terminal area at Budapest are again slightly higher than last year (LHBP; 2018: 0.73 min/arr.; 2019:0.85 min/arr.). The worsening is driven, like for the additional taxi-out times, by the performance in May-June due to the closure of RWY13L/31R.

**4. Appendix**

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Budapest/ Ferihegy	LHBP	1.11	1.39	1.29	1.42	1.63	0.59	0.94	0.62	0.73	0.85

**HUNGARY**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						Observations
	2015	2016	2017	2018	2019	
National Capacity target	0.06	0.05	0.05	0.04	0.05	KFOR delay is excluded from performance in Hungary.
Deadband +/-	0.03	0.03	0.03	0.03	0.03	
Actual performance	0.03	0.07	0.01	0.39	1.62	

**National capacity incentive scheme**

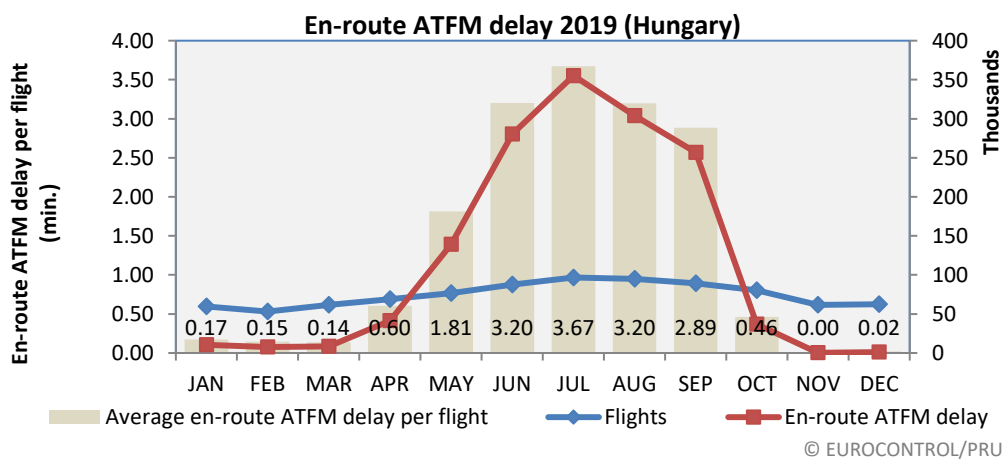
National target: 0.05 minutes.

Actual result: 1.62 min at national level (ATFM delay calculation at FIR level).

Both the FAB CE target and the national target were missed by more than 100%. In such cases, a FAB CE ANSP is subject to a maximum penalisation capped at 0.5% of en-route ANS revenue.

Outcome of 2019: Penalty of 140 694 699 HUF

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.01	0.39	1.62

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	631		666		705		742		778		819	
Base	622	670	648	744	673	776	697	822	719	904	748	892
Low	613		630		641		653		666		680	

Traffic levels in Hungary decreased by just over 1% from 2018 to 2019. Despite the decrease, for the sixth year in a row, traffic levels remained above the high traffic scenario that STATFOR forecasted back in 2014, when the FAB performance plans and associated capacity plans were being determined.

The decrease in traffic also corresponded with a fourfold increase in ATFM delays with delays rising from 0.39 minutes per flight to 1.62 minutes. Actual delays were significantly higher than predicted in the NOP 2019-2024.

The airspace users, IATA and A4E, commented on the high delays generated by Budapest ACC during 2019.

78% of the original delays in Hungary were attributed to ATC capacity; 19% to adverse weather, and 3% were attributed to ATC staffing issues.

Delay forecast - HungaroControl						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.03	0.03	0.03	0.03	N/A	N/A
<b>NOP 2019 - 2024</b>	0.88	0.88	0.88			

### Planning and Effective Use of CDRs

Since H24 Free route airspace between 9500ft-FL660 has been implemented in Budapest FIR on February 5th 2015, this KPI is not applicable.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
24%	22%	34%	33%	47%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
0%	0%	0%	0%	0%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

**HUNGARY**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

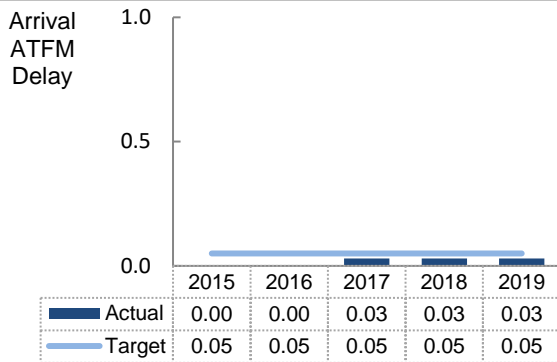
In Hungary, only Budapest/Ferihegy (LHBP) is subject to RP2 monitoring, where traffic levels have drastically increased during RP2 (+32.9% with respect to 2015).

In terms of arrival ATFM delays, values are slightly higher than those in the beginning of the reference period, and ATFM slot adherence remains high, reaching almost 95% of the regulated departures.

The achieved performance concerning arrival ATFM delay meets the constant national target.

Hungary contributes adequately to the airport related ANS Capacity performance in FAB CE and Europe.

**2. Arrival ATFM Delay**



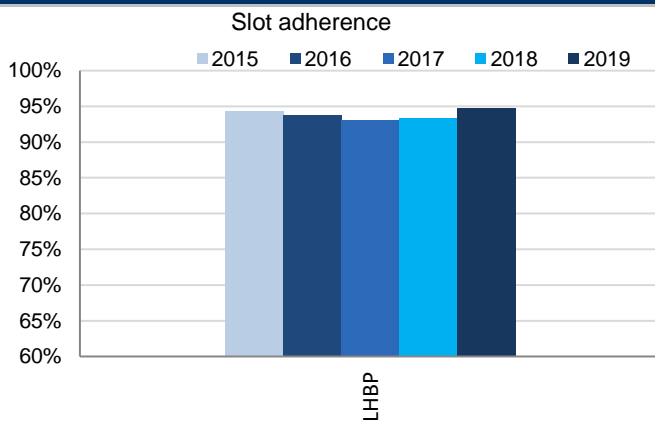
During 2019, arrival ATFM delays in Hungary have not changed with respect to the previous years (0.03 min/arr. in 2017, 2018 and 2019) and performance still fully meets the 0.05 min/arr. target.

The main contributor to ATFM delay at Budapest is associated with weather (55%) followed by ATC capacity (19%) and other disruptions in June (14%). Staffing issues in May also generated 10% of the delays. The achieved performance at LHBP still suggests no major capacity constraints.

**3. Arrival ATFM Delay – National Target and Incentive Scheme**

The FAB CE performance plan sets a national target on arrival ATFM delay for Hungary but no associated incentive scheme, so although the national target is met, no bonus applies.

**4. ATFM Slot Adherence**



The adherence to ATFM slots at Budapest has consistently been above 90% and improved in the last year to 94.8%.

**5. ATC Pre-departure Delay**

ATC pre-departure delay has increased in 2019 (2019: 0.30 min/dep. vs 2018: 0.20 min/dep) but it is still commensurate with the level of air traffic.

**6. Appendix**

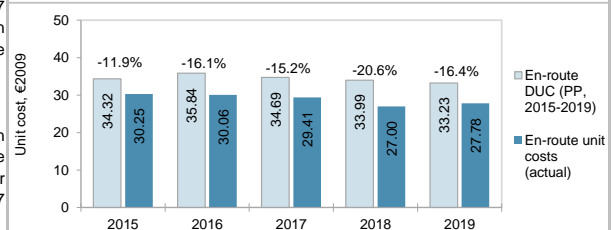
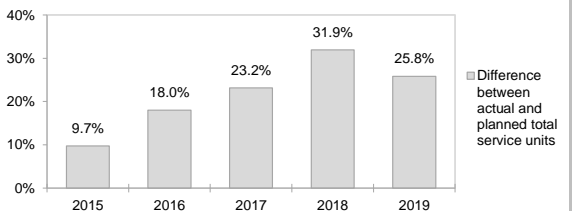
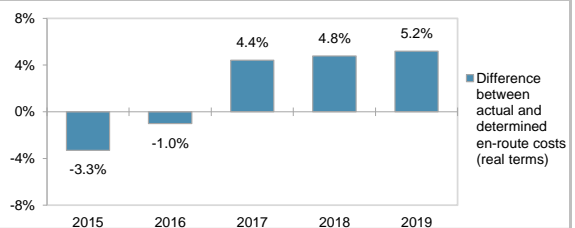
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Budapest/ Ferihegy	LHBP	0.00	0.00	0.03	0.03	0.03	94.3%	93.8%	93.1%	93.3%	94.8%	0.13	0.11	0.25	0.20	0.30

## HUNGARY: En-route charging zone

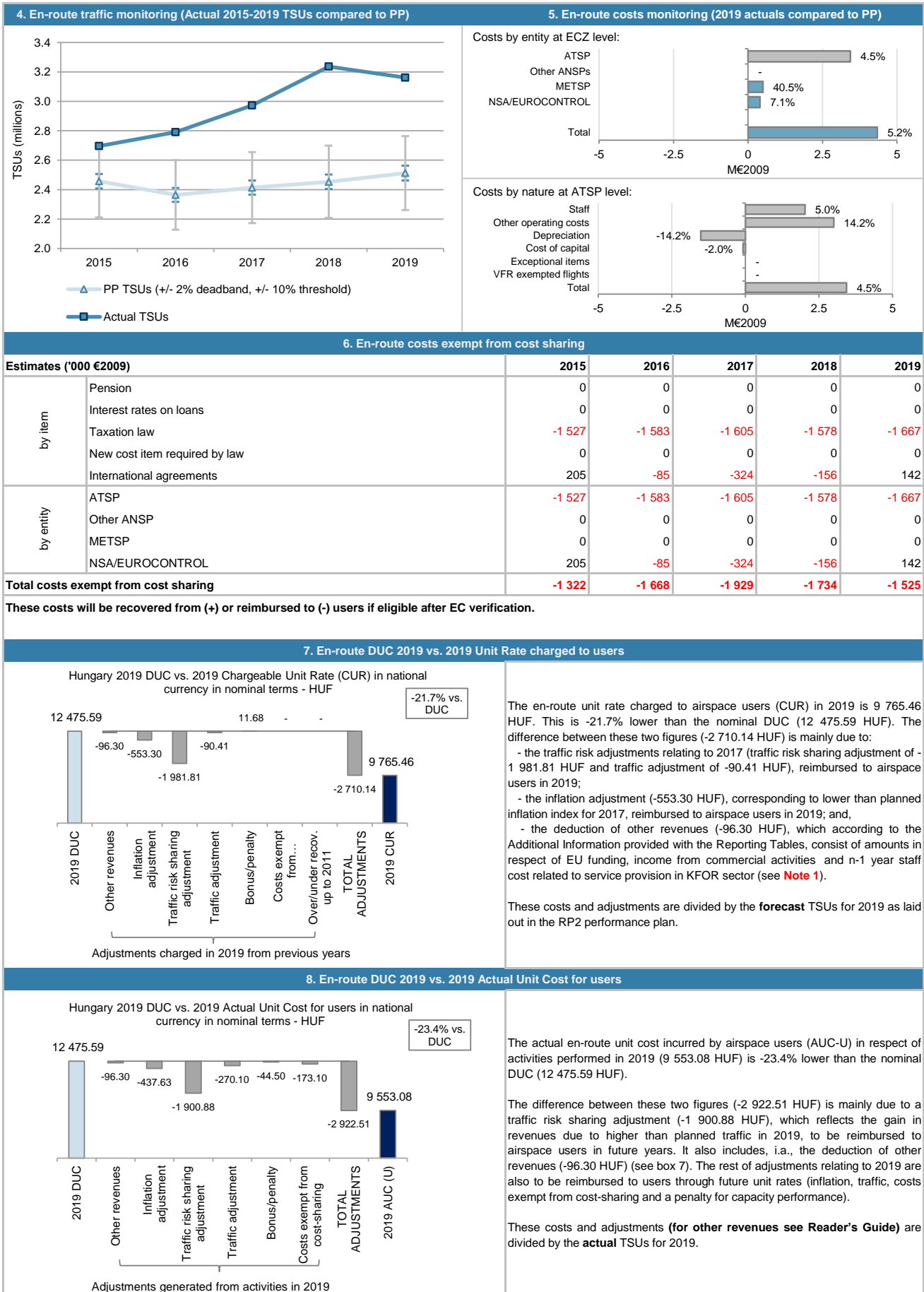
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Hungary ECZ represents 1.4% of the SES en-route ANS determined costs in 2019					
· ATSP: HungaroControl					
· FAB: FAB CE					
· National currency: HUF Exchange rate 2009: 1 EUR = 279.699 HUF					
2. En-route DUC monitoring at Charging Zone level					
Hungary: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal HUF)	28 133 097 383	29 114 984 951	29 632 945 277	30 406 204 408	31 345 254 629
Inflation %	1.8%	3.0%	3.0%	3.0%	3.0%
Inflation index (100 in 2009)	119.3	122.8	126.5	130.3	134.2
Real en-route costs (HUF2009)	23 587 547 923	23 699 795 100	23 418 852 735	23 330 056 076	23 350 067 982
Total en-route Service Units	2 457 201	2 364 165	2 413 812	2 453 639	2 512 526
<b>Real en-route unit cost per Service Unit (HUF2009)</b>	<b>9 599.36</b>	<b>10 024.60</b>	<b>9 702.02</b>	<b>9 508.35</b>	<b>9 293.46</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>34.32</b>	<b>35.84</b>	<b>34.69</b>	<b>33.99</b>	<b>33.23</b>
Hungary: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal HUF)	26 757 017 076	27 629 019 479	29 491 685 409	30 336 749 603	31 519 742 782
Inflation %	0.1%	0.4%	2.4%	2.9%	3.4%
Inflation index (100 in 2009)	117.3	117.8	120.6	124.1	128.3
Real en-route costs (HUF2009)	22 810 236 710	23 459 775 733	24 454 456 748	24 446 241 573	24 564 344 424
Total en-route Service Units	2 695 944	2 790 211	2 973 323	3 236 517	3 161 594
<b>Real en-route unit cost per Service Unit (HUF2009)</b>	<b>8 460.95</b>	<b>8 407.89</b>	<b>8 224.62</b>	<b>7 553.26</b>	<b>7 769.61</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>30.25</b>	<b>30.06</b>	<b>29.41</b>	<b>27.00</b>	<b>27.78</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal HUF)	-1 376 080 307	-1 485 965 472	-141 259 868	-69 454 806	174 488 153
in %	-4.9%	-5.1%	-0.5%	-0.2%	0.6%
Inflation %	-1.7 p.p.	-2.6 p.p.	-0.6 p.p.	-0.1 p.p.	0.4 p.p.
Inflation index (100 in 2009)	-2.0 p.p.	-5.1 p.p.	-5.9 p.p.	-6.2 p.p.	-5.9 p.p.
Real en-route costs (HUF2009)	-777 311 213	-240 019 367	1 035 604 013	1 116 185 497	1 214 276 442
in %	-3.3%	-1.0%	4.4%	4.8%	5.2%
Total en-route Service Units	238 744	426 046	559 511	782 878	649 068
in %	9.7%	18.0%	23.2%	31.9%	25.8%
<b>Real en-route unit cost per Service Unit (HUF2009)</b>	<b>-1 138.41</b>	<b>-1 616.71</b>	<b>-1 477.40</b>	<b>-1 955.09</b>	<b>-1 523.86</b>
in %	<b>-11.9%</b>	<b>-16.1%</b>	<b>-15.2%</b>	<b>-20.6%</b>	<b>-16.4%</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-4.07</b>	<b>-5.78</b>	<b>-5.28</b>	<b>-6.99</b>	<b>-5.45</b>
in %	<b>-11.9%</b>	<b>-16.1%</b>	<b>-15.2%</b>	<b>-20.6%</b>	<b>-16.4%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (7 769.61 HUF2009 or 27.78 €2009) is -16.4% lower than planned in the PP (9 293.46 HUF2009 or 33.23 €2009). This results from the combination of much higher than planned TSUs (+25.8%) and higher than planned en-route costs in real terms (+5.2%, or +4.3 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+25.8%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (HungaroControl) retaining an amount of +3.4 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are +0.6% (+174.5 MHUF) higher than planned. However, since the actual inflation index is lower than planned (-5.9 p.p.), actual en-route costs are +5.2% (+4.3 M€2009) above plans when expressed in real terms.					
The higher than planned en-route costs in real terms are driven by HungaroControl (+4.5%, or +3.4 M€2009), the MET service provider (+40.5%, or +0.5 M€2009) and the NSAEUROCONTROL (+7.1%, or +0.4 M€2009). A detailed analysis is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -1.5 M€2009 comprising -1.7 M€2009 for unforeseen changes in national taxation law and +0.1 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +21.8% higher than planned, while actual costs in real terms are also +2.0% higher than the determined costs (some +2 348.7 MHUF2009 or +8.4 M€2009). As a result, the weighted average actual unit cost over RP2 (8 058.85 HUF2009 or 28.81 €2009) is -16.2% lower than planned in the NPP (9 620.77 HUF2009 or 34.40 €2009).					



**HUNGARY: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## HUNGARY: En-route ATSP (HungaroControl)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	77 413	77 777	76 773	76 484	76 583
Actual costs for the ATSP	74 349	76 603	80 286	80 240	80 019
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	3 064	1 174	-3 513	-3 756	-3 436
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-1 527	-1 583	-1 605	-1 578	-1 667
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 537</b>	<b>-409</b>	<b>-5 118</b>	<b>-5 334</b>	<b>-5 104</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	9.7%	18.0%	23.2%	31.9%	25.8%
Determined costs for the ATSP (PP) - based on actual inflation	76 996	79 189	78 606	78 318	78 127
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>3 322</b>	<b>3 484</b>	<b>3 459</b>	<b>3 446</b>	<b>3 438</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>87</b>	<b>-424</b>	<b>-392</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>4 859</b>	<b>3 075</b>	<b>-1 572</b>	<b>-2 313</b>	<b>-2 058</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	62 782	61 295	56 737	55 212	52 382
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	62 782	61 295	56 737	55 212	52 382
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	4 960	4 842	4 482	4 362	4 138
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	7.9%	7.9%	7.9%	7.9%	7.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	4 960	4 842	4 482	4 362	4 138
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>4 960</b>	<b>4 842</b>	<b>4 482</b>	<b>4 362</b>	<b>4 138</b>
<b>Revenue/costs for the en-route activity</b>	<b>77 413</b>	<b>77 777</b>	<b>76 773</b>	<b>76 484</b>	<b>76 583</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.4%</b>	<b>6.2%</b>	<b>5.8%</b>	<b>5.7%</b>	<b>5.4%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>7.9%</b>	<b>7.9%</b>	<b>7.9%</b>	<b>7.9%</b>	<b>7.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	47 555	46 287	48 763	46 620	51 354
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	47 555	46 287	48 763	46 620	51 354
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	3 757	3 657	3 852	3 683	4 057
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	7.9%	7.9%	7.9%	7.9%	7.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	3 757	3 657	3 852	3 683	4 057
Net ATSP gain(+)/loss(-) on en-route activity	4 859	3 075	-1 572	-2 313	-2 058
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>8 616</b>	<b>6 732</b>	<b>2 280</b>	<b>1 370</b>	<b>1 999</b>
<b>Revenue/costs for the en-route activity</b>	<b>79 208</b>	<b>79 678</b>	<b>78 714</b>	<b>77 927</b>	<b>77 961</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>10.9%</b>	<b>8.4%</b>	<b>2.9%</b>	<b>1.8%</b>	<b>2.6%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>18.1%</b>	<b>14.5%</b>	<b>4.7%</b>	<b>2.9%</b>	<b>3.9%</b>



**HUNGARY: En-route ATSP (HungaroControl)**

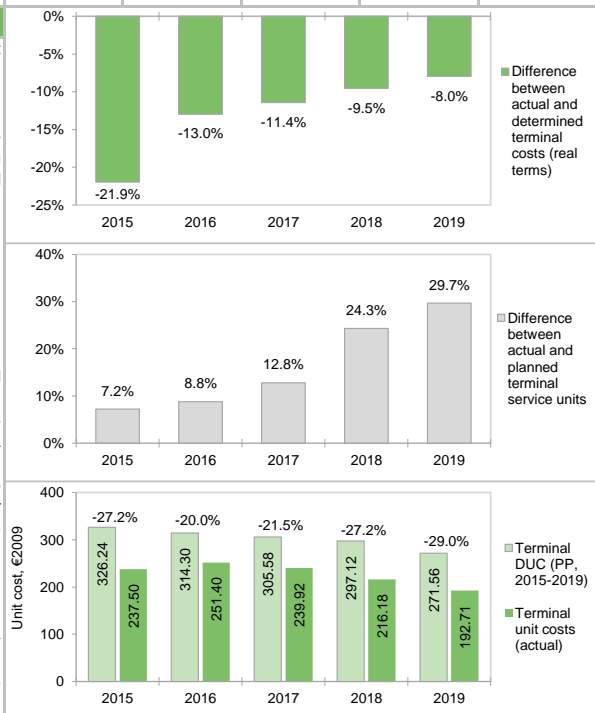
**Monitoring of en-route COST-EFFICIENCY for 2019**



## HUNGARY: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Hungary TCZ represents 1.6% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		No	
ATSP: HungaroControl		Airports with fewer than 70,000 IFRs ATMs:		0	
National currency: HUF		Airports with between 70,000 and 225,000 IFRs ATMs:		1	
Number of airports in charging zone in 2019: 1, of which:		Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level					
Hungary: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal HUF)	5 614 637 198	5 866 682 812	6 133 511 687	6 382 139 652	6 284 449 073
Inflation %	1.8%	3.0%	3.0%	3.0%	3.0%
Inflation index (100 in 2009)	119.3	122.8	126.5	130.3	134.2
Real terminal costs (HUF2009)	4 707 463 319	4 775 519 575	4 847 301 056	4 896 884 661	4 681 484 161
Total terminal Service Units	51 589	54 323	56 713	58 925	61 635
<b>Real terminal unit cost per Service Unit (HUF2009)</b>	<b>91 250.07</b>	<b>87 910.05</b>	<b>85 470.72</b>	<b>83 103.96</b>	<b>75 954.54</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>326.24</b>	<b>314.30</b>	<b>305.58</b>	<b>297.12</b>	<b>271.56</b>
Hungary: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal HUF)	4 310 296 431	4 895 199 717	5 177 203 686	5 497 048 126	5 527 882 541
Inflation %	0.1%	0.4%	2.4%	2.9%	3.4%
Inflation index (100 in 2009)	117.3	117.8	120.6	124.1	128.3
Real terminal costs (HUF2009)	3 674 508 321	4 156 509 702	4 292 928 731	4 429 682 421	4 308 055 799
Total terminal Service Units	55 315	59 113	63 974	73 261	79 925
<b>Real terminal unit cost per Service Unit (HUF2009)</b>	<b>66 429.11</b>	<b>70 315.04</b>	<b>67 104.27</b>	<b>60 464.46</b>	<b>53 901.34</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>237.50</b>	<b>251.40</b>	<b>239.92</b>	<b>216.18</b>	<b>192.71</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal HUF)	-1 304 340 767	-971 483 095	-956 308 001	-885 091 526	-756 566 532
	in %	-23.2%	-16.6%	-15.6%	-12.0%
Inflation %	-1.7 p.p.	-2.6 p.p.	-0.6 p.p.	-0.1 p.p.	0.4 p.p.
Inflation index (100 in 2009)	-2.0 p.p.	-5.1 p.p.	-5.9 p.p.	-6.2 p.p.	-5.9 p.p.
Real terminal costs (HUF2009)	-1 032 954 998	-619 009 873	-554 372 325	-467 202 240	-373 428 362
	in %	-21.9%	-13.0%	-11.4%	-9.5%
Total terminal Service Units	3 726	4 790	7 261	14 336	18 289
	in %	7.2%	8.8%	12.8%	24.3%
<b>Real terminal unit cost per Service Unit (HUF2009)</b>	<b>-24 820.96</b>	<b>-17 595.01</b>	<b>-18 366.45</b>	<b>-22 639.50</b>	<b>-22 053.20</b>
	in %	<b>-27.2%</b>	<b>-20.0%</b>	<b>-21.5%</b>	<b>-27.2%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-88.74</b>	<b>-62.91</b>	<b>-65.67</b>	<b>-80.94</b>	<b>-78.85</b>
	in %	<b>-27.2%</b>	<b>-20.0%</b>	<b>-21.5%</b>	<b>-27.2%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Hungary Terminal Charging Zone (TCZ) comprising only Budapest Liszt Ferenc International airport (LHBP).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (53 901.34 HUF2009 or 192.71 €2009) is -29.0% lower than planned in the PP (75 954.54 HUF2009 or 271.56 €2009). This results from the combination of much higher than planned TNSUs (+29.7%) and lower than planned terminal costs in real terms (-8.0%, or -1.3 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Hungary TCZ. In 2019, the actual TNSUs in Hungary TCZ are +29.7% higher than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -12.0% (-756.57 MHUF) lower than planned. However, since the actual inflation index is also lower than planned (-5.9 p.p.), actual terminal costs are -8.0% (-1.3 M€2009) below plans when expressed in real terms. The lower than planned terminal costs in real terms are driven by HungaroControl (-8.1%, or -1.3 M€2009), while the costs for the NSA (+4.7%, or +0.01 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12. Costs exempt from cost-sharing are reported for a total amount of -0.6 M€2009 corresponding to unforeseen changes in national taxation law. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual TNSUs are +17.1% higher than planned, while actual costs in real terms are -12.7% lower than the determined costs (some -10.9 M€2009). As a result, the weighted average actual unit cost over RP2 (62 914.63 HUF2009 or 224.94 €2009) is -25.5% lower than planned in the NPP (84 427.82 HUF2009 or 301.85 €2009).					



**HUNGARY: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	-8.1%
Other ANSPs	-
METSP	-
NSA	4.7%
<b>Total</b>	<b>-8.0%</b>

Costs by nature at ATSP level:

Staff	-
Other operating costs	-0.6%
Depreciation	-36.6%
Cost of capital	-29.3%
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>-8.1%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	-545	-572	-572	-579	-577
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	-545	-572	-572	-579	-577
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>-545</b>	<b>-572</b>	<b>-572</b>	<b>-579</b>	<b>-577</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

The terminal unit rate charged to airspace users (CUR) in 2019 is 86 505.97 HUF. This is -15.2% lower than the nominal DUC (101 961.77 HUF). The difference between these two figures (-15 455.80 HUF) relates mainly to:

- the inflation adjustment (-4 668.49 HUF), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019; and
- a traffic adjustment (-10 835.02 HUF), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (72 617.45 HUF) is -28.8% lower than the nominal DUC (101 961.77 HUF). The difference between these two figures (-29 344.32 HUF) is mainly due to:

- the inflation adjustment (-3 470.78 HUF), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic adjustment (-23 332.28 HUF), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years; and
- the adjustment for costs exempt from cost-sharing (-2 588.95 HUF) for the costs incurred in 2019 and to be reimbursed to airspace users in future reference period(s), if deemed eligible by the European Commission.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

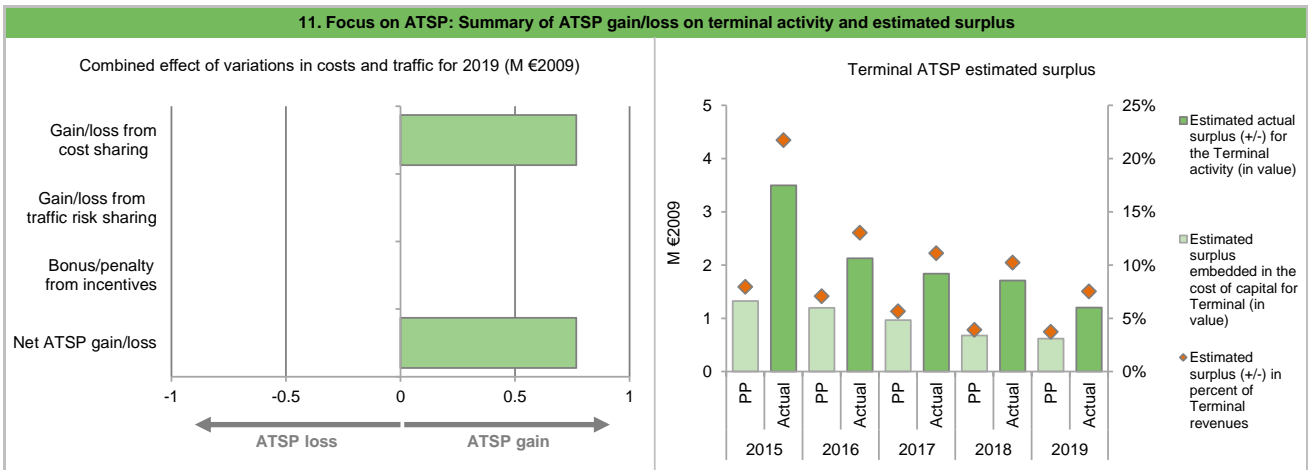
## HUNGARY: Terminal ATSP (HungaroControl)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	16 620	16 869	17 132	17 315	16 550
Actual costs for the ATSP	12 932	14 655	15 140	15 626	15 207
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	3 688	2 214	1 992	1 689	1 344
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-545	-572	-572	-579	-577
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>3 143</b>	<b>1 641</b>	<b>1 420</b>	<b>1 110</b>	<b>767</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>3 143</b>	<b>1 641</b>	<b>1 420</b>	<b>1 110</b>	<b>767</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	20 345	18 372	14 886	10 432	9 478
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	20 345	18 372	14 886	10 432	9 478
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	1 322	1 194	968	678	616
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.5%	6.5%	6.5%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	1 322	1 194	968	678	616
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 322</b>	<b>1 194</b>	<b>968</b>	<b>678</b>	<b>616</b>
<b>Revenue/costs for the terminal activity</b>	<b>16 620</b>	<b>16 869</b>	<b>17 132</b>	<b>17 315</b>	<b>16 550</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>8.0%</b>	<b>7.1%</b>	<b>5.6%</b>	<b>3.9%</b>	<b>3.7%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.5%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	5 410	7 459	6 466	9 261	6 701
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	5 410	7 459	6 466	9 261	6 701
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	352	485	420	602	436
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.5%	6.5%	6.5%	6.5%	6.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	352	485	420	602	436
Net ATSP gain(+)/loss(-) on terminal activity	3 143	1 641	1 420	1 110	767
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>3 494</b>	<b>2 126</b>	<b>1 840</b>	<b>1 712</b>	<b>1 203</b>
<b>Revenue/costs for the terminal activity</b>	<b>16 075</b>	<b>16 297</b>	<b>16 560</b>	<b>16 735</b>	<b>15 974</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>21.7%</b>	<b>13.0%</b>	<b>11.1%</b>	<b>10.2%</b>	<b>7.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>N/A</b>	<b>28.5%</b>	<b>28.5%</b>	<b>18.5%</b>	<b>17.9%</b>

**HUNGARY: Terminal ATSP (HungaroControl)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 HungaroControl terminal costs vs. PP**

In 2019, HungaroControl actual terminal costs are -8.1% (-1.3 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- slightly lower staff costs (-0.6%, or -0.06 M€2009) overall. The cancellation of the planned early retirement contribution (to be reimbursed to airspace users as cost exempt from cost-sharing) represents a decrease of -0.6 M€2009 compared to plan. If this is excluded, actual staff costs are +5.5% (+0.5 M€2009) higher than planned;
- higher other operating costs (+5.5%, or +0.2 M€2009);
- much lower depreciation costs (-36.6%, or -1.3 M€2009) due to "longer than planned implementation of rTWR. Also the technological concept of the remote tower has changed compared to the Performance Plan, this modification caused a difference in side-investments. (e.g. renewal of tower systems)"; and
- much lower cost of capital (-29.3%, or -0.2 M€2009) due to "increased traffic resulted in higher level of cash and cash equivalents, consequently a lower level of asset base for cost of capital".

**HungaroControl net gain/loss on terminal activity in 2019**

As shown in box 9, HungaroControl generated a net gain of +0.8 M€2009 on the terminal activity arising from the cost sharing mechanism.

The gain from cost sharing mentioned above (+0.8 M€2009) includes amounts reported by HungaroControl for cost exempt from cost sharing (-0.6 M€2009). Should these costs not be deemed eligible by the European Commission, HungaroControl would record a net gain of +1.3 M€2009 for the terminal activity in 2019.

**HungaroControl overall estimated surplus for the terminal activity**

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+0.8 M€2009) and the surplus embedded in the actual cost of capital (+0.4 M€2009) amounts to +1.2 M€2009 (7.5% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 17.9%, which is much higher than the 6.5% planned in the PP.

When considering the whole of RP2 (2015-2019), HungaroControl generated cumulative gains in respect of cost sharing of +8.1 M€2009, as actual total costs for RP2 were lower than planned. The TCZ is not subject to traffic risk sharing. Adding the estimated surplus embedded in the terminal cost of capital (+2.3 M€2009 over RP2) leads to an overall estimated surplus of +10.4 M€2009, which corresponds to an average ex-post return on equity of 29.4% (compared to 6.5% as initially planned in the NPP).

## HUNGARY: Gate-to-gate

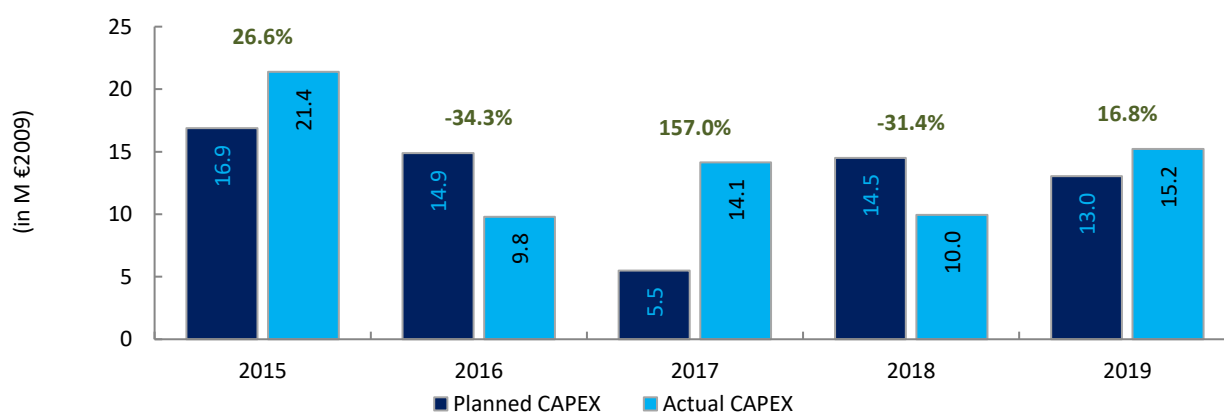
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Hungary: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	84 331 899	84 733 214	83 728 768	83 411 296	83 482 844																																							
Real terminal costs (EUR2009)	16 830 462	17 073 781	17 330 420	17 507 695	16 737 579																																							
Real gate-to-gate costs (EUR2009)	101 162 361	101 806 995	101 059 188	100 918 991	100 220 423																																							
En-route share (%)	83.4%	83.2%	82.9%	82.7%	83.3%																																							
<b>Hungary: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	81 552 800	83 875 079	87 431 334	87 401 963	87 824 213																																							
Real terminal costs (EUR2009)	13 137 367	14 860 653	15 348 388	15 837 319	15 402 471																																							
Real gate-to-gate costs (EUR2009)	94 690 167	98 735 732	102 779 722	103 239 282	103 226 684																																							
En-route share (%)	86.1%	84.9%	85.1%	84.7%	85.1%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	-6 472 194	-3 071 263	1 720 534	2 320 292	3 006 261																																							
in %	-6.4%	-3.0%	1.7%	2.3%	3.0%																																							
En-route share in p.p.	2.8 p.p.	1.7 p.p.	2.2 p.p.	2.0 p.p.	1.8 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +3.0% (+3.0 M€2009) higher than planned due to higher than planned en-route costs (+5.2%, or +4.3 M€2009) while terminal costs are lower than planned (-8.0%, or -1.3 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (85.1%) is slightly higher than planned in the PP for 2019 (83.3%).</p> <p>For HungaroControl, the estimated gate-to-gate economic surplus in 2019 amounts to 3.2 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 3.4% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>83.4%</td> <td>16.6%</td> </tr> <tr> <td>Actual</td> <td>86.1%</td> <td>13.9%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>83.2%</td> <td>16.8%</td> </tr> <tr> <td>Actual</td> <td>84.9%</td> <td>15.1%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>82.9%</td> <td>17.1%</td> </tr> <tr> <td>Actual</td> <td>85.1%</td> <td>14.9%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>82.7%</td> <td>17.3%</td> </tr> <tr> <td>Actual</td> <td>84.7%</td> <td>15.3%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>83.3%</td> <td>16.7%</td> </tr> <tr> <td>Actual</td> <td>85.1%</td> <td>14.9%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	83.4%	16.6%	Actual	86.1%	13.9%	2016	Determined	83.2%	16.8%	Actual	84.9%	15.1%	2017	Determined	82.9%	17.1%	Actual	85.1%	14.9%	2018	Determined	82.7%	17.3%	Actual	84.7%	15.3%	2019	Determined	83.3%	16.7%	Actual	85.1%	14.9%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	83.4%	16.6%																																									
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	Actual	85.1%	14.9%																																									
<b>3. Technical notes on en-route and terminal information reported by Hungary</b>																																												
<b>Note 1: ATS provision in Kosovo (KFOR sector)</b>																																												
<p>HungaroControl was designated for the provision of air traffic services in the upper airspace over Kosovo (KFOR sector) for 5 years starting from 3 April 2014, and renewed in 2019 for an indefinite period of time. The actual costs for 2019 for Hungary en-route charging zone include cost for these services (e.g. ATCO staff cost), which are recovered through the charges of Serbia-Montenegro-KFOR en-route charging zone (outside the SES area). In agreement with the European Commission, Hungary committed to deduct the income received for the services provided to the KFOR sector as 'other revenues' in the Hungarian cost base to avoid double charging.</p>																																												

## HUNGARY

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: HungaroControl						
FAB: FAB CE						
Currency: HUF						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	5 635.0	5 119.0	1 948.0	5 290.0	4 894.0	22 886.0
Main CAPEX (in nominal M)	2 842.0	3 616.0	885.0	4 427.0	4 131.0	15 901.0
Inflation %	1.8%	3.0%	3.0%	3.0%	3.0%	
Inflation index (100 in 2009)	119.3	122.8	126.5	130.3	134.2	
Exchange rate 2009 (1 EUR =)	279.699	279.699	279.699	279.699	279.699	
<b>Total CAPEX (in M €2009)</b>	<b>16.9</b>	<b>14.9</b>	<b>5.5</b>	<b>14.5</b>	<b>13.0</b>	<b>64.8</b>
Main CAPEX (in M €2009)	8.5	10.5	2.5	12.1	11.0	44.7
% Main of Total CAPEX	50.4%	70.6%	45.4%	83.7%	84.4%	68.9%
Real gate-to-gate ANSP costs (in M €2009)	94.0	94.6	93.9	93.8	93.1	469.5
Total CAPEX as % of Real gate-to-gate ANSP costs	18.0%	15.7%	5.9%	15.5%	14.0%	13.8%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	7 013.7	3 225.7	4 770.7	3 456.8	5 461.7	23 928.7
Main CAPEX (in nominal M)	4 572.8	1 117.7	2 640.7	1 449.0	2 782.6	12 562.7
Inflation %	0.1%	0.4%	2.4%	2.9%	3.4%	
Inflation index (100 in 2009)	117.3	117.8	120.6	124.1	128.3	
Exchange rate 2009 (1 EUR =)	279.699	279.699	279.699	279.699	279.699	
<b>Total CAPEX (in M €2009)</b>	<b>21.4</b>	<b>9.8</b>	<b>14.1</b>	<b>10.0</b>	<b>15.2</b>	<b>70.5</b>
Main CAPEX (in M €2009)	13.9	3.4	7.8	4.2	7.8	37.1
% Main of Total CAPEX	65.2%	34.6%	55.4%	41.9%	50.9%	52.6%
Real gate-to-gate ANSP costs (in M €2009)	87.3	91.3	95.4	95.9	95.2	465.1
Total CAPEX as % of Real gate-to-gate ANSP costs	24.5%	10.7%	14.8%	10.4%	16.0%	15.2%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	1 378.7	-1 893.3	2 822.7	-1 833.2	567.7	1 042.7
Total CAPEX (in M €2009)	4.5	-5.1	8.6	-4.6	2.2	5.7
<b>Total CAPEX (in %, M €2009)</b>	<b>26.6%</b>	<b>-34.3%</b>	<b>157.0%</b>	<b>-31.4%</b>	<b>16.8%</b>	<b>8.7%</b>



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# Annual Monitoring Report 2019

## Local level view

### Slovakia

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## SLOVAKIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	61	C	D	B	C	B
LPS SR	89	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	CAA/LPS					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	5	2				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>15</b>	<b>3</b>				
LPS SR	Number of questions answered					
	YES	NO				
Policy and its implementation	10	3				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>20</b>	<b>4</b>				
Observations						
Two Components of the EoSM of the State (Safety Assurance, and Safety Culture) did not meet the 2019 EoSM target level "C". Three out of 36 questions failed to reach level C. These three questions were self-assessed and not reviewed by EASA.						

## SLOVAKIA

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

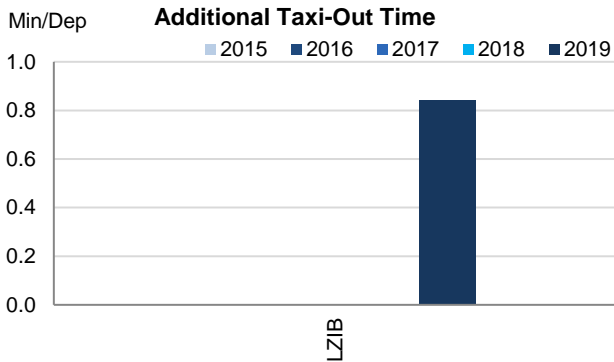
## 1. Overview

Slovakia has only identified its main airport Bratislava as subject to RP2 monitoring. The Airport Operator Data Flow, necessary for the calculation of ATC pre-departure delay was finally established for LZIB in August 2018, and the additional taxi times can be calculated for the first time in 2019.

The provision of data in 2018 did not cover the required information to calculate taxi times, so the indicator cannot be monitored.

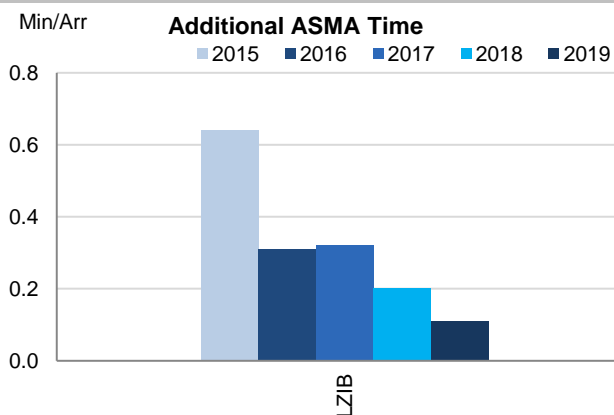
Traffic at Bratislava has decreased by 5% in 2019, resulting in a total increase of 14% since the beginning of RP2. Despite this higher traffic levels, the additional times in the terminal area have drastically reduced in the reference period.

## 2. Additional Taxi-Out Time



The additional taxi-out times in Bratislava during 2019 resulted in an annual average of 0.84 min/dep. Nevertheless, most of the year the additional times were lower, but the performance in January, when additional times averaged more than 4 min/dep., influence negatively the annual average.

## 3. Additional ASMA Time



Performance in terms of additional ASMA times has further improved, reaching a negligible 0.11 min/arr. The highest value is observed in January, while several months show zero additional times (no holding necessary in the approach).

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bratislava	LZIB	n/a	n/a	n/a	n/a	0.84	0.64	0.31	0.32	0.20	0.11

**SLOVAKIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.10	0.10	0.10	0.11	0.10	
Deadband +/-	0.03	0.03	0.03	0.03	0.03	
Actual performance	0.07	0.03	0.03	0.21	0.07	

**National capacity incentive scheme**

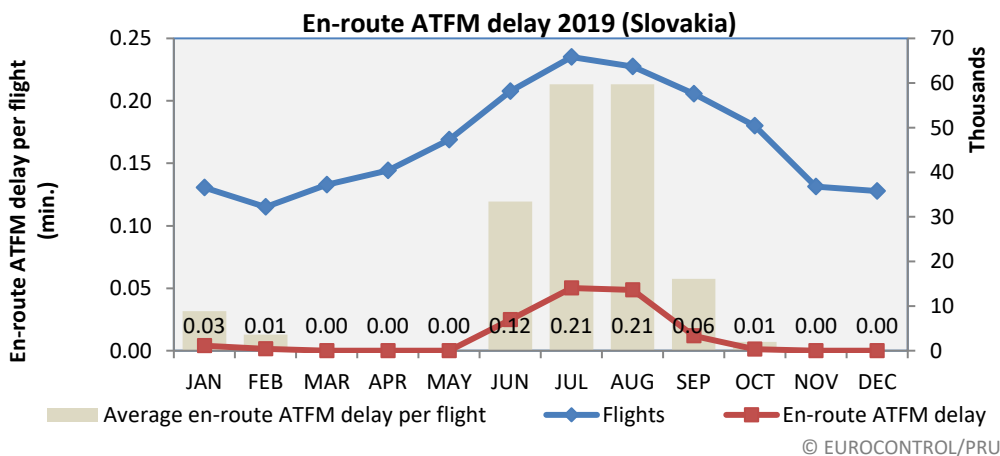
National target: 0.10 minutes.

Actual result: 0.07 min at national level (ATFM delay calculation at FIR level).

There is no bonus since although Slovakia exceeded its national target, FAB CE did not meet its target.

Outcome of 2019: Neither bonus nor penalty

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.16	0.06	0.10	0.00	0.00	0.00	0.14	0.07	0.03	0.03	0.21	0.07

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
High	415		445		472		497		522		549	
Base	408	<b>436</b>	433	<b>468</b>	450	<b>498</b>	466	<b>515</b>	480	<b>567</b>	499	<b>562</b>
Low	402		420		427		435		443		452	

Even though traffic decreased year on year, Slovakia handled more traffic than predicted in the STATFOR forecasts in 2014 for each year in RP2.

Capacity performance improved significantly from 2018 with delays reducing by 67% from 0.21 minutes per flight to 0.07 minute per flight.

57% of delays were attributed to adverse weather with the remaining delays attributed to ATC capacity.

Delay forecast - LPS						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.07	0.08	0.14	0.20	N/A	N/A
NOP 2019 - 2024	0.71	0.76	0.92 - 1.54			

### Planning and Effective Use of CDRs

The data is not available at national level.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
57%	31%	48%	45%	42%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	0%	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## SLOVAKIA

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

In Slovakia, ANS at Bratislava (LZIB) are subject to RP2 monitoring, where traffic levels have significantly increased during RP2 (+14.0% with respect to 2015) but decreased by 5% in 2019 with respect to the previous year.

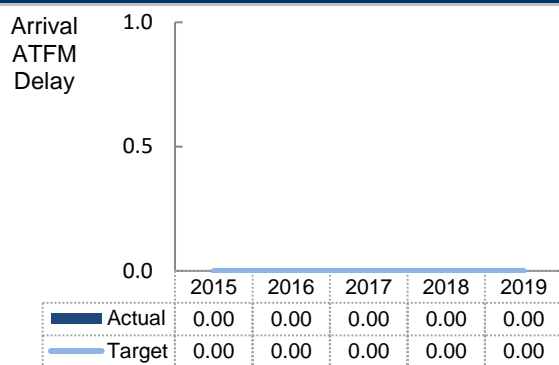
Arrival ATFM delays are at zero like in the beginning of the reference period and adherence to ATFM slots remains within best in class at 98.4%

Slovakia has established a national target of 0 min/arr. which was met in all years in RP2 so far, showing no capacity constraints.

Slovakia contributes adequately to the airport related ANS Capacity performance in FAB CE and Europe.

The Airport Operator Data Flow, necessary for the calculation of ATC pre-departure delay was finally established for LZIB in the Summer of 2018 but unfortunately data quality issues prevent the calculation of the indicator for 2019.

## 2. Arrival ATFM Delay



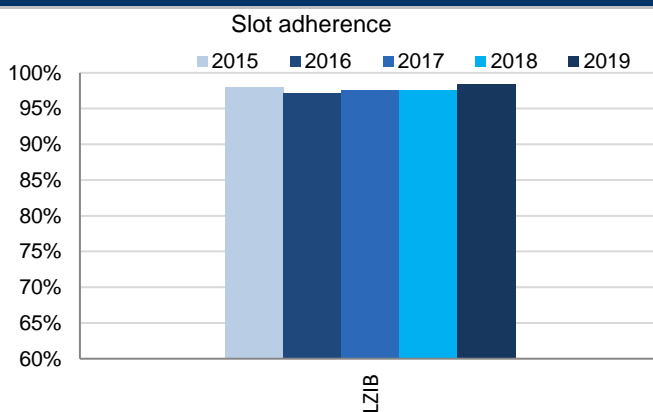
ANS at Bratislava (LZIB) did not accrue any arrival ATFM delays in the entire reference period despite the traffic increase. This performance is commensurate with the level of air traffic.

Due to the absence of any capacity constraints, the national target is established at 0 min/arr. for the whole reference period and met every year.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The FAB CE performance plan sets a national target on arrival ATFM delay for Slovakia but no associated incentive scheme, so although the national target is met, no bonus applies.

## 4. ATFM Slot Adherence



ATFM slot adherence at Bratislava (LZIB) remains well above the 95% threshold and the performance is very stable.

## 5. ATC Pre-departure Delay

Although the Airport Operator Data Flow was established in 2018, the calculation of the indicator ATC pre-departure delay requires a minimum data quality that is not achieved for several months in 2019.

## 6. Appendix

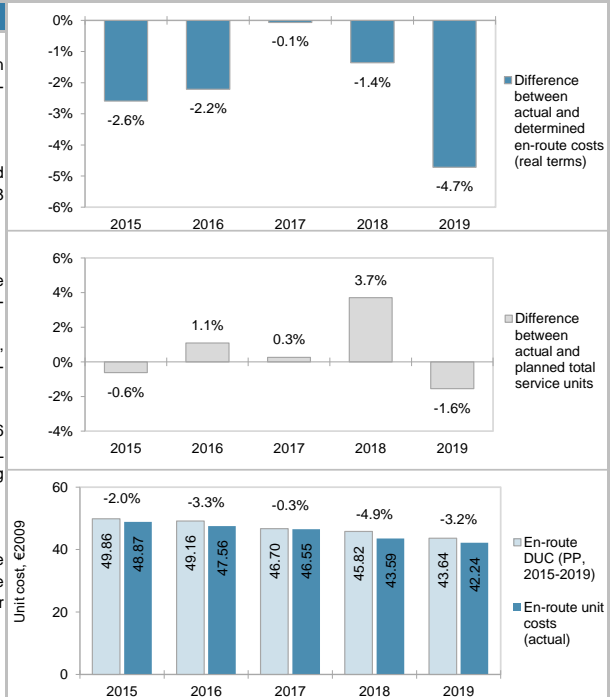
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bratislava	LZIB	0.00	0.00	0.00	0.00	0.00	98.0%	97.2%	97.6%	97.6%	98.4%	n/a	n/a	n/a	n/a	n/a

## SLOVAKIA: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

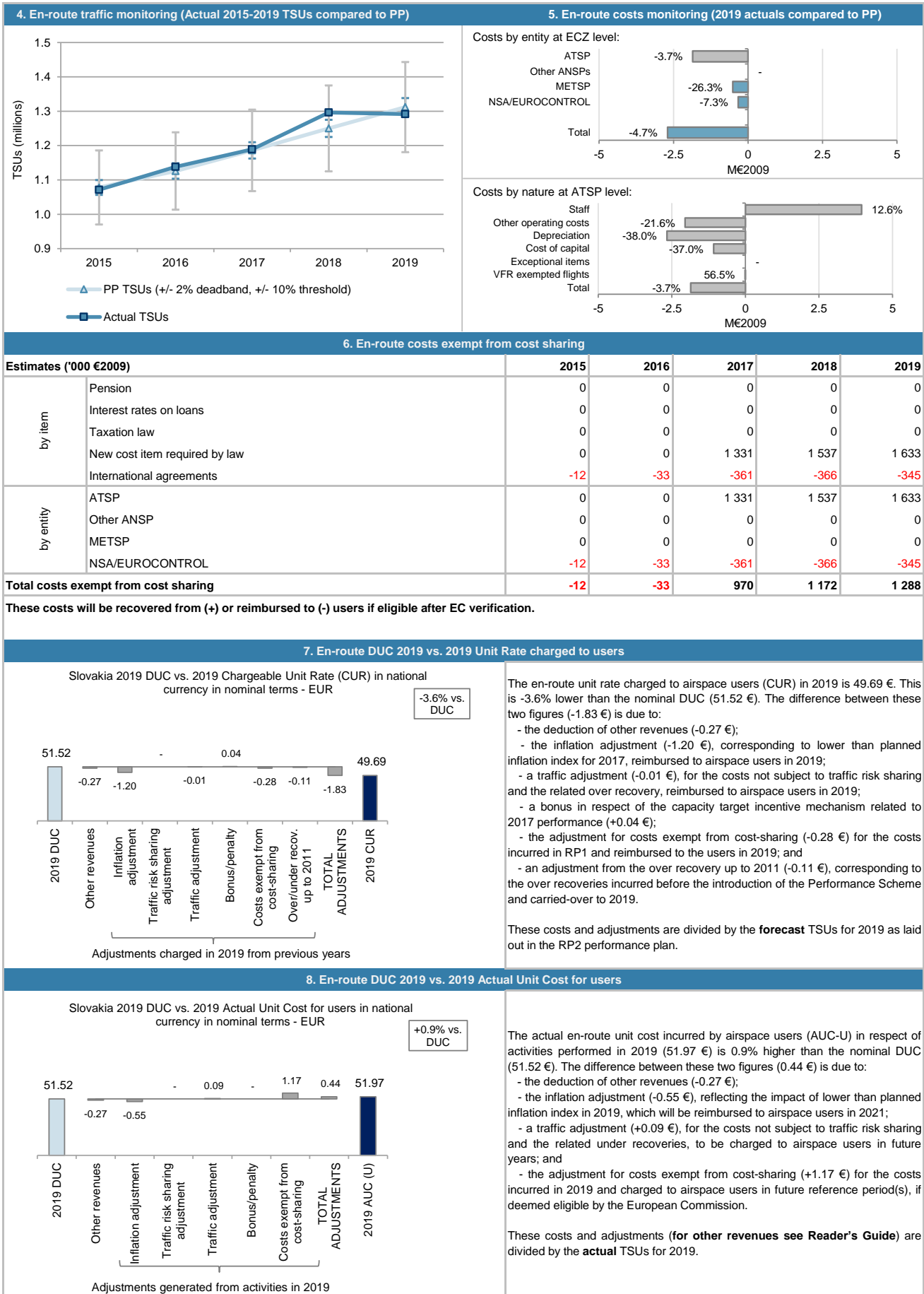
1. Contextual economic information: en-route air navigation services					
· Slovakia ECZ represents 1.0% of the SES en-route ANS determined costs in 2019					
· ATSP: LPS					
· FAB: FAB CE					
· National currency: EUR					
2. En-route DUC monitoring at Charging Zone level					
Slovakia: Data from RP2 Performance Plan (EC Decision 2016/599 of 15 April 2016)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	59 272 906	61 912 217	62 981 088	66 300 093	67 598 994
Inflation %	0.0%	1.4%	1.7%	1.8%	2.0%
Inflation index (100 in 2009)	110.3	111.8	113.7	115.7	118.1
Real en-route costs (EUR2009)	53 754 368	55 355 807	55 381 628	57 279 434	57 253 112
Total en-route Service Units	1 078 000	1 126 000	1 186 000	1 250 000	1 312 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>49.86</b>	<b>49.16</b>	<b>46.70</b>	<b>45.82</b>	<b>43.64</b>
Slovakia: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	57 543 515	59 191 004	61 367 348	64 214 826	63 734 085
Inflation %	-0.3%	-0.5%	1.4%	2.5%	2.8%
Inflation index (100 in 2009)	109.9	109.3	110.9	113.7	116.8
Real en-route costs (EUR2009)	52 361 339	54 131 116	55 346 566	56 502 122	54 551 676
Total en-route Service Units	1 071 382	1 138 250	1 189 020	1 296 243	1 291 606
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>48.87</b>	<b>47.56</b>	<b>46.55</b>	<b>43.59</b>	<b>42.24</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)					
in value	-1 729 391	-2 721 213	-1 613 740	-2 085 267	-3 864 909
in %	-2.9%	-4.4%	-2.6%	-3.1%	-5.7%
Inflation %					
in p.p.	-0.3 p.p.	-1.9 p.p.	-0.3 p.p.	0.7 p.p.	0.8 p.p.
Inflation index (100 in 2009)					
in p.p.	-0.4 p.p.	-2.5 p.p.	-2.8 p.p.	-2.1 p.p.	-1.2 p.p.
Real en-route costs (EUR2009)					
in value	-1 393 029	-1 224 691	-35 063	-777 312	-2 701 436
in %	-2.6%	-2.2%	-0.1%	-1.4%	-4.7%
Total en-route Service Units					
in value	-6 618	12 250	3 020	46 243	-20 394
in %	-0.6%	1.1%	0.3%	3.7%	-1.6%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>					
in value	<b>-0.99</b>	<b>-1.61</b>	<b>-0.15</b>	<b>-2.23</b>	<b>-1.40</b>
in %	<b>-2.0%</b>	<b>-3.3%</b>	<b>-0.3%</b>	<b>-4.9%</b>	<b>-3.2%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (42.24 €2009) is -3.2% lower than planned in the PP (43.64 €2009). This results from the combination of slightly lower than planned TSUs (-1.6%) and lower than planned en-route costs in real terms (-4.7%, or -2.7 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (-1.6%) falls inside the ±2% dead band foreseen in the traffic risk sharing mechanism. The resulting loss of en-route revenues (-0.8 M€2009) is therefore fully borne by the main ATSP (LPS).					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -5.7% (-3.9 M€) lower than planned. However, since the actual inflation index is also lower than planned (-1.2 p.p.), actual en-route costs are -4.7% (-2.7 M€2009) below plans when expressed in real terms.					
The lower than planned en-route costs in real terms are driven by LPS (-3.7%, or -1.9 M€2009), the MET service provider (-26.3%, or -0.5 M€2009) and the NSA/EUROCONTROL (-7.3%, or -0.3 M€2009). A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +1.3 M€2009 comprising +1.6 M€2009 for new cost item required by law and -0.3 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for the Slovakia charging zone, actual en-route TSUs are +0.6% higher than planned, while actual costs in real terms are -2.2% lower than the determined costs (some -6.1 M€2009). As a result, the weighted average actual unit cost over RP2 (45.58 €2009) is -2.8% lower than planned in the NPP (46.88 €2009).					





SLOVAKIA: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



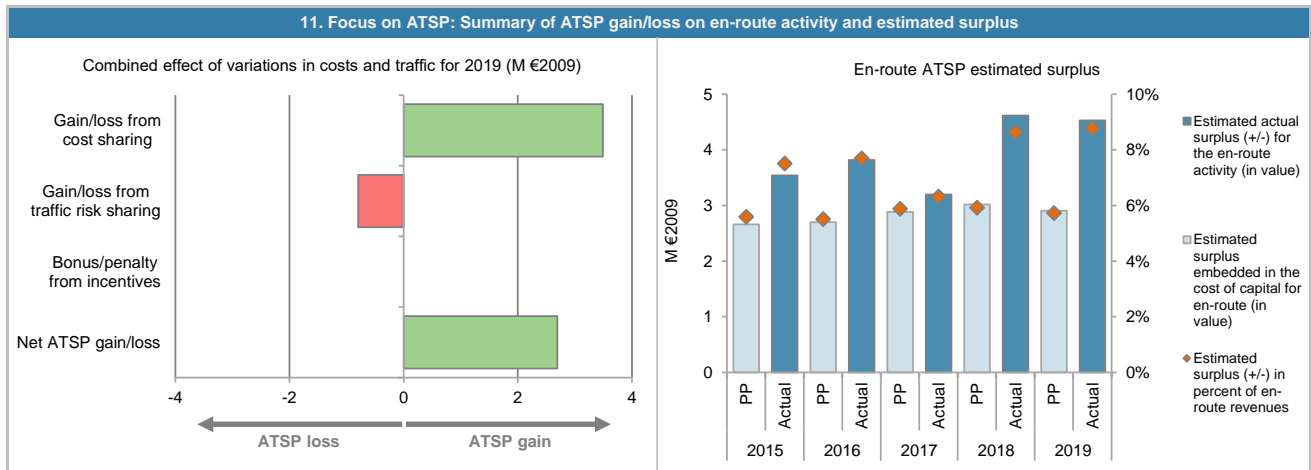
## SLOVAKIA: En-route ATSP (LPS)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	47 459	48 948	49 073	50 888	50 755
Actual costs for the ATSP	46 046	48 194	49 680	50 850	48 898
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 414	754	-607	39	1 857
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	1 331	1 537	1 633
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 414</b>	<b>754</b>	<b>724</b>	<b>1 576</b>	<b>3 491</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.6%	1.1%	0.3%	3.7%	-1.6%
Determined costs for the ATSP (PP) - based on actual inflation	47 619	50 066	50 331	51 828	51 293
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-292</b>	<b>545</b>	<b>128</b>	<b>1 301</b>	<b>-797</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>83</b>	<b>43</b>	<b>-267</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>1 121</b>	<b>1 382</b>	<b>895</b>	<b>2 610</b>	<b>2 693</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	50 437	49 897	52 003	55 853	56 081
Estimated proportion of financing through equity (in %)	85.1%	88.7%	92.3%	96.2%	99.0%
Estimated proportion of financing through equity (in value)	42 915	44 259	48 022	53 718	55 545
Estimated proportion of financing through debt (in %)	14.9%	11.3%	7.7%	3.8%	1.0%
Estimated proportion of financing through debt (in value)	7 522	5 638	3 981	2 134	536
Cost of capital pre-tax (in value)	2 831	2 832	2 982	3 069	2 921
Average interest on debt (in %)	2.3%	2.4%	2.4%	2.5%	2.5%
Interest on debt (in value)	173	132	96	52	13
Determined RoE pre-tax rate (in %)	6.2%	6.1%	6.0%	5.6%	5.2%
Estimated surplus embedded in the cost of capital for en-route (in value)	2 658	2 699	2 886	3 016	2 908
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>2 658</b>	<b>2 699</b>	<b>2 886</b>	<b>3 016</b>	<b>2 908</b>
<b>Revenue/costs for the en-route activity</b>	<b>47 459</b>	<b>48 948</b>	<b>49 073</b>	<b>50 888</b>	<b>50 755</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>5.6%</b>	<b>5.5%</b>	<b>5.9%</b>	<b>5.9%</b>	<b>5.7%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.2%</b>	<b>6.1%</b>	<b>6.0%</b>	<b>5.6%</b>	<b>5.2%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	44 959	46 638	41 280	37 198	35 392
Estimated proportion of financing through equity (in %)	86.9%	85.5%	92.8%	96.1%	99.1%
Estimated proportion of financing through equity (in value)	39 087	39 891	38 319	35 743	35 072
Estimated proportion of financing through debt (in %)	13.1%	14.5%	7.2%	3.9%	0.9%
Estimated proportion of financing through debt (in value)	5 872	6 747	2 961	1 455	321
Cost of capital pre-tax (in value)	2 521	2 551	2 355	2 032	1 842
Average interest on debt (in %)	1.7%	1.8%	1.8%	1.8%	1.8%
Interest on debt (in value)	100	118	52	25	6
Determined RoE pre-tax rate (in %)	6.2%	6.1%	6.0%	5.6%	5.2%
Estimated surplus embedded in the cost of capital for en-route (in value)	2 421	2 433	2 303	2 007	1 836
Net ATSP gain(+)/loss(-) on en-route activity	1 121	1 382	895	2 610	2 693
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>3 543</b>	<b>3 815</b>	<b>3 198</b>	<b>4 617</b>	<b>4 529</b>
<b>Revenue/costs for the en-route activity</b>	<b>47 167</b>	<b>49 576</b>	<b>50 575</b>	<b>53 459</b>	<b>51 591</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>7.5%</b>	<b>7.7%</b>	<b>6.3%</b>	<b>8.6%</b>	<b>8.8%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>9.1%</b>	<b>9.6%</b>	<b>8.3%</b>	<b>12.9%</b>	<b>12.9%</b>

**SLOVAKIA: En-route ATSP (LPS)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 LPS en-route costs vs. PP**

In 2019, LPS actual en-route costs are -3.7% (-1.9 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- much higher staff costs (+12.6%, or +3.9 M€2009), resulting from: i) legislative changes in social and health insurance (as of 1st January 2017) and an increase in public holiday's bonus reimbursement (as of 2018), and ii) "additional benefits for ATCO's and certificated technical staff".
- much lower other operating costs (-21.6%, or -2.0 M€2009), driven by: i) "savings of maintenance costs (as a result of previous infrastructure investments)", ii) lower "prices of energies and telecommunication fees", and iii) "cost saving measures aimed to reduce travel costs and material costs".
- much lower depreciation costs (-38.0%, or -2.7 M€2009), explained by: i) "delays due to complexity in administrative and procurement process", and ii) "some projects were postponed to years after 2019 due to procedural constraints during contract signing."
- much lower cost of capital (-37.0%, or -1.1 M€2009), driven by lower than planned total en-route asset base (-36.9%, or -20.7 M€2009) result of the factors outlined above.

**LPS net gain/loss on en-route activity in 2019**

As shown in box 9, LPS generated a net gain of +2.7 M€2009 on the en-route activity. This is a combination of two elements:

- a gain of +3.5 M€2009 arising from the cost sharing mechanism; and
- a loss of -0.8 M€2009 arising from the traffic risk sharing mechanism.

The gain from cost sharing mentioned above (+3.5 M€2009) includes amounts reported by LPS for cost exempt from cost sharing (+1.6 M€2009). Should these costs not be deemed eligible by the European Commission, LPS would record a net gain of +1.1 M€2009 for the en-route activity in 2019.

**LPS overall estimated surplus for the en-route activity**

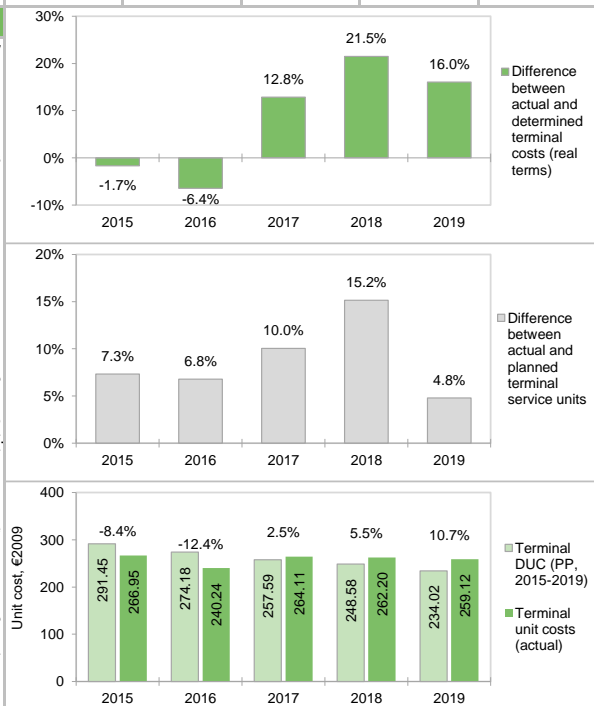
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+2.7 M€2009) and the surplus embedded in the actual cost of capital (+1.8 M€2009) amounts to +4.5 M€2009 (8.8% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 12.9%, which is much higher than the 5.2% planned in the PP.

When considering the whole of RP2 (2015-2019), LPS generated cumulative gains in respect of cost sharing of +8.0 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +0.9 M€2009, which reflects the fact that actual traffic was in general terms +0.6% higher than planned during RP2. Adding the loss of -0.1 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+11.0 M€2009 over RP2) leads to an overall estimated surplus of +19.7 M€2009, which corresponds to an average ex-post return on equity of 10.5% (compared to 5.8% as initially planned in the NPP).

## SLOVAKIA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Slovakia TCZ represents 0.3% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		No	
ATSP:	LPS	Airports with fewer than 70,000 IFRs ATMs:		1	
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		0	
Number of airports in charging zone in 2019:	1,	of which:	Airports with more than 225,000 IFRs ATMs:		0
2. Terminal DUC monitoring at Charging Zone level					
Slovakia: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	2 828 016	2 943 863	2 988 005	3 136 195	3 205 198
Inflation %	0.0%	1.4%	1.7%	1.8%	2.0%
Inflation index (100 in 2009)	110.3	111.8	113.7	115.7	118.1
Real terminal costs (EUR2009)	2 564 717	2 632 112	2 627 465	2 709 491	2 714 649
Total terminal Service Units	8 800	9 600	10 200	10 900	11 600
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>291.45</b>	<b>274.18</b>	<b>257.59</b>	<b>248.58</b>	<b>234.02</b>
Slovakia: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	2 771 137	2 692 990	3 287 126	3 740 319	3 680 036
Inflation %	-0.3%	-0.5%	1.4%	2.5%	2.8%
Inflation index (100 in 2009)	109.9	109.3	110.9	113.7	116.8
Real terminal costs (EUR2009)	2 521 578	2 462 782	2 964 624	3 291 077	3 149 839
Total terminal Service Units	9 446	10 251	11 225	12 552	12 156
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>266.95</b>	<b>240.24</b>	<b>264.11</b>	<b>262.20</b>	<b>259.12</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-56 879	-250 873	299 121	604 124	474 838
	in %				
	-2.0%	-8.5%	10.0%	19.3%	14.8%
Inflation %	-0.3 p.p.	-1.9 p.p.	-0.3 p.p.	0.7 p.p.	0.8 p.p.
Inflation index (100 in 2009)	-0.4 p.p.	-2.5 p.p.	-2.8 p.p.	-2.1 p.p.	-1.2 p.p.
Real terminal costs (EUR2009)	-43 139	-169 330	337 159	581 587	435 190
	in %				
	-1.7%	-6.4%	12.8%	21.5%	16.0%
Total terminal Service Units	646	651	1 025	1 652	556
	in %				
	7.3%	6.8%	10.0%	15.2%	4.8%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>
	<b>-24.50</b>	<b>-33.94</b>	<b>6.51</b>	<b>13.62</b>	<b>25.10</b>
	<b>in %</b>	<b>in %</b>	<b>in %</b>	<b>in %</b>	<b>in %</b>
	<b>-8.4%</b>	<b>-12.4%</b>	<b>2.5%</b>	<b>5.5%</b>	<b>10.7%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Slovakia Terminal Charging Zone (TCZ) comprising only Bratislava/M.R. Štefánik (LZIB) airport.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (259.12 €2009) is +10.7% higher than planned in the PP (234.02 €2009). This results from the combination of higher than planned TNSUs (+4.8%) and much higher than planned terminal costs in real terms (+16.0%, or +0.4 M€2009). No corrective measures are detailed in the FAB CE monitoring report.					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Slovakia TCZ. In 2019, the actual TNSUs in Slovakia TCZ are +4.8% higher than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +14.8% (+0.5 M€) higher than planned. However, since the actual inflation index is lower than planned (-1.2 p.p.), actual terminal costs are +16.0% (+0.4 M€2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by LPS (+19.0%, or +0.5 M€2009), while the costs for the MET service provider (-14.1%, or -0.03 M€2009) and the NSA (-2.7%) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +0.1 M€2009 corresponding to new cost item required by law. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Slovakia TCZ, actual TNSUs are +8.9% higher than planned, while actual costs in real terms are also +8.6% higher than the determined costs (some +1.1 M€2009). As a result, the weighted average actual unit cost over RP2 (258.67 €2009) is -0.2% lower than planned in the NPP (259.26 €2009).					



**SLOVAKIA: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	19.0%
Other ANSPs	-
METSP	-14.1%
NSA	-2.7%
Total	16.0%

Costs by nature at ATSP level:

Staff	27.9%
Other operating costs	5.7%
Depreciation	-
Cost of capital	7.1%
Exceptional items	-
VFR exempted flights	-
Total	19.0%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	85	86	91
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	85	86	91
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>85</b>	<b>86</b>	<b>91</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Slovakia 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 241.58 €. This is -12.6% lower than the nominal DUC (276.31 €). The difference between these two figures (-34.73 €) relates to:

- the deduction of other revenues (-4.74 €);
- the inflation adjustment (-6.44 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019; and
- a traffic adjustment (-23.55 €), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Slovakia 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (264.95 €) is -4.1% lower than the nominal DUC (276.31 €). The difference between these two figures (-11.36 €) is mainly due to:

- the deduction of other revenues (-4.74 €);
- the inflation adjustment (-2.76 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users;
- a traffic adjustment (-12.64 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years; and
- the adjustment for costs exempt from cost-sharing (+8.78 €) for the costs incurred in 2019 and charged to airspace users in future, if deemed eligible by the European Commission.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## SLOVAKIA: Terminal ATSP (LPS)

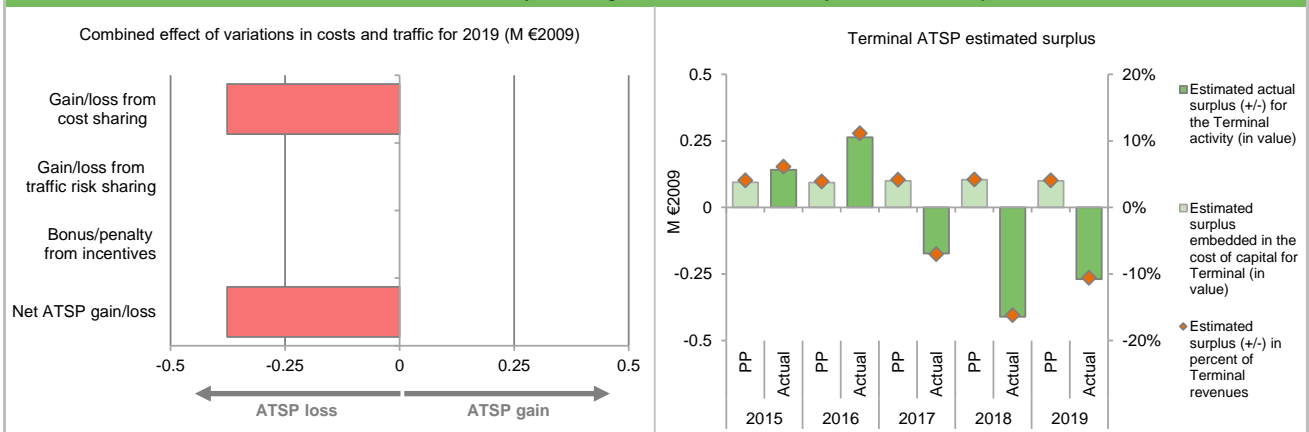
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	2 299	2 368	2 388	2 458	2 457
Actual costs for the ATSP	2 254	2 207	2 746	3 069	2 925
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	44	162	-358	-612	-468
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	85	86	91
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>44</b>	<b>162</b>	<b>-272</b>	<b>-526</b>	<b>-377</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>44</b>	<b>162</b>	<b>-272</b>	<b>-526</b>	<b>-377</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	1 783	1 719	1 791	1 924	1 932
Estimated proportion of financing through equity (in %)	85.1%	88.7%	92.4%	96.2%	99.0%
Estimated proportion of financing through equity (in value)	1 517	1 525	1 654	1 851	1 914
Estimated proportion of financing through debt (in %)	14.9%	11.3%	7.6%	3.8%	1.0%
Estimated proportion of financing through debt (in value)	266	194	137	74	18
Cost of capital pre-tax (in value)	100	98	103	106	101
Average interest on debt (in %)	2.3%	2.4%	2.4%	2.5%	2.5%
Interest on debt (in value)	6	5	3	2	0
Determined RoE pre-tax rate (in %)	6.2%	6.1%	6.0%	5.6%	5.2%
Estimated surplus embedded in the cost of capital for terminal (in value)	94	93	99	104	100
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>94</b>	<b>93</b>	<b>99</b>	<b>104</b>	<b>100</b>
<b>Revenue/costs for the terminal activity</b>	<b>2 299</b>	<b>2 368</b>	<b>2 388</b>	<b>2 458</b>	<b>2 457</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>4.1%</b>	<b>3.9%</b>	<b>4.2%</b>	<b>4.2%</b>	<b>4.1%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.2%</b>	<b>6.1%</b>	<b>6.0%</b>	<b>5.6%</b>	<b>5.2%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	1 796	1 858	1 777	2 128	2 071
Estimated proportion of financing through equity (in %)	86.9%	90.2%	92.8%	96.1%	99.1%
Estimated proportion of financing through equity (in value)	1 561	1 675	1 650	2 045	2 052
Estimated proportion of financing through debt (in %)	13.1%	9.8%	7.2%	3.9%	0.9%
Estimated proportion of financing through debt (in value)	235	182	128	83	19
Cost of capital pre-tax (in value)	101	105	101	116	108
Average interest on debt (in %)	1.7%	1.8%	1.8%	1.8%	1.8%
Interest on debt (in value)	4	3	2	1	0
Determined RoE pre-tax rate (in %)	6.2%	6.1%	6.0%	5.6%	5.2%
Estimated surplus embedded in the cost of capital for terminal (in value)	97	102	99	115	107
Net ATSP gain(+)/loss(-) on terminal activity	44	162	-272	-526	-377
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>141</b>	<b>264</b>	<b>-173</b>	<b>-411</b>	<b>-269</b>
<b>Revenue/costs for the terminal activity</b>	<b>2 299</b>	<b>2 368</b>	<b>2 473</b>	<b>2 544</b>	<b>2 549</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>6.1%</b>	<b>11.1%</b>	<b>-7.0%</b>	<b>-16.2%</b>	<b>-10.6%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>9.0%</b>	<b>15.8%</b>	<b>-10.5%</b>	<b>-20.1%</b>	<b>-13.1%</b>

## SLOVAKIA: Terminal ATSP (LPS)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 LPS terminal costs vs. PP

In 2019, LPS actual terminal costs are +19.0% (+0.5 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much higher staff costs (+27.9%, or +0.5 M€2009), resulting from: i) legislative changes in social and health insurance (as of 1st January 2017) and an increase in public holiday's bonus reimbursement (as of 2018), and ii) "additional benefits for ATCO's and certificated technical staff".
- higher other operating costs (+5.7%, or +0.02 M€2009), mainly driven by "provisions for receivables".
- much lower depreciation costs (-20.1%, or -0.05 M€2009), explained by: i) "delays due to complexity in administrative and procurement process", and ii) "some projects were postponed to years after 2019 due to procedural constraints during contract signing."
- higher cost of capital (+7.1%, or +0.01 M€2009);

## LPS net gain/loss on terminal activity in 2019

As shown in box 9, LPS generated a net loss of -0.4 M€2009 on the terminal activity arising from the cost sharing mechanism.

The loss from cost sharing mentioned above (-0.4 M€2009) includes amounts reported by LPS for cost exempt from cost sharing (+0.1 M€2009). Should these costs not be deemed eligible by the European Commission, LPS would record a net loss of -0.5 M€2009 for the terminal activity in 2019.

## LPS overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-0.4 M€2009) and the surplus embedded in the actual cost of capital (+0.1 M€2009) amounts to -0.3 M€2009 (10.6% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -13.1%, which indicates that the surplus embedded in the cost of capital (5.2%) was not sufficient to compensate for the losses arising from the cost sharing mechanism due to higher than planned terminal costs for LPS. In this respect, it should be noted that this is the third consecutive year in which a negative surplus is recorded for LPS for terminal activity in the TCZ.

When considering the whole of RP2 (2015-2019), LPS generated cumulative losses in respect of cost sharing of -1.0 M€2009, as actual total costs for RP2 were higher than planned. The TCZ is not subject to traffic risk sharing. Adding the estimated surplus embedded in the terminal cost of capital (+0.5 M€2009 over RP2) leads to an overall estimated loss of -0.4 M€2009, which corresponds to a negative average ex-post return on equity of -5.0% (compared to 5.8% as initially planned in the NPP), which indicates that the surplus embedded in the cost of capital was not sufficient to compensate for the losses arising from the cost sharing mechanism due to higher than planned terminal costs for LPS.

## SLOVAKIA: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Slovakia: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	53 754 368	55 355 807	55 381 628	57 279 434	57 253 112																																							
Real terminal costs (EUR2009)	2 564 717	2 632 112	2 627 465	2 709 491	2 714 649																																							
Real gate-to-gate costs (EUR2009)	56 319 084	57 987 919	58 009 093	59 988 925	59 967 761																																							
En-route share (%)	95.4%	95.5%	95.5%	95.5%	95.5%																																							
<b>Slovakia: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	52 361 339	54 131 116	55 346 566	56 502 122	54 551 676																																							
Real terminal costs (EUR2009)	2 521 578	2 462 782	2 964 624	3 291 077	3 149 839																																							
Real gate-to-gate costs (EUR2009)	54 882 916	56 593 899	58 311 190	59 793 199	57 701 515																																							
En-route share (%)	95.4%	95.6%	94.9%	94.5%	94.5%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	-1 436 168	-1 394 021	302 097	-195 725	-2 266 246																																							
in %	-2.6%	-2.4%	0.5%	-0.3%	-3.8%																																							
En-route share in p.p.	-0.0 p.p.	0.2 p.p.	-0.6 p.p.	-1.0 p.p.	-0.9 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are -3.8% (-2.3 M€2009) lower than planned due to lower than planned en-route costs (-4.7%, or -2.7 M€2009) while terminal costs are higher than planned (+16.0%, or +0.4 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (94.5%) is slightly lower than planned in the PP for 2019 (95.5%).</p> <p>For LPS, the estimated gate-to-gate economic surplus in 2019 amounts to 4.3 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 7.9% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>95.4%</td> <td>4.6%</td> </tr> <tr> <td>Actual</td> <td>95.4%</td> <td>4.6%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>95.5%</td> <td>4.5%</td> </tr> <tr> <td>Actual</td> <td>95.6%</td> <td>4.4%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>95.5%</td> <td>4.5%</td> </tr> <tr> <td>Actual</td> <td>94.9%</td> <td>5.1%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>95.5%</td> <td>4.5%</td> </tr> <tr> <td>Actual</td> <td>94.5%</td> <td>5.5%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>95.5%</td> <td>4.5%</td> </tr> <tr> <td>Actual</td> <td>94.5%</td> <td>5.5%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	95.4%	4.6%	Actual	95.4%	4.6%	2016	Determined	95.5%	4.5%	Actual	95.6%	4.4%	2017	Determined	95.5%	4.5%	Actual	94.9%	5.1%	2018	Determined	95.5%	4.5%	Actual	94.5%	5.5%	2019	Determined	95.5%	4.5%	Actual	94.5%	5.5%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	95.4%	4.6%																																									
	Actual	95.4%	4.6%																																									
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2019	Determined	95.5%	4.5%																																									
	Actual	94.5%	5.5%																																									
<b>3. Technical notes on en-route and terminal information reported by Slovakia</b>																																												



## SLOVAKIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: LPS SR						
FAB: FAB CE						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	9.6	9.3	16.3	16.8	9.8	61.8
Main CAPEX (in nominal M)	4.0	6.2	14.2	14.9	7.6	46.9
Inflation %	0.0%	1.4%	1.7%	1.8%	2.0%	
Inflation index (100 in 2009)	110.3	111.8	113.7	115.7	118.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>8.7</b>	<b>8.3</b>	<b>14.3</b>	<b>14.5</b>	<b>8.3</b>	<b>54.2</b>
Main CAPEX (in M €2009)	3.6	5.6	12.5	12.9	6.4	41.0
% Main of Total CAPEX	41.9%	66.9%	86.9%	88.7%	77.3%	75.6%
Real gate-to-gate ANSP costs (in M €2009)	49.8	51.3	51.5	53.3	53.2	259.1
Total CAPEX as % of Real gate-to-gate ANSP costs	17.4%	16.2%	27.9%	27.3%	15.6%	20.9%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	7.4	2.9	2.3	4.3	6.5	23.5
Main CAPEX (in nominal M)	2.6	1.5	0.4	3.5	4.6	12.6
Inflation %	-0.3%	-0.5%	1.4%	2.5%	2.8%	
Inflation index (100 in 2009)	109.9	109.3	110.9	113.7	116.8	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>6.8</b>	<b>2.7</b>	<b>2.1</b>	<b>3.8</b>	<b>5.6</b>	<b>20.9</b>
Main CAPEX (in M €2009)	2.4	1.3	0.4	3.1	3.9	11.1
% Main of Total CAPEX	35.3%	50.1%	18.3%	82.3%	70.6%	53.4%
Real gate-to-gate ANSP costs (in M €2009)	48.3	50.4	52.4	53.9	51.8	256.9
Total CAPEX as % of Real gate-to-gate ANSP costs	14.0%	5.3%	4.0%	7.0%	10.8%	8.1%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-2.2	-6.4	-14.0	-12.6	-3.3	-38.3
Total CAPEX (in M €2009)	-1.9	-5.6	-12.2	-10.8	-2.7	-33.3
<b>Total CAPEX (in %, M €2009)</b>	<b>-22.2%</b>	<b>-67.8%</b>	<b>-85.4%</b>	<b>-74.1%</b>	<b>-32.8%</b>	<b>-61.5%</b>

Year	Planned CAPEX (M €2009)	Actual CAPEX (M €2009)	Percentage Difference
2015	8.7	6.8	-22.2%
2016	8.3	2.7	-67.8%
2017	14.3	2.1	-85.4%
2018	14.5	3.8	-74.1%
2019	8.3	5.6	-32.8%

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# **Annual Monitoring Report 2019**

## Local level view

### Slovenia

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## SLOVENIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	79	C	D	D	D	D
Slovenia Control	78	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	N/A	100%				
Runway Incursions (RIs)	N/A	N/A				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	CAA/Slovenja Control					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	9	0				
Legal/Judiciary	7	0				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>18</b>	<b>0</b>				
Slovenia Control	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
All safety targets have been met.						

## SLOVENIA

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

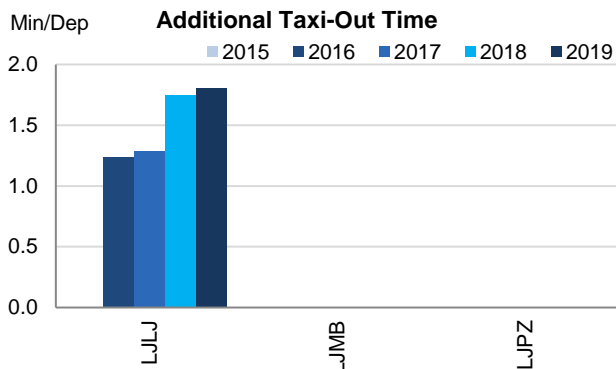
Slovenia identified three airports as subject to RP2 monitoring. However, the airport data flow is only established for Ljubljana, where remaining data issues were solved allowing for a full monitoring including taxi-out times as of 2016.

Slovenian airports should establish the airport operator data flow to allow for a correct monitoring of the airport indicators.

Traffic at Ljubljana significantly decreased in 2019 (-10% vs 2018) and there is almost no resulting growth during RP2 (only +3% in 2019 vs 2015)

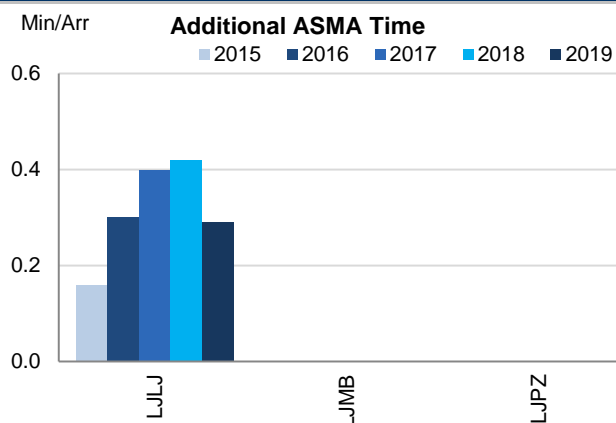
The additional taxi-out times have slightly increased in 2019 despite the traffic reduction, while the additional ASMA times have observed a clear impact of the traffic and holdings have significantly reduced. Performance is commensurate with the level of traffic and the additional times are within the lowest in the SES area.

## 2. Additional Taxi-Out Time



There has been a slight increase in the additional taxi-out times at Ljubljana (LJLJ; 2018: 1.75 min/dep.; 2019: 1.81 min/dep.). The worse performance is observed in the month of January and to a lesser extent December, probably related to winter operations (de-icing procedures).

## 3. Additional ASMA Time



Additional ASMA times at Ljubljana have significantly decreased in 2019 with respect to the previous year and remain very low (0.29 min/arr.)

Only January, November and December averaged more than 0.5 min/arr.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Ljubljana	LJLJ	n/a	1.24	1.29	1.75	1.81	0.16	0.30	0.40	0.42	0.29
Maribor	LJMB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Portorož	LJPZ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**SLOVENIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.21	0.21	0.22	0.23	0.22	
Deadband +/-	0.03	0.03	0.03	0.03	0.03	
Actual performance	0.00	0.01	0.00	0.01	0.00	

**National capacity incentive scheme**

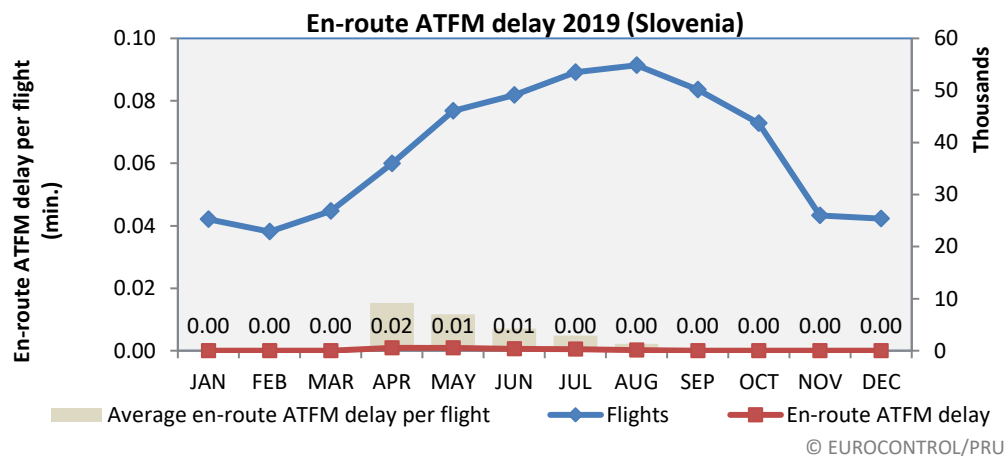
National target: 0.22 minutes.

Actual result: 0.00 min at national level (ATFM delay calculation at FIR level).

There is no bonus since although Slovenia exceeded its national target, FAB CE did not meet its target.

Outcome of 2019: Neither bonus nor penalty

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
High	345		363		381		397		414		432	
Base	339	<b>348</b>	353	<b>347</b>	365	<b>353</b>	375	<b>386</b>	385	<b>423</b>	398	<b>460</b>
Low	334		343		347		352		357		363	

Traffic levels in Slovenia rose by just under 1% from 2018 resulting in Slovenia handling traffic levels higher than the STATFOR high forecast (February 2014) for every year of RP2.

Slovenia provided excellent en route capacity performance with negligible delays to airspace users during 2019. Actual delays were much better than predicted in the NOP 2019-2024.

Delay forecast - Slovenia Control						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.03	0.03	0.03	0.03	N/A	N/A
NOP 2019 - 2024	0.04	0.04	0.04			

### Planning and Effective Use of CDRs

There are no CDRs in Slovenian airspace.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
92%	88%	94%	79%	83%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
0%	0%	0%	0%	0%

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.



## SLOVENIA

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

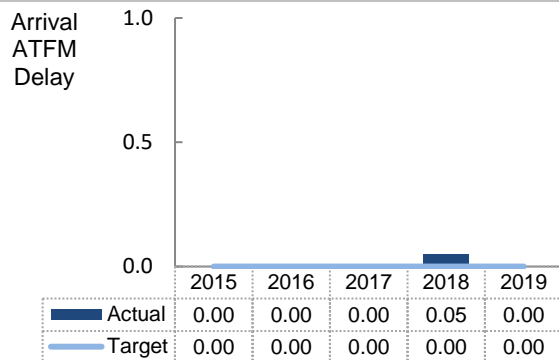
ANS at 3 airports are subject to RP2 monitoring in Slovenia. Traffic levels at these airports were increasing during RP2 (+14.3% in 2018 with respect to 2015) but in the last year traffic has reduced by 10%, leaving the final growth during RP2 in only 3.4%.

In terms of arrival ATFM delays, have remained at zero or close to zero in the reference period, showing no capacity constraints, while ATFM slot adherence has improved (2015: 94.5%; 2019: 95.6%).

The terminal capacity target (0.00 min/arr for every year in RP2) is met in 2019.

Slovenia contributes adequately to the airport related ANS Capacity performance in FAB CE and Europe.

## 2. Arrival ATFM Delay



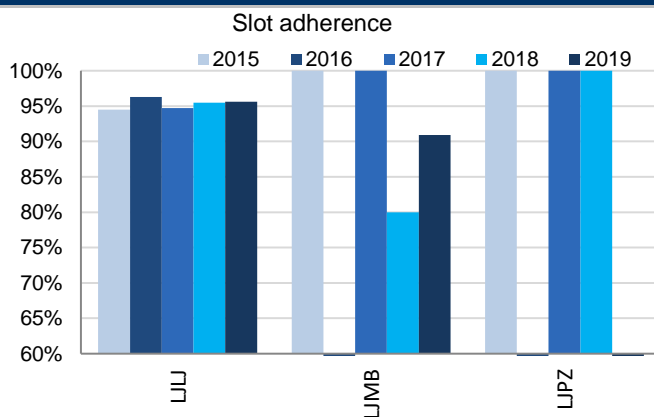
No arrival ATFM delays were registered in Ljubljana (LJLJ) in 2019. The situation has improved as the traffic has decreased in the last year.

In total, only 28 minutes of delay were accrued by ANS in Slovenia, associated with ATC capacity issues in June at Portorož (LJPZ).

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The FAB CE performance plan sets a national target on arrival ATFM delay for Slovenia but no associated incentive scheme, so although the national target is not met, no penalty applies.

## 4. ATFM Slot Adherence



Slot adherence in Slovenia continues to range within the best-in-class group across Europe around 95%.

Only 11 departures were regulated at LJMB, and none at LJPZ, so the indicator does not mean much at these two airports.

## 5. ATC Pre-departure Delay

Ljubljana (LJLJ) accrued negligible pre-departure delay in all RP2 so far, despite a slight increase in 2019 (2018: 0.03 min/dep.; 2019: 0.05 min/dep.)

This level of performance is commensurate with the level of traffic observed.

## 6. Appendix

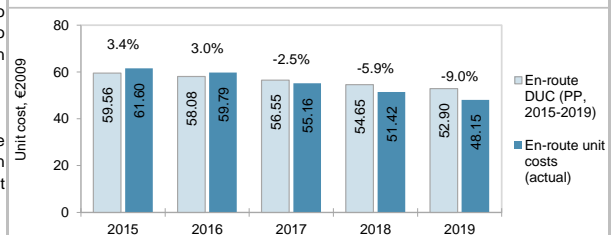
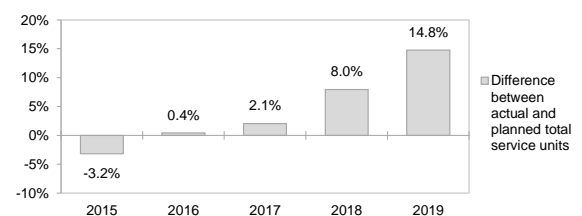
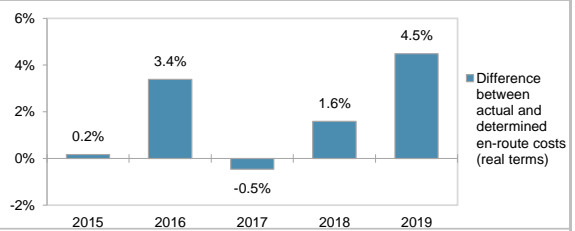
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Ljubljana	LJLJ	0.00	0.00	0.00	0.06	0.00	94.5%	96.3%	94.7%	95.5%	95.6%	0.03	0.02	0.02	0.03	0.05
Maribor	LJMB	0.00	0.00	0.00	0.00	0.00	100.0%	n/a	100.0%	80.0%	90.9%	n/a	n/a	n/a	n/a	n/a
Portorož	LJPZ	0.00	0.00	0.00	0.00	0.03	100.0%	n/a	100.0%	100.0%	n/a	n/a	n/a	n/a	n/a	n/a

## SLOVENIA: En-route charging zone

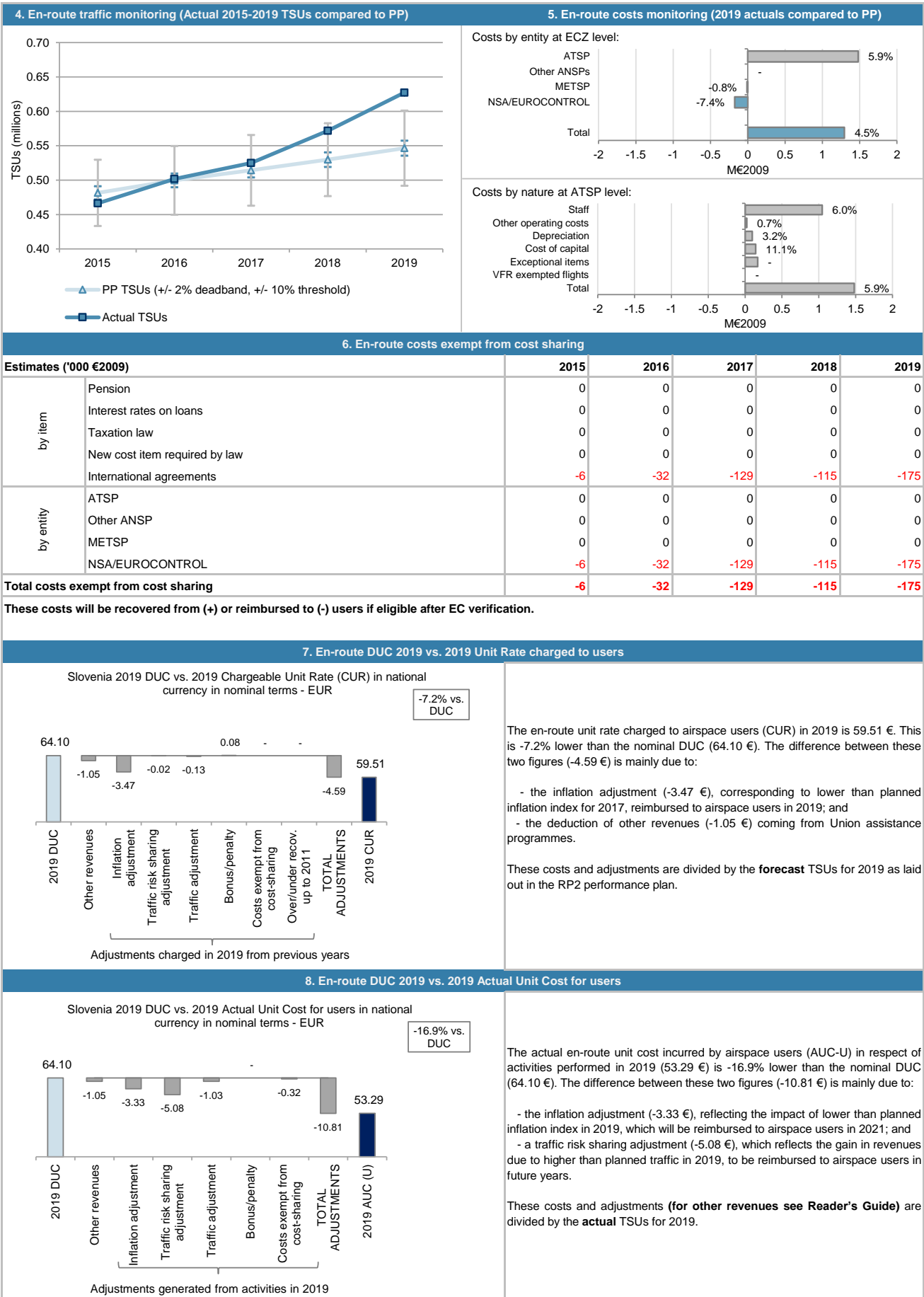
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Slovenia ECZ represents 0.5% of the SES en-route ANS determined costs in 2019					
· ATSP:	Slovenia Control				
· FAB:	FAB CE				
· National currency:	EUR				
2. En-route DUC monitoring at Charging Zone level					
Slovenia: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	32 094 283	33 168 798	33 870 218	34 392 801	35 029 005
Inflation %	1.6%	2.1%	1.9%	2.0%	2.0%
Inflation index (100 in 2009)	111.9	114.3	116.5	118.8	121.2
Real en-route costs (EUR2009)	28 675 840	29 018 678	29 079 819	28 949 500	28 906 876
Total en-route Service Units	481 500	499 637	514 217	529 770	546 470
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>59.56</b>	<b>58.08</b>	<b>56.55</b>	<b>54.65</b>	<b>52.90</b>
Slovenia: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	31 147 499	32 468 008	31 829 020	32 950 279	34 415 995
Inflation %	-0.8%	-0.2%	1.6%	1.9%	1.7%
Inflation index (100 in 2009)	108.4	108.2	110.0	112.0	113.9
Real en-route costs (EUR2009)	28 723 475	30 001 219	28 947 617	29 408 607	30 203 323
Total en-route Service Units	466 264	501 752	524 771	571 894	627 329
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>61.60</b>	<b>59.79</b>	<b>55.16</b>	<b>51.42</b>	<b>48.15</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)	-946 784	-700 790	-2 041 199	-1 442 522	-613 010
in %	-3.0%	-2.1%	-6.0%	-4.2%	-1.8%
Inflation %	-2.4 p.p.	-2.3 p.p.	-0.3 p.p.	-0.1 p.p.	-0.3 p.p.
Inflation index (100 in 2009)	-3.5 p.p.	-6.1 p.p.	-6.5 p.p.	-6.8 p.p.	-7.2 p.p.
Real en-route costs (EUR2009)	47 635	982 541	-132 203	459 107	1 296 448
in %	0.2%	3.4%	-0.5%	1.6%	4.5%
Total en-route Service Units	-15 236	2 115	10 554	42 124	80 858
in %	-3.2%	0.4%	2.1%	8.0%	14.8%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>2.05</b>	<b>1.71</b>	<b>-1.39</b>	<b>-3.22</b>
	<b>in %</b>	<b>3.4%</b>	<b>3.0%</b>	<b>-2.5%</b>	<b>-9.0%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (48.15 €2009) is -9.0% lower than planned in the PP (52.90 €2009). This results from the combination of much higher than planned TSUs (+14.8%) and higher than planned en-route costs in real terms (+4.5%, or +1.3 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+14.8%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Slovenia Control) retaining an amount of +1.2 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -1.8% (-0.6 M€) lower than planned. However, since the actual inflation index is also lower than planned (-7.2 p.p.), actual en-route costs are +4.5% (+1.3 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by Slovenia Control (+5.9%, or +1.5 M€2009), while the costs for the MET service provider (-0.8%, or -0.01 M€2009) and the NSA/EUROCONTROL (-7.4%, or -0.2 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -0.2 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for the Slovenia charging zone, actual en-route TSUs are +4.7% higher than planned, while actual costs in real terms are also +1.8% higher than the determined costs (some +2.7 M€2009). As a result, the weighted average actual unit cost over RP2 (54.71 €2009) is -2.7% lower than planned in the NPP (56.24 €2009).					



**SLOVENIA: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



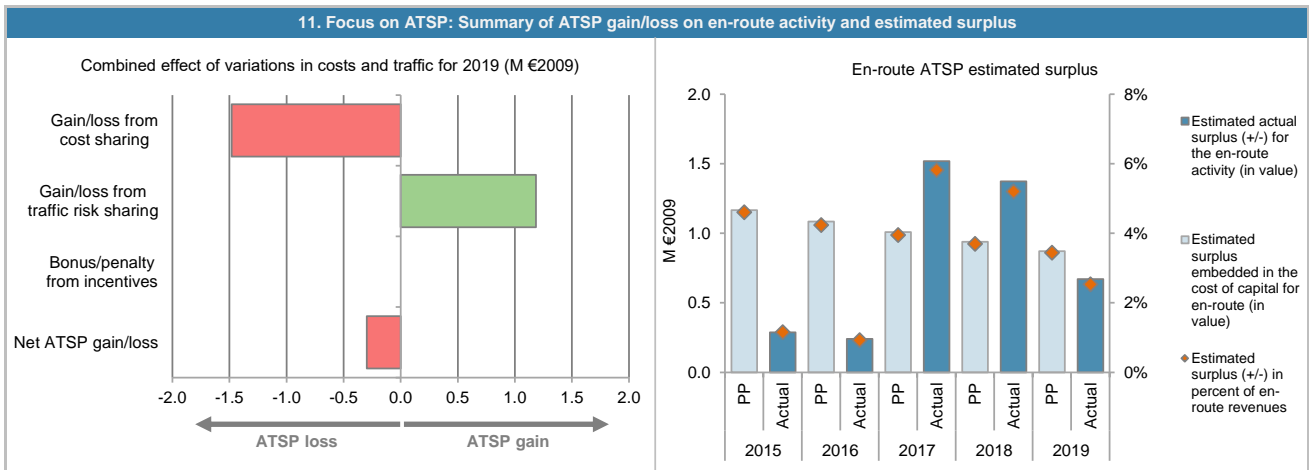
## SLOVENIA: En-route ATSP (Slovenia Control)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	25 314	25 555	25 499	25 361	25 299
Actual costs for the ATSP	25 527	26 509	25 519	25 939	26 780
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-212	-954	-20	-578	-1 481
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-212</b>	<b>-954</b>	<b>-20</b>	<b>-578</b>	<b>-1 481</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-3.2%	0.4%	2.1%	8.0%	14.8%
Determined costs for the ATSP (PP) - based on actual inflation	26 127	26 990	27 011	26 892	26 905
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-614</b>	<b>114</b>	<b>544</b>	<b>1 018</b>	<b>1 184</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>37</b>	<b>72</b>	<b>38</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>-790</b>	<b>-768</b>	<b>563</b>	<b>440</b>	<b>-297</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	28 581	26 582	24 732	23 011	21 379
Estimated proportion of financing through equity (in %)	51.0%	51.0%	51.0%	51.0%	51.0%
Estimated proportion of financing through equity (in value)	14 575	13 556	12 612	11 734	10 902
Estimated proportion of financing through debt (in %)	49.0%	49.0%	49.0%	49.0%	49.0%
Estimated proportion of financing through debt (in value)	14 006	13 027	12 120	11 276	10 477
Cost of capital pre-tax (in value)	1 723	1 603	1 491	1 388	1 289
Average interest on debt (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Interest on debt (in value)	557	518	482	449	417
Determined RoE pre-tax rate (in %)	8.0%	8.0%	8.0%	8.0%	8.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 166	1 084	1 009	939	872
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 166</b>	<b>1 084</b>	<b>1 009</b>	<b>939</b>	<b>872</b>
<b>Revenue/costs for the en-route activity</b>	<b>25 314</b>	<b>25 555</b>	<b>25 499</b>	<b>25 361</b>	<b>25 299</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>4.6%</b>	<b>4.2%</b>	<b>4.0%</b>	<b>3.7%</b>	<b>3.4%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	26 399	24 715	23 429	22 863	23 747
Estimated proportion of financing through equity (in %)	51.0%	51.0%	51.0%	51.0%	51.0%
Estimated proportion of financing through equity (in value)	13 462	12 604	11 948	11 659	12 110
Estimated proportion of financing through debt (in %)	49.0%	49.0%	49.0%	49.0%	49.0%
Estimated proportion of financing through debt (in value)	12 937	12 112	11 482	11 204	11 637
Cost of capital pre-tax (in value)	1 592	1 490	1 413	1 379	1 432
Average interest on debt (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Interest on debt (in value)	515	482	457	446	463
Determined RoE pre-tax rate (in %)	8.0%	8.0%	8.0%	8.0%	8.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 077	1 008	956	933	969
Net ATSP gain(+)/loss(-) on en-route activity	-790	-768	563	440	-297
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>287</b>	<b>240</b>	<b>1 519</b>	<b>1 373</b>	<b>671</b>
<b>Revenue/costs for the en-route activity</b>	<b>24 737</b>	<b>25 741</b>	<b>26 082</b>	<b>26 379</b>	<b>26 483</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>1.2%</b>	<b>0.9%</b>	<b>5.8%</b>	<b>5.2%</b>	<b>2.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>2.1%</b>	<b>1.9%</b>	<b>12.7%</b>	<b>11.8%</b>	<b>5.5%</b>

**SLOVENIA: En-route ATSP (Slovenia Control)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 Slovenia Control en-route costs vs. PP**

In 2019, Slovenia Control actual en-route costs are +5.9% (+1.5 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- higher staff costs (+6.0%, or +1.0 M€2009), although these are lower than planned in nominal terms (-0.3%, or -0.1 M€);
- slightly higher other operating costs (+0.7%, or +0.02 M€2009), although these are also lower than planned in nominal terms (-5.3%, or -0.2 M€), "mainly due to lower costs of leases";
- higher depreciation costs (+3.2%, or +0.10 M€2009), although these are also lower than planned in nominal terms (-3.0%, or -0.1 M€), "due to the postponement of some investments";
- higher cost of capital (+11.1%, or +0.1 M€2009) as a result of "higher level of assets base"; and
- exceptional costs (+0.2 M€2009), which were not planned in the PP.

**Slovenia Control net gain/loss on en-route activity in 2019**

As shown in box 9, Slovenia Control generated a net loss of -0.3 M€2009 on the en-route activity. This is a combination of two elements:

- a loss of -1.5 M€2009 arising from the cost sharing mechanism; and
- a gain of +1.2 M€2009 arising from the traffic risk sharing mechanism.

**Slovenia Control overall estimated surplus for the en-route activity**

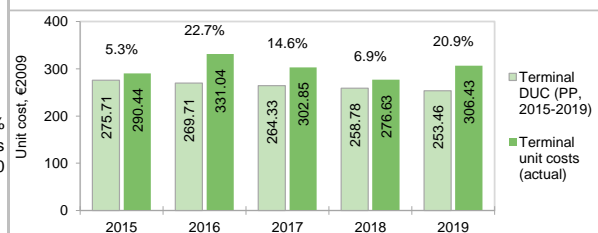
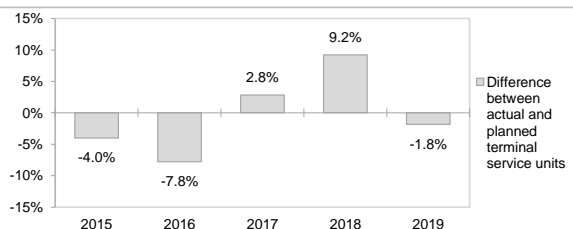
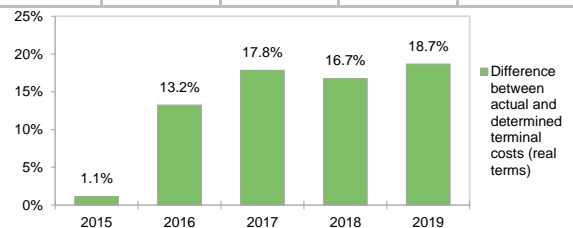
Ex-post, the overall estimated surplus taking into account the net loss from the en-route activity mentioned above (-0.3 M€2009) and the surplus embedded in the actual cost of capital (+1.0 M€2009) amounts to +0.7 M€2009 (2.5% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 5.5%, which is lower than the 8.0% planned in the PP.

When considering the whole of RP2 (2015-2019), Slovenia Control generated cumulative losses in respect of cost sharing of -3.2 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +2.2 M€2009, which reflects the fact that actual traffic was in general terms +4.7% higher than planned during RP2. Adding the gain of +0.1 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+4.9 M€2009 over RP2) leads to an overall estimated surplus of +4.1 M€2009, which corresponds to an average ex-post return on equity of 6.6% (compared to 8.0% as initially planned in the NPP).

## SLOVENIA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Slovenia TCZ represents 0.3% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		No	
ATSP:	Slovenia Control	Airports with fewer than 70,000 IFRs ATMs:		3	
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		0	
Number of airports in charging zone in 2019:	3,	of which:		Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Slovenia: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	3 866 727	3 885 016	3 909 038	3 930 727	3 942 720
Inflation %	1.6%	2.1%	1.9%	2.0%	2.0%
Inflation index (100 in 2009)	111.9	114.3	116.5	118.8	121.2
Real terminal costs (EUR2009)	3 454 872	3 398 918	3 356 167	3 308 617	3 253 638
Total terminal Service Units	12 531	12 602	12 697	12 786	12 837
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>275.71</b>	<b>269.71</b>	<b>264.33</b>	<b>258.78</b>	<b>253.46</b>
Slovenia: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	3 789 131	4 164 883	4 348 325	4 327 466	4 399 951
Inflation %	-0.8%	-0.2%	1.6%	1.9%	1.7%
Inflation index (100 in 2009)	108.4	108.2	110.0	112.0	113.9
Real terminal costs (EUR2009)	3 494 246	3 848 452	3 954 682	3 862 326	3 861 377
Total terminal Service Units	12 031	11 625	13 058	13 962	12 601
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>290.44</b>	<b>331.04</b>	<b>302.85</b>	<b>276.63</b>	<b>306.43</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-77 596	279 868	439 287	396 738	457 231
	in value				
	in %				
Inflation %	-2.0%	7.2%	11.2%	10.1%	11.6%
	in p.p.				
Inflation index (100 in 2009)	-2.4 p.p.	-2.3 p.p.	-0.3 p.p.	-0.1 p.p.	-0.3 p.p.
	in p.p.				
Real terminal costs (EUR2009)	-3.5 p.p.	-6.1 p.p.	-6.5 p.p.	-6.8 p.p.	-7.2 p.p.
	in p.p.				
Real terminal costs (EUR2009)	39 374	449 535	598 515	553 710	607 739
	in value				
	in %				
Total terminal Service Units	-500	-977	361	1 176	-235
	in value				
	in %				
Real terminal unit cost per Service Unit (EUR2009)	14.73	61.33	38.52	17.85	52.96
	in value				
	in %				
	5.3%	22.7%	14.6%	6.9%	20.9%
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Slovenia Terminal Charging Zone (TCZ) comprising 3 airports: Ljubljana/Brnik (LJLJ), Maribor/Orehova Vas (LJMB) and Portoroz/Secovlje (LJPZ).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (306.43 €2009) is +20.9% higher than planned in the PP (253.46 €2009). This results from the combination of slightly lower than planned TNSUs (-1.8%) and much higher than planned terminal costs in real terms (+18.7%, or +0.6 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Slovenia TCZ. In 2019, the actual TNSUs in Slovenia TCZ are -1.8% lower than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +11.6% (+0.5 M€) higher than planned. However, since the actual inflation index is lower than planned (-7.2 p.p.), actual terminal costs are +18.7% (+0.6 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by Slovenia Control (+18.7%, or +0.5 M€2009) and the MET service provider (+26.0%, or +0.1 M€2009), while the costs for the NSA (-18.8%, or -0.02 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Slovenia TCZ, actual TNSUs are -0.3% lower than planned, while actual costs in real terms are +13.4% higher than the determined costs (some +2.2 M€2009). As a result, the weighted average actual unit cost over RP2 (300.60 €2009) is +13.7% higher than planned in the NPP (264.33 €2009).					



SLOVENIA: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	18.7%
Other ANSPs	-
METSP	26.0%
NSA	-18.8%
Total	18.7%

Costs by nature at ATSP level:

Staff	22.8%
Other operating costs	-23.4%
Depreciation	18.7%
Cost of capital	128.7%
Exceptional items	-
VFR exempted flights	-
Total	18.7%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Slovenia 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 211.21 €. This is -31.2% lower than the nominal DUC (307.14 €). The difference between these two figures (-95.93 €) is mainly due to:

- the deduction of other revenues (-109.06 €) which, according to the additional information to the June 2020 terminal Reporting Tables, consist of payments to Slovenia Control from the airport of Ljubljana for the provision of ground movement control, the Ministry of Defence for the provision of air navigation services at the military airport of Cerklje ob Krki and other commercial activities to third parties as well as a grant of 750 000 € from the Ministry of Infrastructure for "improvement of business environment for all TNC users, resulting in a reduction of unit rate"; and
- an adjustment (+38.92 €) corresponding to the under recoveries incurred before the introduction of the Determined Costs method and carried-over to 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Slovenia 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (185.15 €) is -39.7% lower than the nominal DUC (307.14 €). The difference between these two figures (-121.99 €) is due to:

- the deduction of other revenues (-109.06 €) (see box 7 above);
- the inflation adjustment (-18.67 €), reflecting the impact of lower than planned inflation index in 2019, to be reimbursed to airspace users; and
- a traffic adjustment (+5.74 €), for the costs not subject to traffic risk sharing and the related under recoveries, to be charged to airspace users in future years.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## SLOVENIA: Terminal ATSP (Slovenia Control)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	2 931	2 891	2 851	2 812	2 763
Actual costs for the ATSP	3 008	3 343	3 423	3 303	3 280
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-77	-452	-571	-491	-517
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-77</b>	<b>-452</b>	<b>-571</b>	<b>-491</b>	<b>-517</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-77</b>	<b>-452</b>	<b>-571</b>	<b>-491</b>	<b>-517</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	1 045	952	855	704	538
Estimated proportion of financing through equity (in %)	51.0%	51.0%	51.0%	51.0%	51.0%
Estimated proportion of financing through equity (in value)	533	485	436	359	274
Estimated proportion of financing through debt (in %)	49.0%	49.0%	49.0%	49.0%	49.0%
Estimated proportion of financing through debt (in value)	512	466	419	345	264
Cost of capital pre-tax (in value)	63	57	52	42	32
Average interest on debt (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Interest on debt (in value)	20	19	17	14	10
Determined RoE pre-tax rate (in %)	8.0%	8.0%	8.0%	8.0%	8.0%
Estimated surplus embedded in the cost of capital for terminal (in value)	43	39	35	29	22
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>43</b>	<b>39</b>	<b>35</b>	<b>29</b>	<b>22</b>
<b>Revenue/costs for the terminal activity</b>	<b>2 931</b>	<b>2 891</b>	<b>2 851</b>	<b>2 812</b>	<b>2 763</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>1.5%</b>	<b>1.3%</b>	<b>1.2%</b>	<b>1.0%</b>	<b>0.8%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	1 387	1 205	1 104	1 128	1 230
Estimated proportion of financing through equity (in %)	51.0%	51.0%	51.0%	51.0%	51.0%
Estimated proportion of financing through equity (in value)	707	614	563	575	627
Estimated proportion of financing through debt (in %)	49.0%	49.0%	49.0%	49.0%	49.0%
Estimated proportion of financing through debt (in value)	680	590	541	553	603
Cost of capital pre-tax (in value)	84	73	67	68	74
Average interest on debt (in %)	4.0%	4.0%	4.0%	4.0%	4.0%
Interest on debt (in value)	27	23	22	22	24
Determined RoE pre-tax rate (in %)	8.0%	8.0%	8.0%	8.0%	8.0%
Estimated surplus embedded in the cost of capital for terminal (in value)	57	49	45	46	50
Net ATSP gain(+)/loss(-) on terminal activity	-77	-452	-571	-491	-517
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>-20</b>	<b>-403</b>	<b>-526</b>	<b>-445</b>	<b>-467</b>
<b>Revenue/costs for the terminal activity</b>	<b>2 931</b>	<b>2 891</b>	<b>2 851</b>	<b>2 812</b>	<b>2 763</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>-0.7%</b>	<b>-13.9%</b>	<b>-18.5%</b>	<b>-15.8%</b>	<b>-16.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>-2.8%</b>	<b>-65.6%</b>	<b>-93.4%</b>	<b>-77.3%</b>	<b>-74.4%</b>



**SLOVENIA: Terminal ATSP (Slovenia Control)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## SLOVENIA: Gate-to-gate

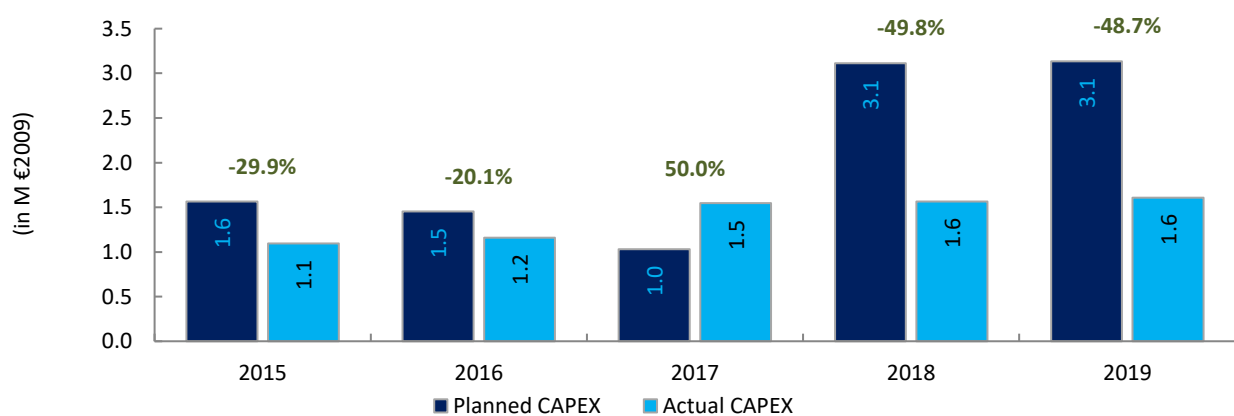
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Slovenia: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	28 675 840	29 018 678	29 079 819	28 949 500	28 906 876																																							
Real terminal costs (EUR2009)	3 454 872	3 398 918	3 356 167	3 308 617	3 253 638																																							
Real gate-to-gate costs (EUR2009)	32 130 712	32 417 596	32 435 986	32 258 117	32 160 514																																							
En-route share (%)	89.2%	89.5%	89.7%	89.7%	89.9%																																							
<b>Slovenia: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	28 723 475	30 001 219	28 947 617	29 408 607	30 203 323																																							
Real terminal costs (EUR2009)	3 494 246	3 848 452	3 954 682	3 862 326	3 861 377																																							
Real gate-to-gate costs (EUR2009)	32 217 721	33 849 671	32 902 298	33 270 934	34 064 701																																							
En-route share (%)	89.2%	88.6%	88.0%	88.4%	88.7%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	87 009	1 432 076	466 312	1 012 817	1 904 187																																							
in %	0.3%	4.4%	1.4%	3.1%	5.9%																																							
En-route share in p.p.	-0.1 p.p.	-0.9 p.p.	-1.7 p.p.	-1.4 p.p.	-1.2 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +5.9% (+1.9 M€2009) higher than planned due to higher than planned en-route costs (+4.5%, or +1.3 M€2009) and terminal costs (+18.7%, or +0.6 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (88.7%) is slightly lower than planned in the PP for 2019 (89.9%).</p> <p>For Slovenia Control, the estimated gate-to-gate economic surplus in 2019 amounts to 0.2 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 0.7% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>89.2%</td> <td>10.8%</td> </tr> <tr> <td>Actual</td> <td>89.2%</td> <td>10.8%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>89.5%</td> <td>10.5%</td> </tr> <tr> <td>Actual</td> <td>88.6%</td> <td>11.4%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>89.7%</td> <td>10.3%</td> </tr> <tr> <td>Actual</td> <td>88.0%</td> <td>12.0%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>89.7%</td> <td>10.3%</td> </tr> <tr> <td>Actual</td> <td>88.4%</td> <td>11.6%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>89.9%</td> <td>10.1%</td> </tr> <tr> <td>Actual</td> <td>88.7%</td> <td>11.3%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	89.2%	10.8%	Actual	89.2%	10.8%	2016	Determined	89.5%	10.5%	Actual	88.6%	11.4%	2017	Determined	89.7%	10.3%	Actual	88.0%	12.0%	2018	Determined	89.7%	10.3%	Actual	88.4%	11.6%	2019	Determined	89.9%	10.1%	Actual	88.7%	11.3%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	89.2%	10.8%																																									
	Actual	89.2%	10.8%																																									
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	Actual	88.4%	11.6%																																									
2019	Determined	89.9%	10.1%																																									
	Actual	88.7%	11.3%																																									
<b>3. Technical notes on en-route and terminal information reported by Slovenia</b>																																												

## SLOVENIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: Slovenia Control						
FAB: FAB CE						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	1.8	1.7	1.2	3.7	3.8	12.1
Main CAPEX (in nominal M)	1.5	1.3	1.0	3.0	3.0	9.7
Inflation %	1.6%	2.1%	1.9%	2.0%	2.0%	
Inflation index (100 in 2009)	111.9	114.3	116.5	118.8	121.2	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>1.6</b>	<b>1.5</b>	<b>1.0</b>	<b>3.1</b>	<b>3.1</b>	<b>10.3</b>
Main CAPEX (in M €2009)	1.3	1.1	0.9	2.5	2.5	8.2
% Main of Total CAPEX	82.9%	75.3%	83.3%	81.1%	78.9%	80.1%
Real gate-to-gate ANSP costs (in M €2009)	28.2	28.4	28.4	28.2	28.1	141.3
Total CAPEX as % of Real gate-to-gate ANSP costs	5.5%	5.1%	3.6%	11.1%	11.2%	7.3%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	1.2	1.3	1.7	1.8	1.8	7.7
Main CAPEX (in nominal M)	0.6	0.5	1.0	0.7	0.6	3.5
Inflation %	-0.8%	-0.2%	1.6%	1.9%	1.7%	
Inflation index (100 in 2009)	108.4	108.2	110.0	112.0	113.9	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>1.1</b>	<b>1.2</b>	<b>1.5</b>	<b>1.6</b>	<b>1.6</b>	<b>7.0</b>
Main CAPEX (in M €2009)	0.6	0.5	0.9	0.6	0.6	3.1
% Main of Total CAPEX	50.6%	38.9%	60.0%	40.7%	34.9%	44.9%
Real gate-to-gate ANSP costs (in M €2009)	28.5	29.9	28.9	29.2	30.1	146.6
Total CAPEX as % of Real gate-to-gate ANSP costs	3.8%	3.9%	5.3%	5.3%	5.3%	4.8%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-0.6	-0.4	0.5	-1.9	-2.0	-4.4
Total CAPEX (in M €2009)	-0.5	-0.3	0.5	-1.6	-1.5	-3.3
<b>Total CAPEX (in %, M €2009)</b>	<b>-29.9%</b>	<b>-20.1%</b>	<b>50.0%</b>	<b>-49.8%</b>	<b>-48.7%</b>	<b>-32.3%</b>



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# Annual Monitoring Report 2019

Local level view  
FABEC

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## FABEC

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management					2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs							C
	at ANSP level	For Safety Culture MO							C
		For all other MOs							D
FAB level	States / Regulatory authorities	For all MOs	B	A	A	A	A	B	
	ANSPs	For Safety Culture MO	C	C	C	D	C	C	
	ANSPs	For all other MOs	B	C	C	C	C	D	

Application of the severity classification of the Risk Analysis Tool (RAT)					2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Ground Score									
Union-wide targets	Separation Minima Infringements (SMIs)						>= 80%		100%
	Runway Incursions (RIs)						>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	97%	100%	94%	100%	100%	
	Runway Incursions (RIs)		96%	72%	100%	52%	100%	100%	
Overall Score									
Union-wide targets	Separation Minima Infringements (SMIs)						>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)						>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)						>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	99%	100%	92%	100%	100%	
	Runway Incursions (RIs)		97%	88%	100%	67%	97%	97%	
	ATM Specific occurrences (ATM-S)		86%	84%	90%	100%	97%	97%	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

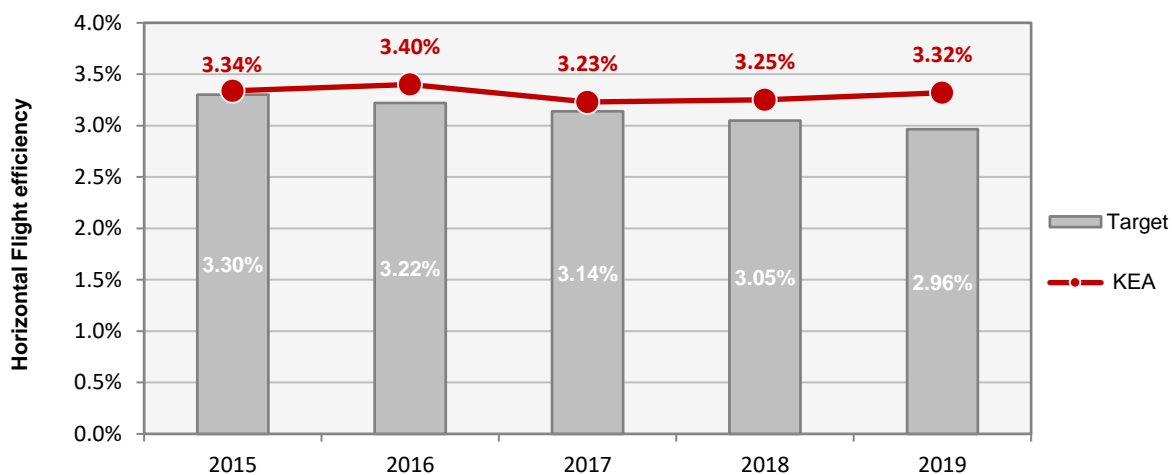
#### Observations

The lowest level in all EoS Component/area of the States is Level "B" in the Safety Culture and the Safety Risk Management components which are below the 2019 EoS target level.

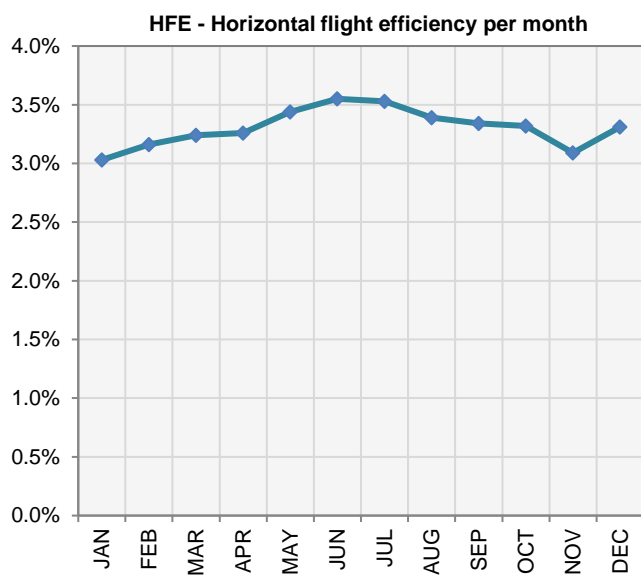
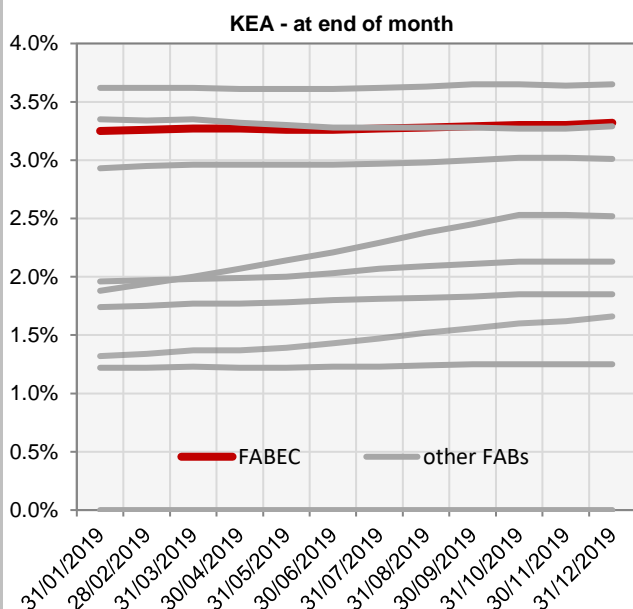
FABEC

Monitoring of ENVIRONMENT for 2019

KEA					
	2015	2016	2017	2018	2019
FAB Target	3.30%	3.22%	3.14%	3.05%	2.96%
KEA Value	3.34%	3.40%	3.23%	3.25%	3.32%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KEA (at end of month)	3.25%	3.26%	3.27%	3.27%	3.26%	3.26%	3.27%	3.28%	3.29%	3.30%	3.30%	3.32%
HFE	3.03%	3.16%	3.24%	3.26%	3.44%	3.55%	3.53%	3.39%	3.34%	3.32%	3.09%	3.31%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.



**FABEC**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

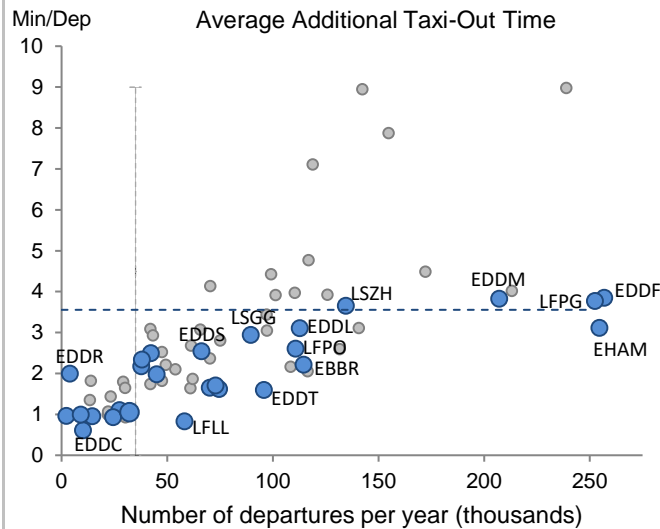
FABEC states identify a total of 88 airports as subject to RP2 monitoring, but in 2019 only 27 had fully implemented the Airport Operator Data Flow and therefore the analysis of both environmental indicators can be based only on these airports.

In terms of taxi-out time the analysed airports show in general additional taxi-out times below the average for airports in RP2 (3.56 min/dep.), with only some of the busiest airports in Europe exceeding this value.

Regarding the additional time in terminal airspace the performance is in most cases commensurate with the level of traffic, while for the busiest airports the additional times are kept remarkably low given those levels of traffic.

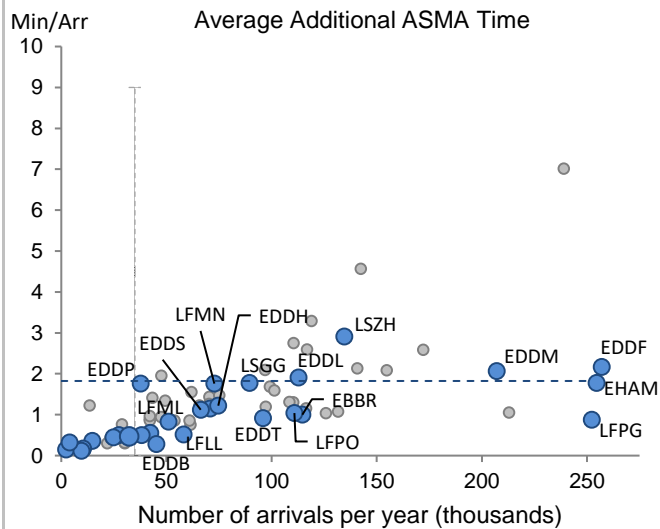
Most of these 27 airports have not had a drastic change in the environmental performance in the course of RP2.

**2. Additional Taxi-Out Time**



In general terms, analysed FABEC airports up to 50000 departures per year have a linear relationship of the additional taxi-out times versus the level of traffic. However, for airports between 50000 and 150000 departures per year, many FABEC airports outperform other airports in the rest of Europe, with additional taxi-out values below the RP2 average (weighted average for airports subject to RP2). Munich, Frankfurt, Paris CDG and especially Amsterdam, all A-CDM airports, keep their additional taxi-out times around the 3.56 min/dep. of the RP2 average.

**3. Additional ASMA Time**



FABEC airports up to 75000 arrivals per year show additional times in the terminal area below other airports with the same traffic levels with the exception of Leipzig (EDDP) which shows a high value, and Nice (LFMN). Performance of FABEC airports between 75000 and 150000 arrivals per year varies, ranging between 1 and 3 min/arr. of additional ASMA times. Zurich has the 4th highest additional ASMA times in the SES area. The four FABEC airports with a yearly traffic above 150000 arrivals have very low additional times for their levels of traffic, remarkably low in the case of Paris Charles de Gaulle (LFPG), below 1 min/arr. Munich, Frankfurt and Amsterdam also show a good performance close to the RP2 average (1.82 min/arr.).

FABEC

Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
FAB Reference Value	0.43	0.42	0.42	0.42	0.43	The total presented includes the results of NM post operations adjustment process and is affected by eNM/S19 measures.
FAB Target	0.48	0.49	0.42	0.42	0.43	
Actual performance	0.69	1.07	1.15	2.14	1.68	

FABEC assessment of capacity performance

As described in the FABEC ANSP individual achievements graph presented under the global FABEC underperformance for en-route capacity has been driven in 2019 by the individual underperformance of DFS, DSN, and skeyes against their individual 2019 All causes and CRSTMP expected contributions to FABEC target values.

However it should be noted that, while accommodating a moderate traffic growth of +1% flights in 2019 (between +1,5% up to +3,7% from January to June before a traffic downturn as from July with a decrease up to -3% in November), FABEC 2019 en route average ATFM delays has decreased from 2,14 min/flight in 2018 to 1,68 min/flight, even after the integration of eNM19 new post-ops process adjustments.

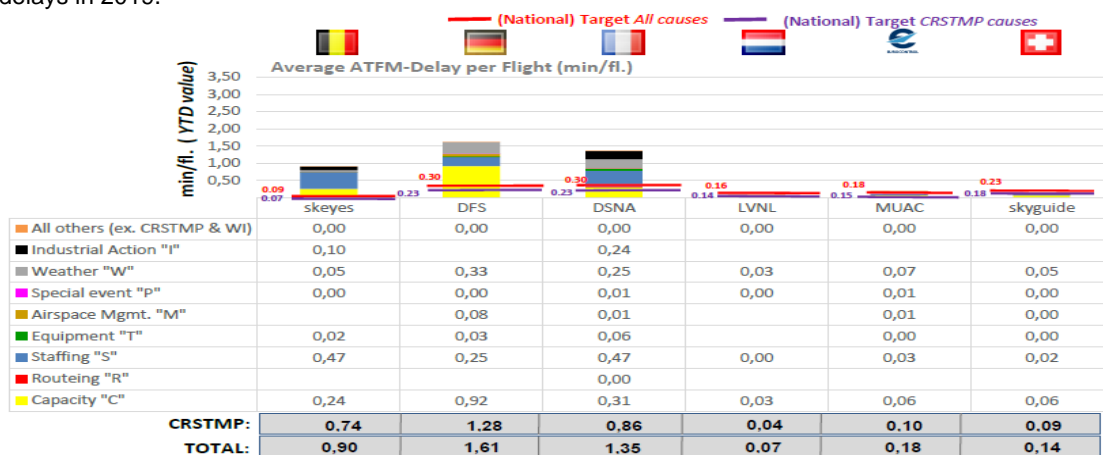
This is mainly due to both eNM19 rerouting measures coordinated between FABEC and NM and other European ANSPs but also due to better performances by DSN (combined effects of new rostering schemes implemented the previous years, less industrial actions, local capacity enhancement measures), DFS (special agreement for overtime and local capacity enhancement measures) and MUAC (benefit of several airspace changes for the HANNOVER and BRUSSELS sector groups and local capacity enhancement measures).

Another significant reason for fewer delays in 2019 than in 2018 is the weather impact during Summer 2019 (less events and better weather events management between NM and the ANSPs).

Skeyes has generated more en-route delays in 2019 than previously during RP2, mainly due to capacity issues due to staff shortages : current ATCO recruitment is at maximum training capacity and aims at the largest extent possible to compensate the wave of retirement.

DSNA has generated en-route delays due to some industrial action at the end 2019 and weather (mainly in Marseille ACC), and regarding CRSTMP causes, due to capacity and staffing shortages in Marseille, Brest and Reims ACC. In 2019, nearly half DSN delays have been generated by Marseille ACC which rostering scheme is not fully optimized consistently with traffic peak hours and week-ends according to flexible rostering experimentations foreseen by DGAC 2016-2019 current social agreement, as it has been the case for Reims, Bordeaux and Brest ACC. Local retirement cycle won't be fully compensated by ongoing DSN recruitment and assignment plan. Brest ACC faced a traffic growth superior to 20% since 2015, which explains remaining delays in spite of ERATO new ATM system implementation end 2015, more flexible rostering local implementation end 2016 and initial Data-Link Services implementation in 2016 with full implementation beginning 2019. Regarding Reims, traffic increase since the beginning of RP2 and preparation work for implementation of a new ATM system (4Flight) and traffic distribution with higher demand on shortest routes and lack of predictability of demand in some sectors have been identified.

DFS en-route delays are mainly driven by Karlsruhe ACC which has generated more than two thirds of German delays during 2019. Delays caused by Karlsruhe ACC are mainly due the structural capacity shortage linked with the unforeseen traffic increase since 2016 which intensified further in 2018 because of additional unexpected staff shortages. The workload experienced by ATCOs in 2017 led to the cancellation of the overtime agreement with the staff representatives' council. This cancellation in consequence led to less available manpower in 2018 before a new agreement has been concluded in Summer 2019. In addition, the significant increase in training capacity for new ATCOs led to a further reduction of the available ATCOs on board. Furthermore, meteorological conditions contributed to 15% of ATFM delays in 2019.



### Monitoring process for capacity performance

The monitoring for en-route capacity performance is carried out under the auspices of the FABEC Financial and Performance Committee (FPC), counterpart of the European Commission at the States side, consulting and reporting to FABEC Council as appropriate.

On a monthly basis and through the AFG/PMG (ANSP FABEC Group / Performance Management Group) the ANSPs collectively submit a report to the FPC, based on PRU available data, consolidated and analysed, on their joint progress in achieving the FABEC target set and reference or indicative values and on the results and analysis of the en-route capacity achievement.

In case the FABEC target set and/or the annual/reference values are threatened not to be met, AFG/PMG is asked to propose to FPC possible corrective measures which the ANSPs determine fit to react to the weaker performance at FAB, national and/or ACC level, in order to remedy the situation.

The FPC analyses the reports, assesses the actions considered by the ANSPs together with the necessity of appropriate measures to be taken by the States or the NSAs and makes an advice to the proposals, made by the AFG/PMG, to the FABEC Council for such appropriate measures, after consultation with the AFG/PMG. The potential corrective measures take into account the seriousness of the risk of not meeting the targets set and/or the annual/reference values.

The FPC is also responsible for the management of the Capacity KPA financial incentive schemes (see section 3 of this monitoring report).

This monitoring process is described in the FABEC FPC States Performance Process description, regularly updated.

### Capacity Planning

#### Important caveat

Since Summer 2019 and into the first months of 2020, traffic has been evolving in an unpredictable way, initially due to several societal and economical factors and, most recently and most significantly, having to face a major health crisis (COVID-19).

This will have a decisive impact on all the players in the aviation field. Extensive flight bans have been set up to contain the spread of the virus, significantly reducing current traffic levels (more than -90% April/May in the FABEC area). Such bans are short term measures, but at present it is unclear how long they will remain in place. It is ensured that the virus outbreak will have a significant impact on the future operations of airlines and air navigation services providers, as well as a general, negative economic impact which will have longer term consequences for aviation.

The effects of the virus outbreak are causing considerable uncertainty about the main assumptions underpinning future performance expectations in all areas of performance. This challenge to respond to the crisis situation will probably overwhelm the available resources of the ANSPs and ask for many of those of NSAs and States over the coming months. At this stage, it remains unclear when and to which extent the traffic will recover and emergency measures recently developed by ANSP are directly addressing the safe continuity of air navigation provision for remaining traffic.

It is now quite clear that during 2020 there should be no capacity or flight efficiency issues as such and current operational 2020 FABEC and local targets should be reached without implementing additional corrective measures. However, it is of the utmost importance to enable ANSP to be in such a position to tackle demand and achieve their performance targets when traffic will resume.

Short, medium and long term measures have been defined either at FABEC and local levels to address RP2 capacity shortages and flight efficiency underperformance in the last months. They have been described in the FABEC RP3 performance plan submitted 1st October 2019. However, due to the COVID-19 ongoing crisis and its impact on traffic and ANSP revenues, all this set of measures (either human resources or investments plans and operational implementations) are currently under review in order to redefine priorities and timelines.

It should be noted that the outcomes of such reviews by ANSPs, which have been launched very recently, will take time to develop and validate due to ongoing scrutiny by the management and discussions with NSAs, airspace users and the Network Manager and therefore may not be available until the end of the year and also depends on the availability of a reliable forecast.

As a consequence, the following major measures proposed by FABEC, described below and endorsed by FABEC States at FABEC Financial and Performance Committee level, were planned to be implemented to mitigate the performance gaps experienced in 2019. However this should be considered as provisional high level information and has still to be confirmed: it will be subject to final review and endorsement by FPC and NSAs.

At FABEC level:

FABEC collaboration with NM should also contribute to enhance capacity and mitigate potential delays when traffic will recover, through eNM/ANSPs summer plans if deemed necessary as in 2018 and 2019, but also local transition plans and delays CDM mitigation measures whenever necessary (i.e. to accommodate system implementation impact).

In addition, as part of the NM 2019 action plan and on the top of FABEC ongoing airspace design initiatives, it has been decided to set up a FABEC/NM Airspace Design Coordination Group (ADCG) which final goal is to define a Target Plan for implementation of a FABEC Optimized Airspace Structure, an optimum FABEC sectorisation, a FRA cross-border and ATS route structure below FRA. This implementation plan was planned to be provided by NM at the end of 2019 and be ready for validation in Spring 2020, but is not yet mature and the schedule is under review due to ongoing COVID-19 crisis. An ad-hoc internal FABEC validation process will be defined accordingly.

In order to optimize all FABEC measures, assuming sufficient maturity, make them consistent at network level and deliver the highest possible benefits, this should be embedded in a future edition of the European Route Network Improvement Plan (ERNIP)- Part 2 - which will include a FABEC Catalogue of Airspace Projects for years 2020 - 2025 providing a network consolidated picture of FABEC projects and the evaluation of their expected performance.

Expected benefits on capacity of this new initiative will depend on the final content of this FABEC Catalogue of Airspace Projects 2020-2025 and on the final agreement regarding the implementation modalities and timeframe.

In addition, many internal FABEC synergies (such as ICAS coordinated deployment by DFS and LVNL, collaboration for Flight Object Interoperability also with MUAC and Implementation of common Coflight cloud services at DSNA and skyguide or MUAC, BAC and skeyes introducing first shared civil-military ATM system for example) but also cross-borders initiatives (dynamic cross-border airspace shared by DSNA and skyguide or the FABEC Joint States/ ANSPs FUA Task Force) will also contribute to a better performance in the future.

At ANSP level, for ANSP which have not achieved their 2019 target:

DFS:

With the aim of reducing delays, DFS has set up an extensive capacity initiative in 2019 with more than 90 measures in the areas of capacity, staffing, network and framework conditions. In this crisis situation these are re-evaluated, postponed, partially cancelled aiming to minimise flexible costs but without losing the focus to overcome the capacity gaps mid-term.

In 2019, the most important measure has been the eNM/S19 initiative, which reduced flights in the airspace of Karlsruhe UAC by nearly 700 per day. Several measures (such as a renewed agreement on overtime for Summer 2019) have helped increasing the available number of ATCO hours on board when required.

As a short to medium term measure, DFS increased the number of ATCO trainees in 2019 and plans to continue training at a high number over the following years (Covid-19-restrictions permitting). However, effects of this measure will only materialize step by step and over the course of over the next years due to the intensive and time consuming training.

The new ATM system iCAS is planned to be implemented in all DFS ACCs, providing additional capacity over the course of RP3.

**DSNA:**

DSNA strategy to address current capacity issues and reduce RP2 delays is mainly based on a major investments plan aiming at modernizing ATM tools and on a full set of human resources measures addressing both ATCO shortage and better productivity.

After ERATO implementation in Brest (2015) and Bordeaux (2016) ACCs providing 5 to 25% additional capacity, 4-Flight new ATM system (including COFLIGHT new FPS) were planned to be implemented in Reims and Marseille ACCs winter 2021/2022 (20 to 30% additional capacity), March 2023 in Paris ACC (20 to 30% additional capacity) with a final implementation in Brest and Bordeaux ACCs and upgrades in Marseille and Reims ACCs, including mid-term conflicts detection tools, beginning of RP4 (after Paris olympic games) to deliver additional 10 to 15% capacity.

However, to take into account the unpredictable short term impact of ongoing COVID-19 crisis on DSNA revenues and costs, this planning is currently under review by DSNA in association with airspace users through the update of the French ATM Strategy (FAS) framework.

Regarding Human resources, which is the second main driver for enhancing capacity, the following measures are under review:

- On the top of ongoing recruitments and training (100 ATCO/year), additional recruitment plan could be launched during RP3 to avoid RP2 capacity shortages when the traffic will resume after ongoing COVID-19 crisis, but it would require the signature of a new social agreement between DGAC, the Unions and the French Government, which negotiation has been put on hold due to the actual emergency situation;

- New rostering evolution and flexibility measures should also be implemented according to such social agreement.

- New initiatives have been launched in order to enhance productivity (transfer of some airspaces under level 195 in Paris, Reims, Bordeaux and Brest ACCs to approaches, local adaption of current rostering), to decrease ATCO initial training (-15% by 2025) and qualification time (intermediate qualification). The launching of a DSNA-ENAC study on both initial training at the academy and on-the-job training at ACC, has been announced.

All these human resource initiatives have also to be reviewed taking into account both short term impact of ongoing COVID-19 crisis on DSNA costs and revenues but also, for the medium and long terms, future updated STATFOR traffic forecasts, when they will be available and reliable enough.

skeyes:

The development of a complexity assessment tool is still ongoing and additional capacity will be provided throughout RP3 by implementations of a new ATM system compliant with PCP requirements (which should be shared with MUAC and Belgian Defence) and a renewed WAN network.

The rationalization of infrastructure, systems and equipment will be increased during RP3 enhancing capacity by reinforcing business continuity and improving resilience.

Civ-Mil co-location has taken place end 2019 and first benefits are expected in 2020 and a better application of FUA will be enabled by the implementation in 2019 of colocation of the Air Traffic Control Centre of Belgian Defence in skeyes ACC.

Current ATCO recruitment is at maximum training capacity and aims at the largest extent possible to compensate the wave of retirement.

All these measures have also to be reviewed taking into account both short term impact of ongoing COVID-19 crisis on skeyes costs and revenues but also, for the medium and long terms, future updated STATFOR traffic forecasts, when they will be available and reliable enough.

### Assessment of capacity performance

For the fifth consecutive year in RP2, FABEC failed to achieve their en route capacity target.

Actual en route ATFM delays reduced significantly from over 13 million minutes in 2018 to under 10 million minutes in 2019 (10.5 million including delays re-attributed from non-FABEC states through the post-operations process). Over the same period, traffic levels increased by just under 1% - remaining under the STATFOR high traffic forecast from February 2014, when performance plans and associated capacity plans were being developed.

The decrease in delays and increase in traffic resulted in a decrease in average delay per flight: from 2,1 minutes per flight in 2018 to 1,55 minutes per flight in 2019 (excluding the effect of the post operations process).

However, due to anticipated significant capacity shortfalls in the core area, the Network Manager and the ANSPs developed and implemented eNM/S19 measures to re-route traffic away from congested areas and to on-load adjacent ACCs. The Network Management Board agreed to protect ACCs affected by extra traffic by re-assigning delays to the ANSPs causing the initial capacity problem.

Delays reattributed to FABEC ANSPs (from outside FABEC) during the eNM measures include: 387k minutes to DFS and 392k minutes to DSNA.

In consideration of the reattributed delays, year on year performance improves from 2,14 minutes per flight in 2018 to 1,68 minutes per flight in 2019.

In 2019 39% of ATFM delays were attributed to ATC capacity; 28% to ATC staffing and 18% were attributed to adverse weather.

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	5 572		5 735		5 952		6 124		6 308		6 486	
<b>Base</b>	5 509	<b>5 571</b>	5 626	<b>5 667</b>	5 758	<b>5 848</b>	5 860	<b>6 048</b>	5 970	<b>6 238</b>	6 093	<b>6 298</b>
<b>Low</b>	5 440		5 498		5 525		5 550		5 587		5 633	

Delay forecast (with eNM/ANSPs measures for 2019/2020)						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	1.09	1.12	0.85	0.74	N/A	N/A
<b>NOP 2019 - 2024</b>	3.14	3.47	2.91 – 5.88			

### En route Capacity Incentive Scheme

FABEC applied a common en route incentive scheme described in section 4.1 of the FABEC RP2 performance plan (v3.0) dated January 2017. The incentive scheme uses the FAB targets and then applies a ratio of 78% of the FAB targets for the delay causes CRSTMP only, to give a FAB CRSTMP target. A dead-band of +/- 10% of the CRSTMP target is applied to decide if the FAB level was achieved; national / ANSP incentives are determined according to how each ANSP has contributed to the FAB target.

For the actual FABEC en-route Capacity delay data a review to proof non-CRSTMP regulations was conducted by FABEC NSAs via a data validation process within FABEC Finance and Performance Committee (FPC). Therefore, a number of non-CRSTMP regulations were subject to an analysis under the direction of the FPC (see description of the verification process in the FABEC Performance Plan). The relevant number of regulations to be verified consisted of 2,5% of the non-CRSTMP regulations causing the highest delay as well as non-CRSTMP regulations of five sample days (11 February, 22 March, 2 May, 6 July and 12 November). These sample days were discussed and agreed on in the 60th FPC meeting. The relevant data, consisting of 150 regulations, was received on 24 April 2020. Data provided included e.g. regulation reasons, start and end date, regulation descriptions and in-depth analysis as regards weather. The verification process was then conducted by FPC members in the months of April and beginning of May. In case of inconsistencies the ANSPs or CM PMG were informed to solve these issues whereby in case of no sufficient and comprehensible justifications, the opinion of the FPC was crucial. The process was finalised in May 2020.

### Result of FAB Capacity Incentive Scheme

The 2019 FABEC underachievement triggers the activation of the financial common FABEC incentive scheme, generating a malus for 3 FABEC ANSPs (DFS, DSNA and skeyes). In conjunction with this incentive mechanism, an internal validation process was established in order to approve non-CRSTMP regulations. The individual CRSTMP and All-causes achievements for 2019 are listed in a graphic above.

The detailed application and calculation of malus are described further in the national sections that follow.

### Update on Military dimension of the plan

FABEC reported no new information on how civil military coordination and cooperation is providing additional capacity from previous annual reports.

### Observations on Military dimension of the plan

The PRB notes a significant amount of delay attributed to military operations and training in Germany.

### Application of FUA

ASM Level 1 coordination at FABEC Level is ensured through the Airspace Committee at State Level, the Standing Committee Operations at Air Navigation Service Provider Level, and by the application of the FABEC Airspace Policy. A dedicated working group, the Joint States-ANSPs Flexible Use of Airspace Task Force (JFUATF) has been created to tackle specifically the FABEC FUA related issues. Furthermore, an Airspace Management Tool Working Group has been put in place for technical issues related to ASM data exchanges.

Strategic ASM Level 1 is ensured at national level through High Level Airspace Policy Bodies, in charge of application at national level of FUA concept, and in particular to define Level 2 and 3 policies.

Pre-tactical ASM Level 2 is managed at national level, and shall be coordinated between FABEC States to ensure successful implementation of FABEC airspace project, including Free Route Airspace, and with a particular focus on those having impact on cross-border operations.

Tactical ASM Level 3 is generally managed by the national Air Navigation Service Providers, through coordination between the Area Control Centres and the Military Control Centres.

Even if positive evolutions are noted, the implementation of FUA concept within FABEC members remains heterogeneous, in terms of dedicated organization or efficiency. More and more States have implemented part of A-FUA concepts as e.g. Military Variable Profile Areas, Variable geometric Areas, dedicated level 2 measures to merge Airspace Management and Air Traffic Flow and Capacity Management, and a more dynamic use of them.

The JFUATF objectives are related to several deadlines.

At short-term, improve coordination and mutual knowledge between AMC staff members by organizing regular workshops at FABEC Level, with EUROCONTROL/Network Manager Operational Centre experts. The FABEC "Airspace Status Overview" (FASO) Tool not giving satisfaction, enhance automatic ASM data exchanges between neighbouring AMC via LARA Clustering or LARA-STANLY\_ACOS interfaces solutions, via PENS and further NEW PENS networks.

At mid-term, for end of 2020, ensure AMC Personal Training and Qualification harmonization via a FABEC dedicated document.

At long-term, fully harmonize the deployment and the practice of FUA/A-FUA concepts within the FABEC members.

In the end, this implementation will offer a better performance to the network notably by:

- an improved military use of airspace, shaped to their just needs, and offering the possibility to shorten civilian traffic trajectories;
- a better predictability of short/mid/long-term military activities at national as well as at FABEC Level allowing the network to take into account as soon as possible the military requirements and mitigate the induced constraints.

To assess FUA performance, it's necessary to have both data on actual use of ARES/SUA, but also on the efficient use by the airliners and their Computerized Flight Plan Service Provider of the Airspace released by the military (CURA) at a pre-tactical level (planning and actual use of CDRs).

### Observations of the Application of FUA

The PRB welcomes the update on the processes and tools that are, or will be, available to FABEC but notes that there is no update on how FABEC applies those processes or tools to ensure the optimum benefit for both civil and military users.

**FABEC**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

FABEC represents the largest FAB in terms of number of airports and the respective terminal air navigation services subject to RP2. Local variability of performance is heavily masked on the aggregated FAB level. FABEC, next to SW FAB and UK-Ireland FAB, influences the European performance significantly.

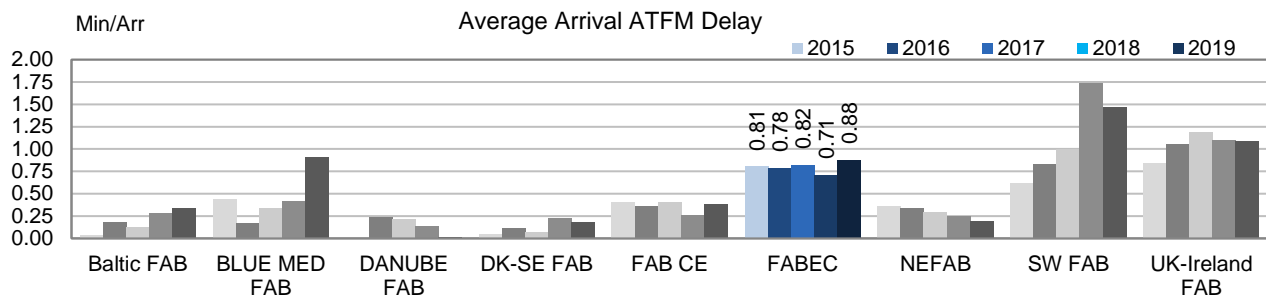
On a FAB level, the achieved performance in terms of arrival ATFM delay (0.88 min/arr) is slightly above the European average (RP2 airports) of 0.86 min/arr. in 2019. Last year, airports in FABEC represented 43% of these delays in the SES area and 42% of the traffic.

Across FABEC, there is a variety of methods of establishing the national target on arrival ATFM delay and the associated incentive scheme.

Given the number of airports, there is a wide spread of the compliance to ATFM slots. Some of the airports in FABEC show worse adherence than most of the airports in the SES area..

The implementation of the Airport Operator Data Flow is not completed for all airports within FABEC. This impedes a consistent monitoring of ATC pre-departure delay.

**2. Arrival ATFM Delay**



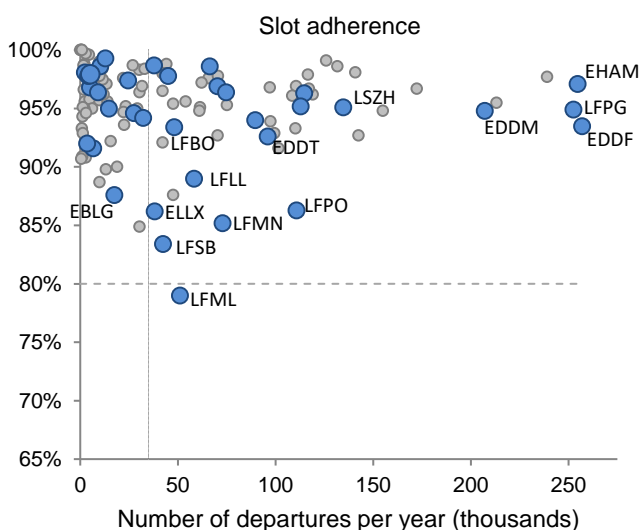
Arrival ATFM delays at FABEC level have increased in 2019 reaching the highest value in RP2 (0.88 min/arr.) which ranges just above the European average of 0.86 min/arr. In global, traffic levels in 2019 at FABEC airports have remained unchanged with respect to 2018, with also very little changes at local airport level.

Due to the size / number of airports, FABEC performance - next to SW FAB and UK-Ireland FAB - drives the European average and has the highest impact: terminal ATFM delays generated by airports in FABEC during RP2 (2015-2019) account for approx. 47% of the minutes of arrival ATFM delay in all airports under monitoring.

**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

Across FABEC, there are different methods of establishing the national target on arrival ATFM delay and the associated incentive scheme. For the incentive scheme, most states in FABEC focus on CRSTMP targets, or on only some airports, and some do not have an incentive scheme for terminal capacity.

**4. ATFM Slot Adherence**



Within FABEC slot adherence varies widely amongst the airports. Most of the airports within FABEC show a compliance above 90%, and about half of those above 95%.

But there are some other airports that show worse compliance than most European airports, and in the case of Marseille, below the minimum required 80% (for the full set of data please refer to the detailed tables per state).

Nevertheless it seems some technical issues in the reporting of the take off time to NMOC might have influenced the calculation of the indicator at some French airports.

In general the compliance with ATFM slots in the airports within FABEC has improved in 2019 and along RP2.

**5. ATC Pre-departure Delay**

Across FABEC, the implementation of the Airport Operator Data Flow varies and as such impedes a consistent monitoring of pre-departure delay for all FAB member states. In addition, the quality of the reporting does not always allow for the calculation of the indicator, as too many minutes of delay are left unreported or unexplained.

FABEC is invited to encourage the implementation of the data flow and the proper reporting of delays.



# Annual Monitoring Report 2019

## Local level view

### Belgium

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## BELGIUM

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	74	C	D	C	C	C
Skeyes	90	D	E	D	D	D

Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.

Application of the severity classification of the Risk Analysis Tool (RAT)		
	RAT application (%)	
	ATM Ground	ATM Overall
Separation Minima Infringements (SMIs)	100%	100%
Runway Incursions (RIs)	100%	100%
ATM Specific Occurrences (ATM-S)		100%
Source of RAT data:	BCAA	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

Just culture		
State level	Number of questions answered	
	YES	NO
Policy and its implementation	9	0
Legal/Judiciary	7	0
Occurrence reporting and Investigation	2	0
<b>TOTAL</b>	<b>18</b>	<b>0</b>

Skeyes	Number of questions answered	
	YES	NO
Policy and its implementation	13	0
Legal/Judiciary	2	1
Occurrence reporting and Investigation	7	1
<b>TOTAL</b>	<b>22</b>	<b>2</b>

Observations
All safety targets have been met.

## BELGIUM

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

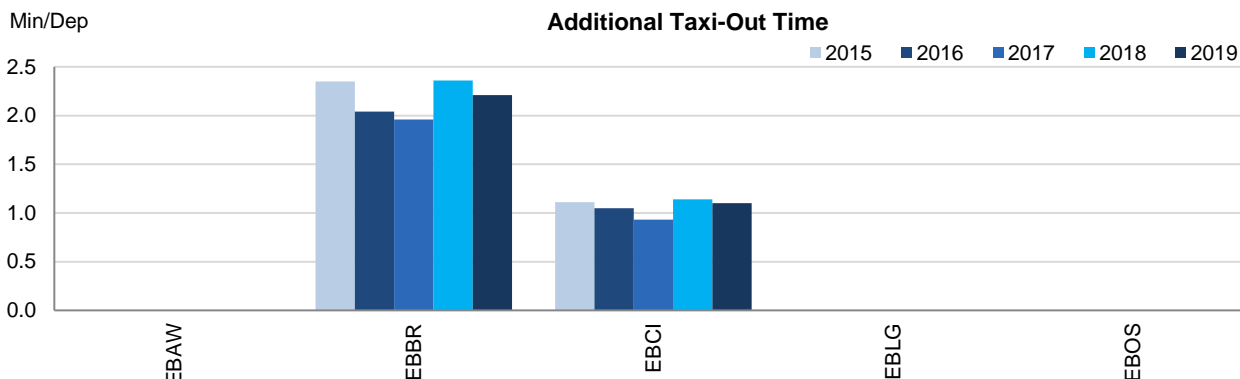
Belgium identifies 5 airports as subject to RP2 monitoring.

The Airport Operator Data Flow is fully established at two airports (i.e. EBBR and EBCI). Therefore the evaluation of the environmental performance is limited to them. There is no sign of APDF implementation at the rest of airports.

Traffic level in 2019 has not changed with respect to the previous year for Brussels (EBBR), while it has increased by 3% at Charleroi (EBCI)

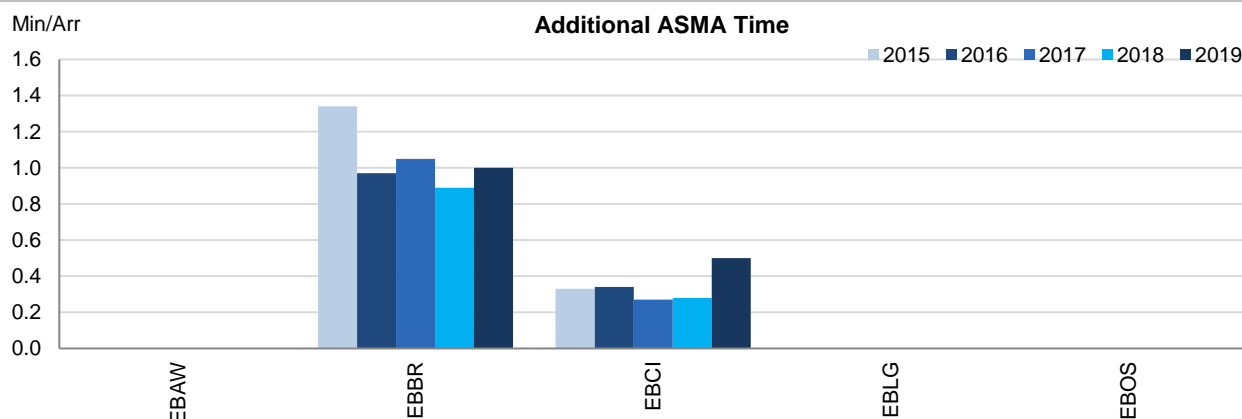
Performance at both airports regarding the environmental indicators is very good, with low additional times well below the SES averages.

## 2. Additional Taxi-Out Time



Additional taxi-out times at Belgian airports have slightly decreased in 2019 (EBBR; 2018: 2.36 min/dep.; 2019: 2.21 min/dep.; EBCI: 2018:1.14 min/dep.; 2019:1.1 min/dep). The level of performance is quite stable along the year for both airports.

## 3. Additional ASMA Time



Additional ASMA times at Brussels have increased at both Brussels and Charleroi in 2019 (EBBR; 2018: 0.89 min/arr.; 2019: 1 min/arr.; EBCI: 2018:0.28 min/arr.; 2019:0.5 min/arr.)

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Antwerp	EBAW	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brussels	EBBR	2.35	2.04	1.96	2.36	2.21	1.34	0.97	1.05	0.89	1.00
Charleroi	EBCI	1.11	1.05	0.93	1.14	1.10	0.33	0.34	0.27	0.28	0.50
Liège	EBLG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ostend-Bruges	EBOS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**BELGIUM**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
<b>National Capacity target</b>	N/A	N/A	N/A	N/A	N/A	Because there are two ANSPs in Belgium, skeyes and EUROCONTROL (MUAC), Belgium did not set a national target. Exclusive use of CRSTMP codes means that the PRB is unable to independently validate the results for incentive purposes. Actual performance reported here is for all causes of delay and includes NM post operations adjustment.
<b>Deadband +/-</b>	N/A	N/A	N/A	N/A	N/A	
<b>Actual performance</b>	0.50	0.72	0.59	0.88	0.61	

**National capacity incentive scheme**

The incentive scheme is applied for delay causes listed in Art. 15 (g) of Regulation 391/2013; data used for calculation was AUA data provided by PRU. (The PRB reports at FIR level, not AUA level, for RP2.)

[The PRU is unable to validate the attributed cause of delay, which is determined by the ANSP requesting the ATFM regulation.]

The Capacity delay target at FAB level was set at an average of 0,34 min/flight for CRSTMP ATFM delays. (See FABEC graphic regarding incentives in FABEC section of monitoring report.)

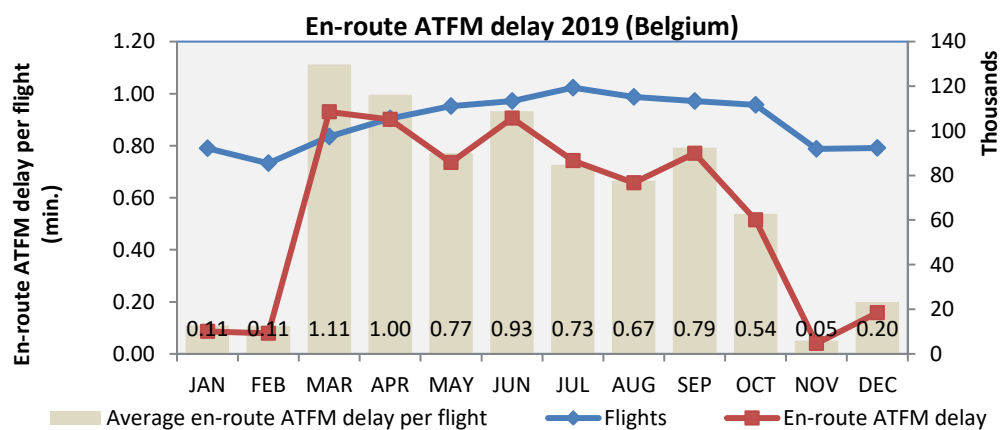
skeyes broken down target was set at 0,07 min/ flight.  
 EUROCONTROL (MUAC) broken down target was set at 0.15 min/ flight

- 2019 achievement (As reported by FABEC)
- FABEC: 1.22 min/ flight for CRSTMP delays
  - skeyes: 0.74 min/ flight for CRSTMP delays
  - EUROCONTROL (MUAC): 0.10 min/ flight for CRSTMP delays

Bonus / Malus  
 The percentage of malus for skeyes was -0.5% of total ANSP's revenue in 2019, which equates to €528 085,14

Although MUAC did achieve its target no incentive is applied to MUAC as the overall FABEC target was not met.

**Observations regarding national capacity performance**



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En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.17	0.24	0.20	0.04	0.03	0.08	0.02	0.50	0.72	0.59	0.88	0.61

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	1 150		1 189		1 235		1 273		1 315		1 356	
<b>Base</b>	1 136	1 133	1 167	1 165	1 195	1 188	1 219	1 240	1 245	1 275	1 274	1 249
<b>Low</b>	1 122		1 139		1 145		1 152		1 163		1 175	

Traffic levels in Belgium decreased in 2019 by just over 2% from what was handled in 2018, to a level below the baseline traffic forecasted by STATFOR in February 2014, when performance targets and associated capacity plans were being developed.

Average en route ATFM delays in Belgium improved from 0,88 minutes per flight in 2018 to 0,61 minutes per flight in 2019. the airspace users commented that performance at MUAC was remarkably good compared to the previous year but that Brussels ACC struggled with staffing issues and unexpectedly generated high delays.

41% of ATFM delays were attributed to ATC staffing; 35% attributed to ATC capacity and 12% were attributed to adverse weather. 7% of delays in Belgium were attributed to ATC industrial action at Brussels ACC.

82% of en route ATFM delays in Belgium originated in Brussels ACC (645k minutes), 18% originated in MUAC (137k minutes)

The actual delays for both MUAC and skeyes in 2019 were significantly different from what was predicted in the NOP 2019 - 2024: MUAC much better than predicted, Brussels ACC much worse.

Delay forecast - skeyes						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.09	0.08	0.10	0.12	N/A	N/A
<b>NOP 2019 - 2024</b>	0.42	0.12	0.14 - 0.17			

Delay forecast - MUAC						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.89	0.79	0.47	0.40	N/A	N/A
<b>NOP 2019 - 2024</b>	1.62	1.36	1.28 - 1.56			

#### Planning and Effective Use of CDRs

Belgium provided no information on this indicator in the annual monitoring report.

#### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

#### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
66%	70%	71%	68%	77%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
20%	11%	8%	N/A	6%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	77%	77%	>100%

#### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

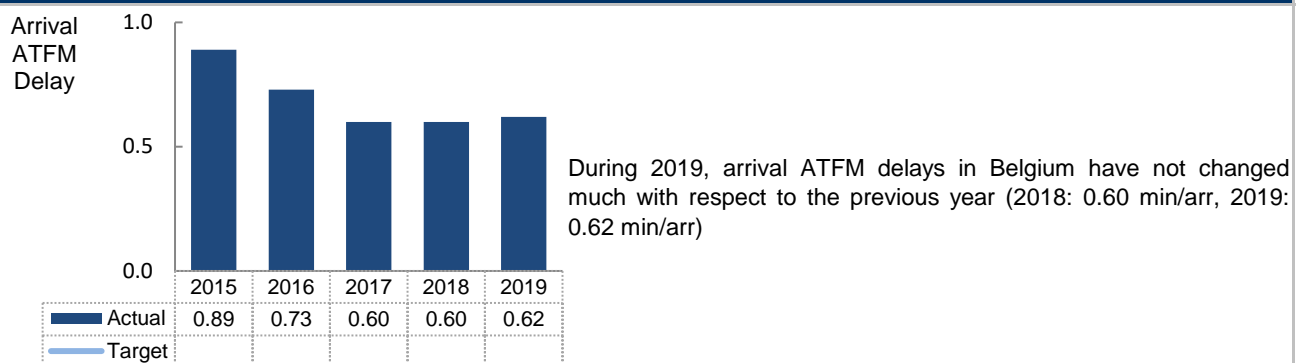
**BELGIUM****Monitoring of Airports Contribution to CAPACITY for 2019****1. Overview**

In Belgium, ANS at a total of 5 airports are subject to RP2 monitoring. Traffic levels at these airports have remained similar during RP2 (only +0.8% with respect to 2015).

In terms of arrival ATFM delays, values are significantly lower than those in the beginning of the reference period (-29.9% in 2019 with respect to 2015) and at the same time ATFM slot adherence has improved every year and is now above 95% (2015:92.6%; 2019: 95.3%).

Local targets have been established for a subset of the airports (Brussels and Liège) as a method for establishing a national target on all airports was not available.

The Airport Operator Data Flow, required for the monitoring of the ATC pre-departure delay, is not established for Antwerp (EBAW), Liège (EBLG), and Ostend-Bruges (EBOS).

**2. Arrival ATFM Delay**

Arrival ATFM delays in Belgium decreased in the first two years of the reference period, and since then they have remained quite stable. The main driver for the national average is Brussels (EBBR; 2019: 0.90 min/arr) while negligible delays were registered at Liège (EBLG) and Charleroi (EBCI).

Most of the delays at Brussels are attributed to weather reasons (74%) but ATC industrial action in the month of March generated 13.5% of the annual delays. Staffing issues were the third main cause for delays (7.9% of total).

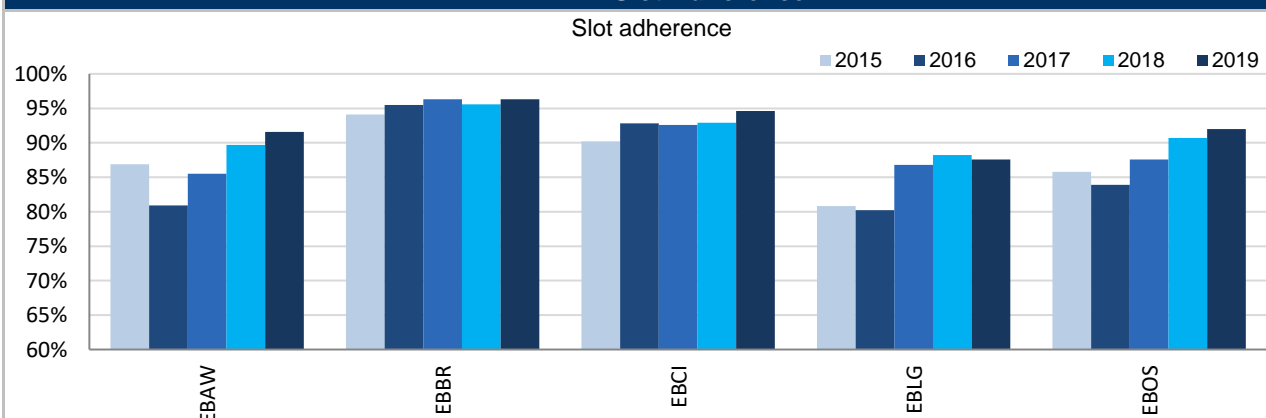
**3. Arrival ATFM Delay – National Target and Incentive Scheme**

Belgium has not established a national target on arrival ATFM delay covering all causes. The national target is currently set on CRSTMP causes with breakdown for two airports EBBR and EBLG.

At Brussels (EBBR), the actual performance for CRSTMP was 0.06 min/arr. in 2019, which meets the target of 0.11 min/arr. set by the Belgian State.

At Liège (EBLG), the actual performance for CRSTMP was 0.03 min/arr. in 2018, which meets the target of 0.06 min/arr. set by the Belgian State.

Both achieved values lie within the dead band of +/-50%, so no bonuses are applied for EBBR and EBLG.

**4. ATFM Slot Adherence**

ATFM slot adherence at Brussels and Charleroi (2019; EBBR:96.3%; EBCI: 94.6%) is very good and drives the national performance (2019: 95.3%).

All the Belgian airports except Liège (EBLG; 2019: 87.6%) show adherence above 90% performance, a clear improvement since the beginning of RP2.

## 5. ATC Pre-departure Delay

The monitoring of pre-departure delay is dependent on the establishment of the Airport Operator Data Flow. For the time being, this flow is only established for Brussels (EBBR) and Charleroi (EBCI).

ATC pre-departure delay at Brussels (EBBR) and Charleroi (EBCI) has slightly improved in 2019 and is commensurate with the level of traffic.

## 6. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

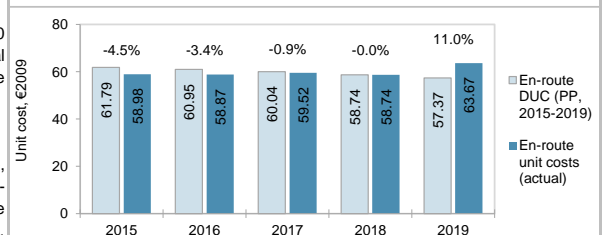
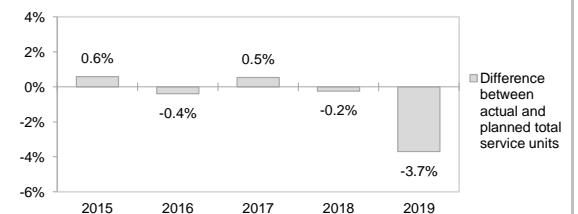
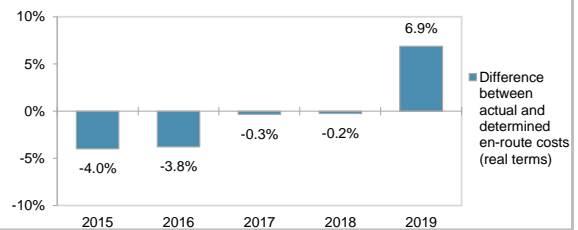
Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Antwerp	EBAW	0.00	0.00	0.00	0.02	0.00	86.9%	80.9%	85.5%	89.7%	91.6%	n/a	n/a	n/a	n/a	n/a
Brussels	EBBR	1.26	0.93	0.81	0.85	0.90	94.1%	95.5%	96.3%	95.6%	96.3%	0.66	0.43	0.63	0.82	0.78
Charleroi	EBCI	0.00	0.47	0.11	0.08	0.02	90.2%	92.8%	92.6%	92.9%	94.6%	0.07	0.16	0.11	0.17	0.13
Liège	EBLG	0.14	0.33	0.15	0.10	0.09	80.8%	80.2%	86.8%	88.2%	87.6%	n/a	n/a	n/a	n/a	n/a
Ostend-Bruges	EBOS	0.00	0.00	0.12	0.01	0.00	85.8%	83.9%	87.6%	90.7%	92.0%	n/a	n/a	n/a	n/a	n/a



## BELGIUM &amp; LUXEMBOURG: En-route charging zone

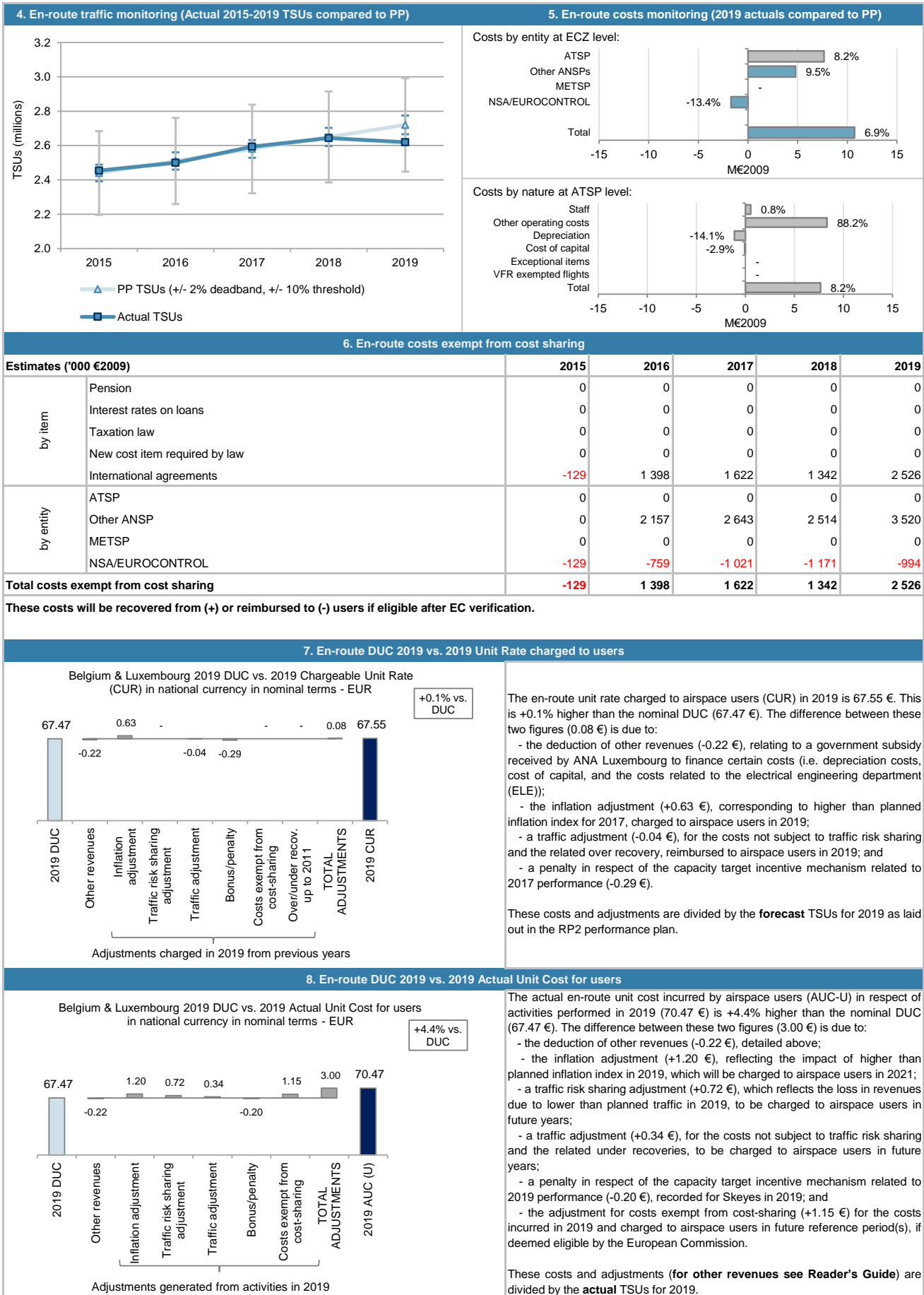
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· Belgium & Luxembourg ECZ represents 2.6% of the SES en-route ANS determined costs in 2019						
· ATSP: Skeyes						
· FAB: FABEC						
· National currency: EUR						
2. En-route DUC monitoring at Charging Zone level						
Belgium & Luxembourg: Data from RP2 PP (EC Decision 2017/553 of 22 March 2017)		2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)		168 277 718	172 792 013	177 260 922	180 556 020	183 521 461
Inflation %		1.1%	1.2%	1.3%	1.4%	1.4%
Inflation index (100 in 2009)		111.6	112.9	114.4	116.0	117.6
Real en-route costs (EUR2009)		150 757 603	152 984 440	154 897 964	155 652 698	156 055 562
Total en-route Service Units		2 440 000	2 510 000	2 580 000	2 650 000	2 720 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>61.79</b>	<b>60.95</b>	<b>60.04</b>	<b>58.74</b>	<b>57.37</b>
Belgium & Luxembourg: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)		160 753 284	166 388 324	178 362 008	183 524 635	199 494 828
Inflation %		0.6%	1.8%	2.2%	2.3%	1.2%
Inflation index (100 in 2009)		111.1	113.1	115.5	118.2	119.6
Real en-route costs (EUR2009)		144 755 264	147 180 265	154 375 434	155 272 510	166 782 827
Total en-route Service Units		2 454 178	2 499 996	2 593 652	2 643 568	2 619 592
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>58.98</b>	<b>58.87</b>	<b>59.52</b>	<b>58.74</b>	<b>63.67</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
En-route costs (nominal EUR) in value		-7 524 434	-6 403 689	1 101 086	2 968 615	15 973 367
in %		-4.5%	-3.7%	0.6%	1.6%	8.7%
Inflation % in p.p.		-0.5 p.p.	0.6 p.p.	0.9 p.p.	0.9 p.p.	-0.2 p.p.
Inflation index (100 in 2009) in p.p.		-0.6 p.p.	0.1 p.p.	1.1 p.p.	2.2 p.p.	2.0 p.p.
Real en-route costs (EUR2009) in value		-6 002 339	-5 804 175	-522 529	-380 188	10 727 266
in %		-4.0%	-3.8%	-0.3%	-0.2%	6.9%
Total en-route Service Units in value		14 178	-10 004	13 652	-6 432	-100 408
in %		0.6%	-0.4%	0.5%	-0.2%	-3.7%
<b>Real en-route unit cost per Service Unit (EUR2009) in value</b>		<b>-2.80</b>	<b>-2.08</b>	<b>-0.52</b>	<b>-0.001</b>	<b>6.29</b>
<b>in %</b>		<b>-4.5%</b>	<b>-3.4%</b>	<b>-0.9%</b>	<b>-0.002%</b>	<b>11.0%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (63.67 €2009) is +11.0% higher than planned in the PP (57.37 €2009). This results from the combination of lower than planned TSUs (-3.7%) and higher than planned en-route costs in real terms (+6.9%, or +10.7 M€2009). No corrective measures are detailed in the FABEC FAB Monitoring Report.						
<b>En-route service units</b>						
The difference between actual and planned TSUs (-3.7%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Skeyes) bearing a loss of -2.1 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are +8.7% (+16.0 M€) higher than planned. However, since the actual inflation index is also higher than planned (+2.0 p.p.), actual en-route costs are +6.9% (+10.7 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by Skeyes (+8.2%, or +7.7 M€2009) and the other ANSPs (+9.5%, or +4.8 M€2009), while the costs for the NSA/EUROCONTROL (-13.4%, or -1.7 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +2.5 M€2009 comprising -1.0 M€2009 for the variation in EUROCONTROL costs and +3.5 M€2009 for other international agreements. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Belgium & Luxembourg charging zone, actual en-route TSUs are -0.7% lower than planned, while actual costs in real terms are also -0.3% lower than the determined costs (some -2.0 M€2009). As a result, the weighted average actual unit cost over RP2 (59.98 €2009) is +0.4% higher than planned in the NPP (59.72 €2009).						



**BELGIUM & LUXEMBOURG: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



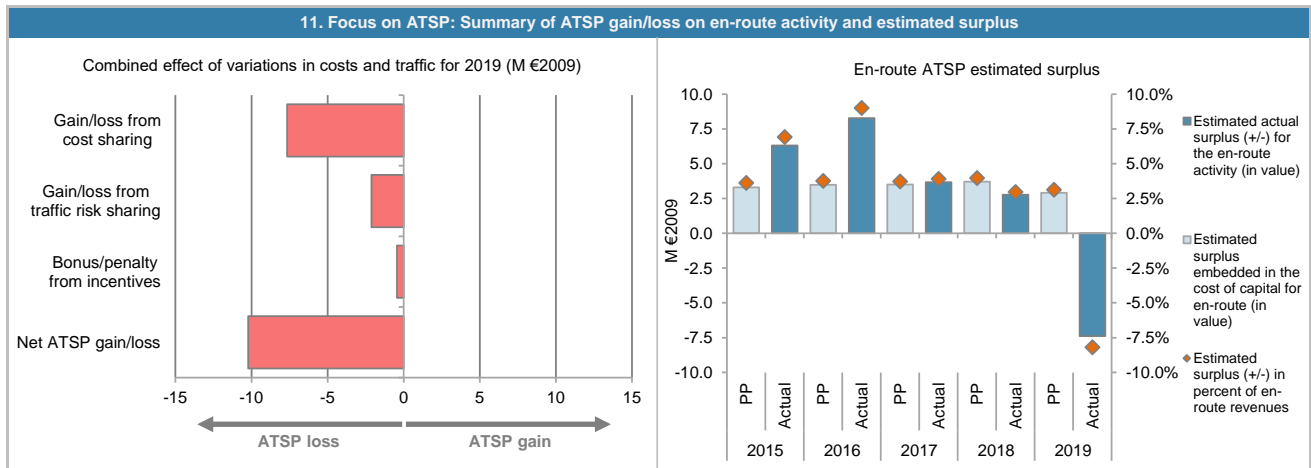
## BELGIUM: En-route ATSP (Skeyes)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	91 079	92 659	93 716	93 306	92 857
Actual costs for the ATSP	88 088	87 035	93 457	93 487	100 516
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	2 992	5 624	259	-181	-7 659
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>2 992</b>	<b>5 624</b>	<b>259</b>	<b>-181</b>	<b>-7 659</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	0.6%	-0.4%	0.5%	-0.2%	-3.7%
Determined costs for the ATSP (PP) - based on actual inflation	84 792	85 734	85 937	84 673	84 419
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>493</b>	<b>-342</b>	<b>455</b>	<b>-206</b>	<b>-2 117</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>-456</b>	<b>-448</b>	<b>-461</b>	<b>-455</b>	<b>-441</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>3 028</b>	<b>4 834</b>	<b>253</b>	<b>-842</b>	<b>-10 218</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	78 793	77 836	72 977	72 740	73 449
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	78 793	77 836	72 977	72 740	73 449
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	3 310	3 496	3 502	3 719	2 908
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	4.2%	4.5%	4.8%	5.1%	4.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	3 310	3 496	3 502	3 719	2 908
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>3 310</b>	<b>3 496</b>	<b>3 502</b>	<b>3 719</b>	<b>2 908</b>
<b>Revenue/costs for the en-route activity</b>	<b>91 079</b>	<b>92 659</b>	<b>93 716</b>	<b>93 306</b>	<b>92 857</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.6%</b>	<b>3.8%</b>	<b>3.7%</b>	<b>4.0%</b>	<b>3.1%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>4.2%</b>	<b>4.5%</b>	<b>4.8%</b>	<b>5.1%</b>	<b>4.0%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	78 273	76 819	71 415	70 510	71 350
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	78 273	76 819	71 415	70 510	71 350
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	3 288	3 450	3 427	3 605	2 825
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	4.2%	4.5%	4.8%	5.1%	4.0%
Estimated surplus embedded in the cost of capital for en-route (in value)	3 288	3 450	3 427	3 605	2 825
Net ATSP gain(+)/loss(-) on en-route activity	3 028	4 834	253	-842	-10 218
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>6 317</b>	<b>8 284</b>	<b>3 680</b>	<b>2 763</b>	<b>-7 392</b>
<b>Revenue/costs for the en-route activity</b>	<b>91 116</b>	<b>91 869</b>	<b>93 710</b>	<b>92 645</b>	<b>90 299</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.9%</b>	<b>9.0%</b>	<b>3.9%</b>	<b>3.0%</b>	<b>-8.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>8.1%</b>	<b>10.8%</b>	<b>5.2%</b>	<b>3.9%</b>	<b>-10.4%</b>

**BELGIUM: En-route ATSP (Skeyes)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 Skeyes en-route costs vs. PP**

In 2019, Skeyes actual en-route costs are +8.2% (+7.7 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- slightly higher staff costs (+0.8%, or +0.6 M€2009), which are understood to result from an increase in staff numbers in 2019;
- much higher other operating costs (+88.2%, or +8.3 M€2009), which, according to comments received from FABEC on the draft monitoring report, are explained by "new maintenance contracts for infrastructure and systems, temporary reinforcement of staff for projects and increased license costs";
- much lower depreciation costs (-14.1%, or -1.1 M€2009), resulting from delays in the investment programme; and,
- lower cost of capital (-2.9%, or -0.1 M€2009).

**Actual 2019 MUAC en-route costs allocated to Belgium and Luxembourg vs. PP**

For the share of MUAC costs allocated to Belgium and Luxembourg in 2019, the higher actual en-route costs in real terms (+11.0%, or +4.9 M€2009) in 2019 reflect a combination of higher staff costs (+11.0%, or +3.9 M€2009), much higher other operating costs (+27.4%, or +1.6 M€2009), lower depreciation costs (-14.5%, or -0.5 M€2009) and significantly lower cost of capital (-81.2%, or -0.2 M€2009).

**Skeyes net gain/loss on en-route activity in 2019**

As shown in box 9, Skeyes generated a net loss of -10.2 M€2009 on the en-route activity. This is a combination of three elements:

- a loss of -7.7 M€2009 arising from the cost sharing mechanism;
- a loss of -2.1 M€2009 arising from the traffic risk sharing mechanism; and
- a loss of -0.4 M€2009 (or -0.5 M€ in nominal terms), corresponding to a penalty as part of the en-route capacity target incentive mechanism. This amount corresponds to 0.5% of Skeyes en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this penalty in the chargeable cost base will be examined by the European Commission.

**Skeyes overall estimated surplus for the en-route activity**

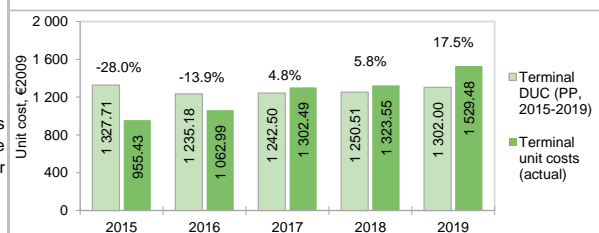
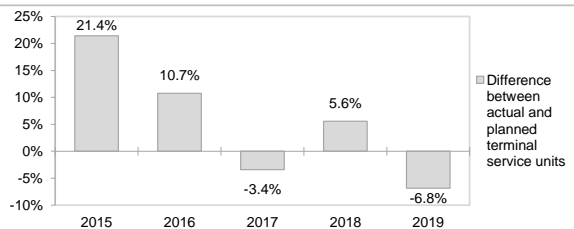
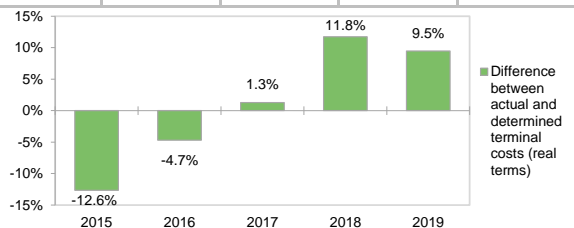
Ex-post, the overall estimated surplus taking into account the net loss from the en-route activity mentioned above (-10.2 M€2009) and the surplus embedded in the actual cost of capital (+2.8 M€2009) amounts to an overall loss of -7.4 M€2009 (8.2% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is negative (-10.4%), which indicates that the surplus embedded in the cost of capital (4.0%) was not sufficient to compensate for the loss related to the en-route activity.

When considering the whole of RP2 (2015-2019), Skeyes generated cumulative gains in respect of cost sharing of +1.0 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a loss of -1.7 M€2009, which reflects the fact that actual traffic was in general terms -0.7% lower than planned during RP2. Adding the loss of -2.3 M€2009 to be borne by Skeyes in respect to penalties stemming from en-route capacity incentive scheme, and the estimated surplus embedded in the en-route cost of capital (+16.6 M€2009 over RP2) leads to an overall estimated surplus of +13.7 M€2009, which corresponds to an average ex-post return on equity of 3.7% (compared to 4.5% as initially planned in the NPP).

## BELGIUM ANTWERPEN: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

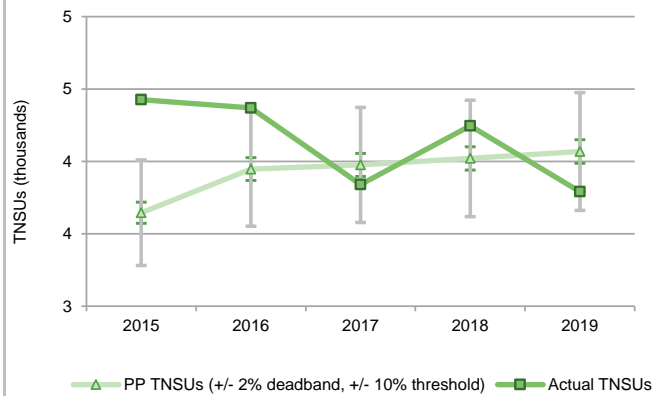
1. Contextual economic information: terminal air navigation services					
· Belgium Antwerpen TCZ represents 0.5% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No	
· ATSP:	Skeyes	· Airports with fewer than 70,000 IFRs ATMs:		1	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019:	1,	of which:		· Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Belgium Antwerpen: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	5 402 889	5 506 774	5 653 055	5 832 191	6 229 428
Inflation %	1.1%	1.2%	1.3%	1.4%	1.4%
Inflation index (100 in 2009)	111.62	112.95	114.44	116.00	117.60
Real terminal costs (EUR2009)	4 840 371	4 875 519	4 939 875	5 027 781	5 297 129
Total terminal Service Units	3 646	3 947	3 976	4 021	4 068
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>1 327.71</b>	<b>1 235.18</b>	<b>1 242.50</b>	<b>1 250.51</b>	<b>1 302.00</b>
Belgium Antwerpen: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	4 696 338	5 252 264	5 779 744	6 641 558	6 935 463
Inflation %	0.6%	1.8%	2.2%	2.3%	1.2%
Inflation index (100 in 2009)	111.1	113.1	115.5	118.2	119.6
Real terminal costs (EUR2009)	4 228 962	4 645 937	5 002 469	5 619 144	5 798 226
Total terminal Service Units	4 426	4 371	3 841	4 246	3 791
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>955.43</b>	<b>1 062.99</b>	<b>1 302.49</b>	<b>1 323.55</b>	<b>1 529.48</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-706 552	-254 510	126 689	809 367	706 035
	in value				
	in %				
Inflation %	-0.5 p.p.	0.6 p.p.	0.9 p.p.	0.9 p.p.	-0.2 p.p.
	in p.p.				
Inflation index (100 in 2009)	-0.6 p.p.	0.1 p.p.	1.1 p.p.	2.2 p.p.	2.0 p.p.
	in p.p.				
Real terminal costs (EUR2009)	-611 409	-229 582	62 595	591 363	501 097
	in value				
	in %				
Total terminal Service Units	781	423	-135	225	-277
	in value				
	in %				
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-372.28</b>	<b>-172.19</b>	<b>59.99</b>	<b>73.03</b>	<b>227.48</b>
	in value				
	in %				
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Belgium Antwerpen Terminal Charging Zone (TCZ) comprising Antwerpen airport (EBAW). In this TCZ the financing of terminal ANS activities in 2019 is fully subsidised by the State or regional authorities, no unit rate is charged to the airspace users. See also <b>Note 1</b> at the end of this Report.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (1 529.48 €2009) is +17.5% higher than planned in the PP (1 302.00 €2009). This results from the combination of lower than planned TNSUs (-6.8%) and higher than planned terminal costs in real terms (+9.5%, or +0.5 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Belgium Antwerpen TCZ. In 2019, the actual TNSUs in Belgium Antwerpen TCZ are -6.8% lower than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +11.3% (+0.7 M€) higher than planned. However, since the actual inflation index is also higher than planned (+2.0 p.p.), actual terminal costs are +9.5% (+0.5 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by Skeyes (+9.5%, or +0.5 M€2009) and the NSA (+8.2%, or +0.01 M€2009). A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Belgium Antwerpen TCZ, actual TNSUs are +5.2% higher than planned, while actual costs in real terms are also +1.3% higher than the determined costs (some +0.3 M€2009). As a result, the weighted average actual unit cost over RP2 (1 223.50 €2009) is -3.7% lower than planned in the NPP (1 270.79 €2009).					



## BELGIUM ANTWERPEN: Terminal charging zone

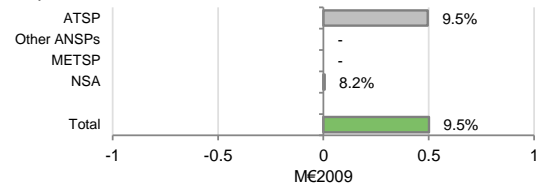
## Monitoring of terminal COST-EFFICIENCY for 2019

## 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

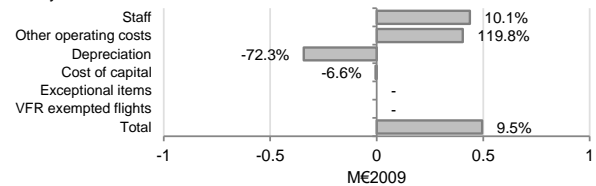


## 5. Terminal costs monitoring (2019 actuals compared to PP)

## Costs by entity at TCZ level:



## Costs by nature at ATSP level:



## 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

## 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Analysis not applicable, terminal ANS in Antwerpen TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

## 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Analysis not applicable, terminal ANS in Antwerpen TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

## 9. Focus on terminal ATSP: General conclusions \*see Note 1

## Actual 2019 Skeyes terminal costs in Antwerpen TCZ vs. PP

In 2019, Skeyes actual terminal costs in Antwerpen TCZ are +9.5% (+0.5 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- higher staff costs (+10.1%, or +0.4 M€2009), which are understood to reflect an increase in staff numbers in 2019;
- much higher other operating costs (+119.8%, or +0.4 M€2009), which, according to comments received from FABEC on the draft monitoring report, are explained by "new maintenance contracts for infrastructure and systems, temporary reinforcement of staff for projects and increased license costs";
- much lower depreciation costs (-72.3%, or -0.3 M€2009), reflecting "delay in CAPEX of previous years"; and,
- lower cost of capital (-6.6%).

No description of the main drivers for the deviation between actual and determined costs is provided individually for each TCZ in the FABEC FAB 2019 Monitoring Report whereas only a consolidated description for the variation in costs for Skeyes, aggregating all five TCZs, is reported in the additional information to June 2020 terminal Reporting Tables. The drivers noted above are therefore not necessarily directly related to the activity of Skeyes in this particular TCZ.

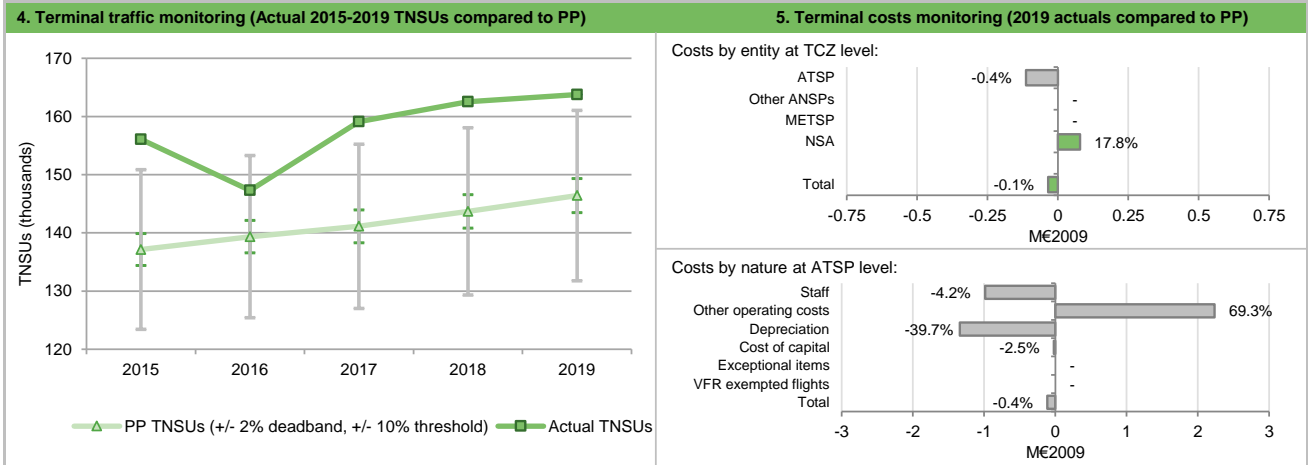
**BELGIUM BRUSSELS: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services					
· Belgium Brussels TCZ represents 2.9% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No	
· ATSP: Skeyes		· Airports with fewer than 70,000 IFRs ATMs:		0	
· National currency: EUR		· Airports with between 70,000 and 225,000 IFRs ATMs:		1	
· Number of airports in charging zone in 2019: 1, of which:		· Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level					
Belgium Brussels: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	34 001 220	35 029 505	35 994 691	36 596 159	36 991 971
Inflation %	1.1%	1.2%	1.3%	1.4%	1.4%
Inflation index (100 in 2009)	111.62	112.95	114.44	116.00	117.60
Real terminal costs (EUR2009)	30 461 207	31 013 987	31 453 658	31 548 606	31 455 737
Total terminal Service Units	137 140	139 355	141 121	143 691	146 408
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>222.12</b>	<b>222.55</b>	<b>222.88</b>	<b>219.56</b>	<b>214.85</b>
Belgium Brussels: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	32 935 259	33 777 305	34 475 149	36 426 584	37 583 619
Inflation %	0.60%	1.8%	2.2%	2.3%	1.2%
Inflation index (100 in 2009)	111.1	113.1	115.5	118.2	119.6
Real terminal costs (EUR2009)	29 657 572	29 878 014	29 838 843	30 819 007	31 420 876
Total terminal Service Units	156 085	147 297	159 108	162 555	163 766
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>190.01</b>	<b>202.84</b>	<b>187.54</b>	<b>189.59</b>	<b>191.86</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value -1 065 961	in value -1 252 200	in value -1 519 542	in value -169 575	in value 591 648
	in % -3.1%	in % -3.6%	in % -4.2%	in % -0.5%	in % 1.6%
Inflation %	in p.p. -0.5 p.p.	in p.p. 0.6 p.p.	in p.p. 0.9 p.p.	in p.p. 0.9 p.p.	in p.p. -0.2 p.p.
Inflation index (100 in 2009)	in p.p. -0.6 p.p.	in p.p. 0.1 p.p.	in p.p. 1.1 p.p.	in p.p. 2.2 p.p.	in p.p. 2.0 p.p.
Real terminal costs (EUR2009)	in value -803 635	in value -1 135 973	in value -1 614 814	in value -729 599	in value -34 861
	in % -2.6%	in % -3.7%	in % -5.1%	in % -2.3%	in % -0.1%
Total terminal Service Units	in value 18 945	in value 7 942	in value 17 988	in value 18 864	in value 17 358
	in % 13.8%	in % 5.7%	in % 12.7%	in % 13.1%	in % 11.9%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -32.11</b>	<b>in value -19.71</b>	<b>in value -35.35</b>	<b>in value -29.97</b>	<b>in value -22.99</b>
	<b>in % -14.5%</b>	<b>in % -8.9%</b>	<b>in % -15.9%</b>	<b>in % -13.6%</b>	<b>in % -10.7%</b>
3. Focus on terminal at State/Charging Zone level					
<p>This analysis focuses on Belgium Brussels Terminal Charging Zone (TCZ) which comprises Brussels airport (EBBR). In this TCZ the costs for terminal ANS activities in 2019 were partly (25%) subsidised by the State or regional authorities. See also <b>Note 1</b> at the end of this Report.</p> <p><b>Terminal unit cost</b>                      In 2019, the actual terminal unit cost in real terms (191.86 €2009) is -10.7% lower than planned in the PP (214.85 €2009). This results from the combination of much higher than planned TNSUs (+11.9%) and terminal costs staying practically as planned in real terms (-0.1%).</p> <p><b>Terminal service units</b>                      The traffic risk sharing mechanism does not apply in Belgium Brussels TCZ. In 2019, the actual TNSUs in Belgium Brussels TCZ are +11.9% higher than planned in the PP.</p> <p><b>Terminal costs</b>                      In nominal terms, actual terminal costs are +1.6% (+0.6 M€) higher than planned. However, since the actual inflation is also higher than planned (+2.0 p.p.), actual terminal costs are -0.1% (-0.03 M€2009) below plans when expressed in real terms.                      The slightly lower than planned terminal costs in real terms are driven by Skeyes (-0.4%, or -0.1 M€2009), while the costs for the NSA (+17.8%, or +0.1 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.</p> <p>There are no costs exempt from cost-sharing reported.</p> <p><b>RP2 summary</b>                      When considering the whole of RP2 (2015-2019) for Belgium Brussels TCZ, actual TNSUs are +11.5% higher than planned, while actual costs in real terms are -2.8% lower than than the determined costs (some -4.3 M€2009). As a result, the weighted average actual unit cost over RP2 (192.21 €2009) is -12.8% lower than planned in the NPP (220.33 €2009).</p>					

**BELGIUM BRUSSELS: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**



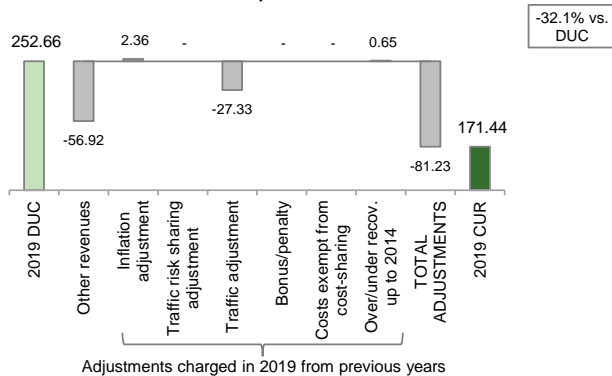
**6. Terminal costs exempt from cost sharing**

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

**7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users**

Belgium Brussels 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR



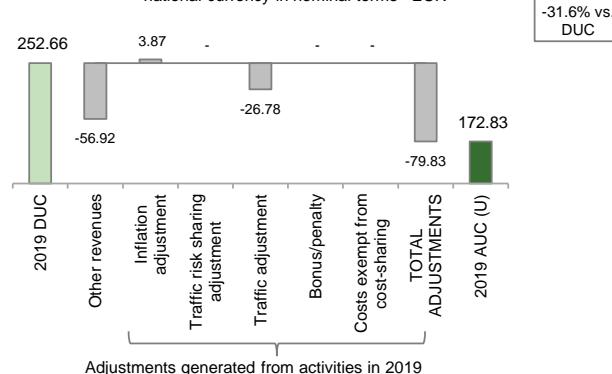
The terminal unit rate charged to airspace users (CUR) in 2019 is 171.44 €. This is -32.1% lower than the nominal DUC (252.66 €). The difference between these two figures (-81.23 €) mainly reflects the adjustment for other revenues (-56.92 €), which, according to the additional information provided in the June 2020 terminal Reporting Tables, reflects the fact that 25% of the terminal costs in Brussels TCZ are subsidised by the State or regional authorities. Additionally, the traffic adjustment (-27.33 €) reflects the impact of higher than planned TNSUs in 2017.

As specified in the additional information to June 2020 terminal Reporting Tables, a modulation of terminal charges is applied in Belgium Brussels TCZ.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the performance plan.

**8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users**

Belgium Brussels 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR



The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (172.83 €) is -31.6% lower than the nominal DUC (252.66 €). The factors contributing to the observed difference (-79.83 €) are: adjustment for other revenues (-56.92 €, see box 7 above for more details), the traffic adjustment (-26.78 €) and the inflation adjustment (+3.87 €). The traffic adjustment reflects the additional gain of revenues due to higher than planned TNSUs in 2019, which will be carried over and reimbursed to airspace users and to the State in 2021, while the inflation adjustment corresponds to the impact of higher than planned inflation index for the year 2019, and the forthcoming recovery in the next years.

As specified in the additional information to June 2020 terminal Reporting Tables, a modulation of terminal charges is applied in Belgium Brussels TCZ.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.



## Terminal ATSP (Skeyes) Belgium Brussels

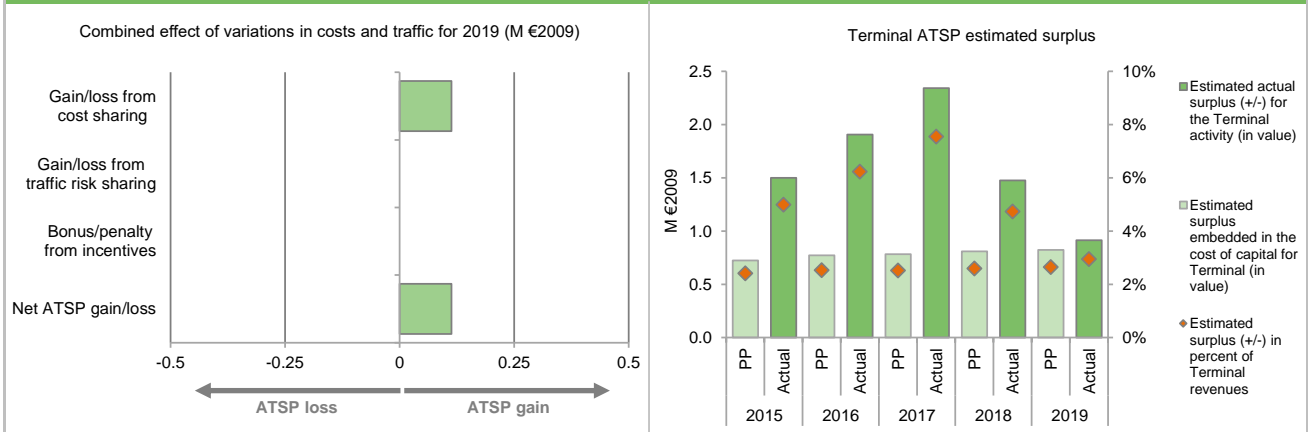
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	30 031	30 581	31 019	31 109	31 014
Actual costs for the ATSP	29 253	29 442	29 445	30 421	30 901
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	778	1 140	1 574	688	113
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>778</b>	<b>1 140</b>	<b>1 574</b>	<b>688</b>	<b>113</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
	Not Applicable				
	Not Applicable				
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>778</b>	<b>1 140</b>	<b>1 574</b>	<b>688</b>	<b>113</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	27 816	27 594	26 078	26 092	26 508
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	27 816	27 594	26 078	26 092	26 508
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	723	773	782	809	822
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	2.6%	2.8%	3.0%	3.1%	3.1%
Estimated surplus embedded in the cost of capital for terminal (in value)	723	773	782	809	822
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>723</b>	<b>773</b>	<b>782</b>	<b>809</b>	<b>822</b>
<b>Revenue/costs for the terminal activity</b>	<b>30 031</b>	<b>30 581</b>	<b>31 019</b>	<b>31 109</b>	<b>31 014</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.4%</b>	<b>2.5%</b>	<b>2.5%</b>	<b>2.6%</b>	<b>2.6%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>2.6%</b>	<b>2.8%</b>	<b>3.0%</b>	<b>3.1%</b>	<b>3.1%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	27 734	27 340	25 613	25 396	25 846
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	27 734	27 340	25 613	25 396	25 846
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	721	766	768	787	801
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	2.6%	2.8%	3.0%	3.1%	3.1%
Estimated surplus embedded in the cost of capital for terminal (in value)	721	766	768	787	801
Net ATSP gain(+)/loss(-) on terminal activity	778	1 140	1 574	688	113
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 499</b>	<b>1 905</b>	<b>2 342</b>	<b>1 475</b>	<b>915</b>
<b>Revenue/costs for the terminal activity</b>	<b>30 031</b>	<b>30 581</b>	<b>31 019</b>	<b>31 109</b>	<b>31 014</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>5.0%</b>	<b>6.2%</b>	<b>7.6%</b>	<b>4.7%</b>	<b>2.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>5.4%</b>	<b>7.0%</b>	<b>9.1%</b>	<b>5.8%</b>	<b>3.5%</b>

Terminal ATSP (Skeyes) Belgium Brussels

Monitoring of terminal COST-EFFICIENCY for 2019

11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



12. Focus on terminal ATSP: General conclusions

Actual 2019 Skeyes terminal costs in Brussels TCZ vs. PP

In 2019, Skeyes actual terminal costs in Brussels TCZ are -0.4% (-0.1 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- slightly lower staff costs (-4.2%, or -1.0 M€2009);
- much higher other operating costs (+69.3%, or +2.2 M€2009), which, according to comments received from FABEC on the draft monitoring report, are explained by "new maintenance contracts for infrastructure and systems, temporary reinforcement of staff for projects and increased license costs";
- much lower depreciation costs (-39.7%, or -1.3 M€2009), reflecting "delay in CAPEX of previous years"; and,
- lower cost of capital (-2.5%, or -0.02 M€2009).

No description of the main drivers for the deviation between actual and determined costs is provided individually for each TCZ in the FABEC FAB 2019 Monitoring Report whereas only a consolidated description for the variation in costs for Skeyes, aggregating all five TCZs, is reported in the additional information to June 2020 terminal Reporting Tables. The drivers noted above are therefore not necessarily directly related to the activity of Skeyes in this particular TCZ.

Skeyes net gain/loss on terminal activity in Brussels TCZ in 2019

As shown in box 9, Skeyes generated a net gain on terminal activity in Brussels TCZ of +0.1 M€2009 on the terminal activity arising from the cost sharing mechanism.

Skeyes overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+0.1 M€2009) and the surplus embedded in the actual cost of capital (+0.8 M€2009) amounts to +0.9 M€2009 (2.9% of the 2019 terminal revenues in Brussels TCZ). The resulting ex-post rate of return on equity is +3.5%, which is slightly higher than foreseen in the PP (+3.1%).

For Brussels TCZ, when considering the whole of RP2 (2015-2019), Skeyes generated cumulative gains in respect of cost sharing of +4.3 M€2009, as actual total costs for RP2 were lower than planned. Adding the estimated surplus embedded in the terminal cost of capital (+3.8 M€2009 over RP2) leads to an overall estimated surplus of +8.1 M€2009, which corresponds to an average ex-post return on equity of 6.2% (compared to 2.9% as initially planned in the NPP).

## BELGIUM CHARLEROI: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services																							
· Belgium Charleroi TCZ represents 0.7% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No																			
· ATSP:	Skeyes	· Airports with fewer than 70,000 IFRs ATMs:		1																			
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0																			
· Number of airports in charging zone in 2019:	1,	of which:		· Airports with more than 225,000 IFRs ATMs: 0																			
2. Terminal DUC monitoring at Charging Zone level																							
Belgium Charleroi: Data from RP2 Performance Plan																							
	2015D	2016D	2017D	2018D	2019D																		
Terminal costs (nominal EUR)	7 475 595	8 108 922	8 546 450	8 819 991	8 607 741																		
Inflation %	1.1%	1.2%	1.3%	1.4%	1.4%																		
Inflation index (100 in 2009)	111.6	112.9	114.4	116.0	117.6																		
Real terminal costs (EUR2009)	6 697 279	7 179 377	7 468 243	7 603 488	7 319 503																		
Total terminal Service Units	31 090	34 839	35 739	36 776	37 820																		
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>215.41</b>	<b>206.07</b>	<b>208.96</b>	<b>206.75</b>	<b>193.53</b>																		
Belgium Charleroi: Actual data from Reporting Tables																							
	2015A	2016A	2017A	2018A	2019A																		
Terminal costs (nominal EUR)	3 773 554	6 672 780	6 980 477	8 084 220	8 335 070																		
Inflation %	0.6%	1.8%	2.2%	2.3%	1.2%																		
Inflation index (100 in 2009)	111.1	113.1	115.5	118.2	119.6																		
Real terminal costs (EUR2009)	3 398 013	5 902 467	6 041 725	6 839 720	6 968 334																		
Total terminal Service Units	29 192	30 005	30 863	32 340	32 949																		
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>116.40</b>	<b>196.71</b>	<b>195.76</b>	<b>211.50</b>	<b>211.49</b>																		
Difference between Actuals and Planned																							
	2015	2016	2017	2018	2019																		
Terminal costs (nominal EUR)	in value -3 702 041	in value -1 436 142	in value -1 565 973	in value -735 771	in value -272 671																		
	in % -49.5%	in % -17.7%	in % -18.3%	in % -8.3%	in % -3.2%																		
Inflation %	in p.p. -0.5 p.p.	in p.p. 0.6 p.p.	in p.p. 0.9 p.p.	in p.p. 0.9 p.p.	in p.p. -0.2 p.p.																		
Inflation index (100 in 2009)	in p.p. -0.6 p.p.	in p.p. 0.1 p.p.	in p.p. 1.1 p.p.	in p.p. 2.2 p.p.	in p.p. 2.0 p.p.																		
Real terminal costs (EUR2009)	in value -3 299 266	in value -1 276 910	in value -1 426 518	in value -763 767	in value -351 169																		
	in % -49.3%	in % -17.8%	in % -19.1%	in % -10.0%	in % -4.8%																		
Total terminal Service Units	in value -1 898	in value -4 834	in value -4 876	in value -4 437	in value -4 872																		
	in % -6.1%	in % -13.9%	in % -13.6%	in % -12.1%	in % -12.9%																		
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -99.01</b>	<b>in value -9.36</b>	<b>in value -13.20</b>	<b>in value 4.75</b>	<b>in value 17.96</b>																		
	<b>in % -46.0%</b>	<b>in % -4.5%</b>	<b>in % -6.3%</b>	<b>in % 2.3%</b>	<b>in % 9.3%</b>																		
3. Focus on terminal at State/Charging Zone level																							
<p>This analysis focuses on Belgium Charleroi Terminal Charging Zone (TCZ) comprising Charleroi airport (EBCI). In this TCZ the financing of terminal ANS activities in 2019 is fully subsidised by the State or regional authorities, no unit rate is charged to the airspace users. See also <b>Note 1</b> at the end of this Report.</p> <p><b>Terminal unit cost</b> In 2019, the actual terminal unit cost in real terms (211.49 €2009) is +9.3% higher than planned in the PP (193.53 €2009). This results from the combination of much lower than planned TNSUs (-12.9%) and lower than planned terminal costs in real terms (-4.8%, or -0.4 M€2009).</p> <p><b>Terminal service units</b> The traffic risk sharing mechanism does not apply in Belgium Charleroi TCZ. In 2019, the actual TNSUs in Belgium Charleroi TCZ are -12.9% lower than planned in the PP.</p> <p><b>Terminal costs</b> In nominal terms, actual terminal costs are -3.2% (-0.3 M€) lower than planned. However, since the actual inflation index is higher than planned (+2.0 p.p.), actual terminal costs are -4.8% (-0.4 M€2009) below plans when expressed in real terms. The lower than planned terminal costs in real terms are driven by Skeyes (-6.4%, or -0.5 M€2009) while the costs for the NSA are higher (+0.1 M€2009) than planned. A detailed analysis at ATSP level is provided in box 12.</p> <p>There are no costs exempt from cost-sharing reported.</p> <p><b>RP2 summary</b> When considering the whole of RP2 (2015-2019) for Belgium Charleroi TCZ, actual TNSUs are -11.9% lower than planned, while actual costs in real terms are also -19.6% lower than the determined costs (some -7.1 M€2009). As a result, the weighted average actual unit cost over RP2 (187.64 €2009) is -8.8% lower than planned in the NPP (205.76 €2009).</p>																							
<table border="1"> <caption>Difference between actual and determined terminal costs (real terms)</caption> <thead> <tr> <th>Year</th> <th>Difference (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>-49.3%</td> </tr> <tr> <td>2016</td> <td>-17.8%</td> </tr> <tr> <td>2017</td> <td>-19.1%</td> </tr> <tr> <td>2018</td> <td>-10.0%</td> </tr> <tr> <td>2019</td> <td>-4.8%</td> </tr> </tbody> </table>						Year	Difference (%)	2015	-49.3%	2016	-17.8%	2017	-19.1%	2018	-10.0%	2019	-4.8%						
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2015	-49.3%																						
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Year	Terminal DUC (PP, 2015-2019)	Terminal unit costs (actual)																					
2015	215.41	116.40																					
2016	206.07	196.71																					
2017	208.96	195.76																					
2018	206.75	211.50																					
2019	193.53	211.49																					

**BELGIUM CHARLEROI: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

Year	PP TNSUs (thousands)	Actual TNSUs (thousands)
2015	31.5	29.5
2016	35.0	30.0
2017	36.0	31.0
2018	37.0	32.5
2019	38.0	33.0

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

Entity	Change (%)
ATSP	-6.4%
Other ANSPs	-
METSP	-
NSA	107.5%
<b>Total</b>	<b>-4.8%</b>

Costs by nature at ATSP level:

Nature	Change (%)
Staff	-6.5%
Other operating costs	109.8%
Depreciation	-72.9%
Cost of capital	-6.1%
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>-6.4%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Analysis not applicable, terminal ANS in Charleroi TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Analysis not applicable, terminal ANS in Charleroi TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

#### 9. Focus on terminal ATSP: General conclusions \*see Note 1

**Actual 2019 Skeyes terminal costs in Charleroi TCZ vs. PP**

Skeyes actual terminal costs in Charleroi TCZ are -6.5% (-0.5 M€2009) lower, in real terms, than planned in the PP. According to the additional information to June 2020 terminal Reporting Tables, this results from the combination of:

- lower staff costs (-6.5%, or -0.4 M€2009);
- much higher other operating costs (+109.8%, or +0.5 M€2009), which, according to comments received from FABEC on the draft monitoring report, are explained by "new maintenance contracts for infrastructure and systems, temporary reinforcement of staff for projects and increased license costs";
- much lower depreciation costs (-72.9%, or -0.6 M€2009), reflecting "delay in CAPEX of previous years"; and,
- a slightly lower cost of capital (-6.1%, or -0.01 M€2009).

No description of the main drivers for the deviation between actual and determined costs is provided individually for each TCZ in the FABEC FAB 2019 Monitoring Report whereas only a consolidated description for the variation in costs for Skeyes, aggregating all five TCZs, is reported in the additional information to June 2020 terminal Reporting Tables. The drivers noted above are therefore not necessarily directly related to the activity of Skeyes in this particular TCZ.

**BELGIUM LIEGE: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services																													
· Belgium Liege TCZ represents 0.6% of the SES terminal ANS determined costs in 2019					· Is this TCZ applying traffic risk sharing?	No																							
· ATSP: Skeyes					· Airports with fewer than 70,000 IFRs ATMs:	1																							
· National currency: EUR					· Airports with between 70,000 and 225,000 IFRs ATMs:	0																							
· Number of airports in charging zone in 2019: 1, of which:					· Airports with more than 225,000 IFRs ATMs:	0																							
2. Terminal DUC monitoring at Charging Zone level																													
Belgium Liege: Data from RP2 Performance Plan																													
	2015D	2016D	2017D	2018D	2019D																								
Terminal costs (nominal EUR)	7 177 907	7 486 635	7 872 765	8 073 493	7 955 035																								
Inflation %	1.1%	1.2%	1.3%	1.4%	1.4%																								
Inflation index (100 in 2009)	111.6	112.9	114.4	116.0	117.6																								
Real terminal costs (EUR2009)	6 430 584	6 628 424	6 879 549	6 959 950	6 764 481																								
Total terminal Service Units	26 760	25 496	26 508	27 602	28 662																								
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>240.31</b>	<b>259.98</b>	<b>259.53</b>	<b>252.16</b>	<b>236.00</b>																								
Belgium Liege: Actual data from Reporting Tables																													
	2015A	2016A	2017A	2018A	2019A																								
Terminal costs (nominal EUR)	6 824 573	7 156 500	8 429 664	8 731 735	10 205 132																								
Inflation %	0.6%	1.8%	2.2%	2.3%	1.2%																								
Inflation index (100 in 2009)	111.1	113.1	115.5	118.2	119.6																								
Real terminal costs (EUR2009)	6 145 398	6 330 345	7 296 022	7 387 555	8 531 754																								
Total terminal Service Units	28 322	29 517	31 590	36 408	38 020																								
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>216.99</b>	<b>214.46</b>	<b>230.96</b>	<b>202.91</b>	<b>224.40</b>																								
Difference between Actuals and Planned																													
	2015	2016	2017	2018	2019																								
Terminal costs (nominal EUR)	in value -353 334	in value -330 135	in value 556 899	in value 658 242	in value 2 250 098																								
	in % -4.9%	in % -4.4%	in % 7.1%	in % 8.2%	in % 28.3%																								
Inflation %	in p.p. -0.5 p.p.	in p.p. 0.6 p.p.	in p.p. 0.9 p.p.	in p.p. 0.9 p.p.	in p.p. -0.2 p.p.																								
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Real terminal costs (EUR2009)	in value -285 186	in value -298 078	in value 416 472	in value 427 605	in value 1 767 273																								
	in % -4.4%	in % -4.5%	in % 6.1%	in % 6.1%	in % 26.1%																								
Total terminal Service Units	in value 1 562	in value 4 022	in value 5 083	in value 8 807	in value 9 357																								
	in % 5.8%	in % 15.8%	in % 19.2%	in % 31.9%	in % 32.6%																								
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -23.32</b>	<b>in value -45.52</b>	<b>in value -28.57</b>	<b>in value -49.25</b>	<b>in value -11.60</b>																								
	<b>in % -9.7%</b>	<b>in % -17.5%</b>	<b>in % -11.0%</b>	<b>in % -19.5%</b>	<b>in % -4.9%</b>																								
3. Focus on terminal at State/Charging Zone level																													
<p>This analysis focuses on Belgium Liège Terminal Charging Zone (TCZ) comprising Liège airport (EBLG). In this TCZ the financing of terminal ANS activities in 2019 is fully subsidised by the State or regional authorities, no unit rate is charged to the airspace users. See also <b>Note 1</b> at the end of this Report.</p> <p><b>Terminal unit cost</b> In 2019, the actual terminal unit cost in real terms (224.40 €2009) is -4.9% lower than planned in the PP (236.00 €2009). This results from the combination of much higher than planned TNSUs (+32.6%) and much higher than planned terminal costs in real terms (+26.1%, or +1.8 M€2009).</p> <p><b>Terminal service units</b> The traffic risk sharing mechanism does not apply in Belgium Liège TCZ. In 2019, the actual TNSUs in Belgium Liège TCZ are +32.6% higher than planned in the PP.</p> <p><b>Terminal costs</b> In nominal terms, actual terminal costs are +28.3% (+2.3 M€) higher than planned. However, since the actual inflation index is also higher than planned (+2.0 p.p.), actual terminal costs are +26.1% (+1.8 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by Skeyes (+24.5%, or +1.6 M€2009) and the NSA (+0.1 M€2009). A detailed analysis at ATSP level is provided in box 12.</p> <p>There are no costs exempt from cost-sharing reported.</p> <p><b>RP2 summary</b> When considering the whole of RP2 (2015-2019) for Belgium Liège TCZ, actual TNSUs are +21.4% higher than planned, while actual costs in real terms are also +6.0% higher than the determined costs (some +2.0 M€2009). As a result, the weighted average actual unit cost over RP2 (217.82 €2009) is -12.6% lower than planned in the NPP (249.30 €2009).</p>																													
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**BELGIUM LIEGE: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	24.5%
Other ANSPs	-
METSP	-
NSA	146.2%
<b>Total</b>	<b>26.1%</b>

Costs by nature at ATSP level:

Staff	14.0%
Other operating costs	199.6%
Depreciation	-26.1%
Cost of capital	-6.2%
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>24.5%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Analysis not applicable, terminal ANS in Liège TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Analysis not applicable, terminal ANS in Liège TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

#### 9. Focus on terminal ATSP: General conclusions \*see Note 1

**Actual 2019 Skeyes terminal costs in the Liège TCZ vs. PP**

Skeyes actual terminal costs in Liège TCZ are +24.5% (+1.6 M€2009) higher, in real terms, than planned in the PP. According to the additional information to June 2020 terminal Reporting Tables, this results from the combination of:

- higher staff costs (+14.0%, or +0.8 M€2009), which are understood to reflect an increase in staff numbers in 2019;
- much higher other operating costs (+199.6%, or +0.9 M€2009), which, according to comments received from FABEC on the draft monitoring report, are explained by "new maintenance contracts for infrastructure and systems, temporary reinforcement of staff for projects and increased license costs";
- lower depreciation costs (-26.1%, or -0.1 M€2009), reflecting "delay in CAPEX of previous years"; and,
- a slightly lower cost of capital (-6.2%, or -0.005 M€2009).

No description of the main drivers for the deviation between actual and determined costs is provided individually for each TCZ in the FABEC FAB 2019 Monitoring Report whereas only a consolidated description for the variation in costs for Skeyes, aggregating all five TCZs, is reported in the additional information to June 2020 terminal Reporting Tables. The drivers noted above are therefore not necessarily directly related to the activity of Skeyes in this particular TCZ.

## BELGIUM OOSTENDE-BRUGGE: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services																							
Belgium Oostende-Brugge TCZ represents 0.2% of the SES terminal ANS determined costs in		Is this TCZ applying traffic risk sharing?		No																			
ATSP:	Skeyes	Airports with fewer than 70,000 IFRs ATMs:		1																			
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		0																			
Number of airports in charging zone in 2019:	1,	of which:		Airports with more than 225,000 IFRs ATMs: 0																			
2. Terminal DUC monitoring at Charging Zone level																							
Belgium Oostende-Brugge: Data from RP2 Performance Plan																							
	2015D	2016D	2017D	2018D	2019D																		
Terminal costs (nominal EUR)	2 321 852	2 410 573	2 573 002	2 579 116	2 591 757																		
Inflation %	1.1%	1.2%	1.3%	1.4%	1.4%																		
Inflation index (100 in 2009)	111.6	112.9	114.4	116.0	117.6																		
Real terminal costs (EUR2009)	2 080 114	2 134 243	2 248 396	2 223 390	2 203 873																		
Total terminal Service Units	4 635	6 057	6 204	6 459	6 621																		
<b>Real terminal unit costs per Service Unit (EUR2009)</b>	<b>448.80</b>	<b>352.35</b>	<b>362.44</b>	<b>344.24</b>	<b>332.84</b>																		
Belgium Oostende-Brugge: Actual data from Reporting Tables																							
	2015A	2016A	2017A	2018A	2019A																		
Terminal costs (nominal EUR)	2 146 088	2 326 728	2 351 008	2 407 610	2 556 590																		
Inflation %	0.6%	1.8%	2.2%	2.3%	1.2%																		
Inflation index (100 in 2009)	111.1	113.1	115.5	118.2	119.6																		
Real terminal costs (EUR2009)	1 932 511	2 058 128	2 034 839	2 036 978	2 137 375																		
Total terminal Service Units	3 838	4 883	4 292	4 776	4 745																		
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>503.57</b>	<b>421.50</b>	<b>474.14</b>	<b>426.49</b>	<b>450.42</b>																		
Difference between Actuals and Planned																							
	2015	2016	2017	2018	2019																		
Terminal costs (nominal EUR)	-175 764	-83 845	-221 994	-171 507	-35 167																		
	in value																						
	in %																						
Inflation %	-0.5 p.p.	0.6 p.p.	0.9 p.p.	0.9 p.p.	-0.2 p.p.																		
	in p.p.																						
Inflation index (100 in 2009)	-0.6 p.p.	0.1 p.p.	1.1 p.p.	2.2 p.p.	2.0 p.p.																		
	in p.p.																						
Real terminal costs (EUR2009)	-147 603	-76 115	-213 558	-186 412	-66 498																		
	in value																						
	in %																						
Total terminal Service Units	-797	-1 174	-1 912	-1 683	-1 876																		
	in value																						
	in %																						
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>54.77</b>	<b>69.15</b>	<b>111.71</b>	<b>82.24</b>	<b>117.58</b>																		
	in value																						
	in %																						
3. Focus on terminal at State/Charging Zone level																							
<p>This analysis focuses on Belgium Oostende-Brugge Terminal Charging Zone (TCZ) comprising Oostende-Brugge airport (EBOS). In this TCZ the financing of terminal ANS activities in 2019 is fully subsidised by the State or regional authorities, no unit rate is charged to the airspace users. See also <b>Note 1</b> at the end of this Report.</p> <p><b>Terminal unit cost</b> In 2019, the actual terminal unit cost in real terms (450.42 €2009) is +35.3% higher than planned in the PP (332.84 €2009). This results from the combination of much lower than planned TNSUs (-28.3%) and slightly lower than planned terminal costs in real terms (-3.0%, or -0.1 M€2009).</p> <p><b>Terminal service units</b> The traffic risk sharing mechanism does not apply in Belgium Oostende-Brugge TCZ. In 2019, the actual TNSUs in Belgium Oostende-Brugge TCZ are -28.3% lower than planned in the PP.</p> <p><b>Terminal costs</b> In nominal terms, actual terminal costs are -1.4% (-0.04 M€) lower than planned. However, since the actual inflation index is higher than planned (+2.0 p.p.), actual terminal costs are -3.0% (-0.1 M€2009) below plans when expressed in real terms. The lower than planned terminal costs in real terms are driven by Skeyes (-6.2%, or -0.1 M€2009), while the costs for NSA are higher than planned (+0.1 M€2009). A detailed analysis at ATSP level is provided in box 12.</p> <p>There are no costs exempt from cost-sharing reported.</p> <p><b>RP2 summary</b> When considering the whole of RP2 (2015-2019) for Belgium Oostende-Brugge TCZ, actual TNSUs are -24.8% lower than planned, while actual costs in real terms are also -6.3% lower than the determined costs (some -0.7 M€2009). As a result, the weighted average actual unit cost over RP2 (452.65 €2009) is +24.6% higher than planned in the NPP (363.29 €2009).</p>																							
<table border="1"> <caption>Difference between actual and determined terminal costs (real terms)</caption> <thead> <tr> <th>Year</th> <th>Difference (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>-7.1%</td> </tr> <tr> <td>2016</td> <td>-3.6%</td> </tr> <tr> <td>2017</td> <td>-9.5%</td> </tr> <tr> <td>2018</td> <td>-8.4%</td> </tr> <tr> <td>2019</td> <td>-3.0%</td> </tr> </tbody> </table>						Year	Difference (%)	2015	-7.1%	2016	-3.6%	2017	-9.5%	2018	-8.4%	2019	-3.0%						
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<table border="1"> <caption>Terminal DUC (PP, 2015-2019) and Terminal unit costs (actual)</caption> <thead> <tr> <th>Year</th> <th>Terminal DUC (PP, 2015-2019)</th> <th>Terminal unit costs (actual)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>448.80</td> <td>503.57</td> </tr> <tr> <td>2016</td> <td>352.35</td> <td>421.50</td> </tr> <tr> <td>2017</td> <td>362.44</td> <td>474.14</td> </tr> <tr> <td>2018</td> <td>344.24</td> <td>426.49</td> </tr> <tr> <td>2019</td> <td>332.84</td> <td>450.42</td> </tr> </tbody> </table>						Year	Terminal DUC (PP, 2015-2019)	Terminal unit costs (actual)	2015	448.80	503.57	2016	352.35	421.50	2017	362.44	474.14	2018	344.24	426.49	2019	332.84	450.42
Year	Terminal DUC (PP, 2015-2019)	Terminal unit costs (actual)																					
2015	448.80	503.57																					
2016	352.35	421.50																					
2017	362.44	474.14																					
2018	344.24	426.49																					
2019	332.84	450.42																					

**BELGIUM OOSTENDE-BRUGGE: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

Year	PP TNSUs (thousands)	Actual TNSUs (thousands)
2015	4.8	3.8
2016	6.1	4.9
2017	6.3	4.3
2018	6.5	4.8
2019	6.7	4.7

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

Entity	Change (%)
ATSP	-6.2%
Other ANSPs	-
METSP	-
NSA	222.7%
<b>Total</b>	<b>-3.0%</b>

Costs by nature at ATSP level:

Nature	Change (%)
Staff	-7.0%
Other operating costs	67.2%
Depreciation	-59.5%
Cost of capital	-8.1%
Exceptional items	-
VFR exempted flights	-
<b>Total</b>	<b>-6.2%</b>

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Analysis not applicable, terminal ANS in Oostende-Brugge TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Analysis not applicable, terminal ANS in Oostende-Brugge TCZ was free of charge for the airspace users since terminal ANS costs were 100% subsidised by the State or regional authorities in 2019. See also **Note 1** at the end of this Report.

#### 9. Focus on terminal ATSP: General conclusions \*see Note 1

**Actual 2019 Skeyes terminal costs in Oostende-Brugge TCZ vs. PP**

Skeyes actual terminal costs in Oostende-Brugge TCZ are -6.2% (-0.1 M€2009) lower, in real terms, than planned in the PP. According to the additional information to June 2020 terminal Reporting Tables, this results from the combination of:

- lower staff costs (-7.0%, or -0.1 M€2009);
- higher other operating costs (+67.2%, or +0.1 M€2009), which, according to comments received from FABEC on the draft monitoring report, are explained by "new maintenance contracts for infrastructure and systems, temporary reinforcement of staff for projects and increased license costs";
- lower depreciation costs (-59.5%, or -0.1 M€2009), reflecting "delay in CAPEX of previous years"; and,
- a slightly lower cost of capital (-8.1%, or -0.002 M€2009).

No description of the main drivers for the deviation between actual and determined costs is provided individually for each TCZ in the FABEC FAB 2019 Monitoring Report whereas only a consolidated description for the variation in costs for Skeyes, aggregating all five TCZs, is reported in the additional information to June 2020 terminal Reporting Tables. The drivers noted above are therefore not necessarily directly related to the activity of Skeyes in this particular TCZ.



**LUXEMBOURG: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services					
· Luxembourg TCZ represents 1.0% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No	
· ATSP:	ANA LUX	· Airports with fewer than 70,000 IFRs ATMs:		1	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019:	1,	of which:		· Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Luxembourg: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	11 377 701	12 361 275	12 794 627	13 192 688	13 524 467
Inflation %	1.8%	1.8%	1.8%	1.9%	1.9%
Inflation index (100 in 2009)	114.4	116.4	118.6	120.9	123.2
Real terminal costs (EUR2009)	9 944 465	10 615 918	10 789 343	10 915 761	10 979 796
Total terminal Service Units	41 322	42 989	44 732	46 898	49 046
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>240.66</b>	<b>246.94</b>	<b>241.20</b>	<b>232.76</b>	<b>223.87</b>
Luxembourg: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	11 782 917	12 028 446	12 389 842	12 610 357	13 598 057
Inflation %	0.1%	0.0%	2.1%	2.0%	1.6%
Inflation index (100 in 2009)	112.5	112.5	114.8	117.1	119.0
Real terminal costs (EUR2009)	10 478 064	10 696 404	10 791 163	10 767 868	11 428 402
Total terminal Service Units	41 083	45 676	50 904	54 398	56 026
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>255.04</b>	<b>234.18</b>	<b>211.99</b>	<b>197.94</b>	<b>203.99</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value 405 215	-332 828	-404 785	-582 331	73 590
	in % 3.6%	-2.7%	-3.2%	-4.4%	0.5%
Inflation %	in p.p. -1.7 p.p.	-1.8 p.p.	0.3 p.p.	0.1 p.p.	-0.3 p.p.
Inflation index (100 in 2009)	in p.p. -2.0 p.p.	-4.0 p.p.	-3.8 p.p.	-3.7 p.p.	-4.2 p.p.
Real terminal costs (EUR2009)	in value 533 600	80 486	1 820	-147 894	448 605
	in % 5.4%	0.8%	0.02%	-1.4%	4.1%
Total terminal Service Units	in value -239	2 687	6 172	7 500	6 980
	in % -0.6%	6.3%	13.8%	16.0%	14.2%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value 14.39</b>	<b>-12.77</b>	<b>-29.21</b>	<b>-34.81</b>	<b>-19.88</b>
	<b>in % 6.0%</b>	<b>-5.2%</b>	<b>-12.1%</b>	<b>-15.0%</b>	<b>-8.9%</b>
3. Focus on terminal at State/Charging Zone level					
<p>This analysis focuses on Luxembourg Terminal Charging Zone (TCZ) comprising Luxembourg airport (ELLX). In this TCZ the costs for terminal ANS activities in 2019 were partly subsidised by the State or regional authorities.</p> <p><b>Terminal unit cost</b>                      In 2019, the actual terminal unit cost in real terms (203.99 €2009) is -8.9% lower than planned in the PP (223.87 €2009). This results from the combination of much higher than planned TNSUs (+14.2%) and slightly higher than planned terminal costs in real terms (+4.1%, or +0.4 M€2009).</p> <p><b>Terminal service units</b>                      The traffic risk sharing mechanism does not apply in Luxembourg TCZ. In 2019, the actual TNSUs in Luxembourg TCZ are +14.2% higher than planned in the PP.</p> <p><b>Terminal costs</b>                      In nominal terms, actual terminal costs are +0.5% (+0.1 M€) higher than planned. However, since the actual inflation index is lower than planned (-4.2 p.p.), actual terminal costs are +4.1% (+0.4 M€2009) above plans when expressed in real terms.                      The higher than planned terminal costs in real terms are driven by ANA Luxembourg (+8.2%, or +0.8 M€2009), while the costs for NSA are lower than planned (-45.5%, or -0.4 M€2009). A detailed analysis at ATSP level is provided in box 12.</p> <p>There are no costs exempt from cost-sharing reported.</p> <p><b>RP2 summary</b>                      When considering the whole of RP2 (2015-2019) for Luxembourg TCZ, actual TNSUs are +10.3% higher than planned, while actual costs in real terms are also +1.7% above determined costs (some +0.9 M€2009). As a result, the weighted average actual unit cost over RP2 (218.32 €2009) is -7.8% lower than planned in the NPP (236.66 €2009).</p>					

LUXEMBOURG: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	8.2%
Other ANSPs	-
METSP	-
NSA	-45.5%
Total	4.09%

Costs by nature at ATSP level:

Staff	18.9%
Other operating costs	-4.4%
Depreciation	0.6%
Cost of capital	-
Exceptional items	-
VFR exempted flights	-
Total	8.2%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 unit rate charged to users

Luxembourg 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 186.63 €. This is -32.3% lower than the nominal DUC (275.75 €). The main difference between these two figures (-89.12 €) relates to other revenues, which, according to the additional information provided in the June 2020 terminal Reporting Tables, reflects the subsidy granted by the State for terminal ANS activity in 2019.

As specified in the additional information to June 2020 terminal Reporting Tables, a modulation of terminal charges across user categories is applied in Luxembourg TCZ. See also **Note 2** at the end of this Report.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Luxembourg 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (194.63 €) is -29.4% lower than the nominal DUC (275.75 €). The most important factors contributing to the observed difference (-81.12 €) are: the deduction of other revenues (-52.62 €, see box 7 above for more details), inflation adjustment (-8.21 €) and the traffic adjustment (-20.28 €). It is noted, that the traffic adjustment reported in the chart refers to the difference between modulation effect (+0.4 M€, resulting from the application of modulation of charges in TCZ) and the traffic effect (-1.5 M€ in total), resulting from the additional gain of revenues due to higher than planned TNSUs in 2019. See also **Note 2** at the end of this Report.

Furthermore, it is noted that no traffic adjustment is calculated for the NSA costs, since these costs are fully subsidised by the State and not charged to the airspace users.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

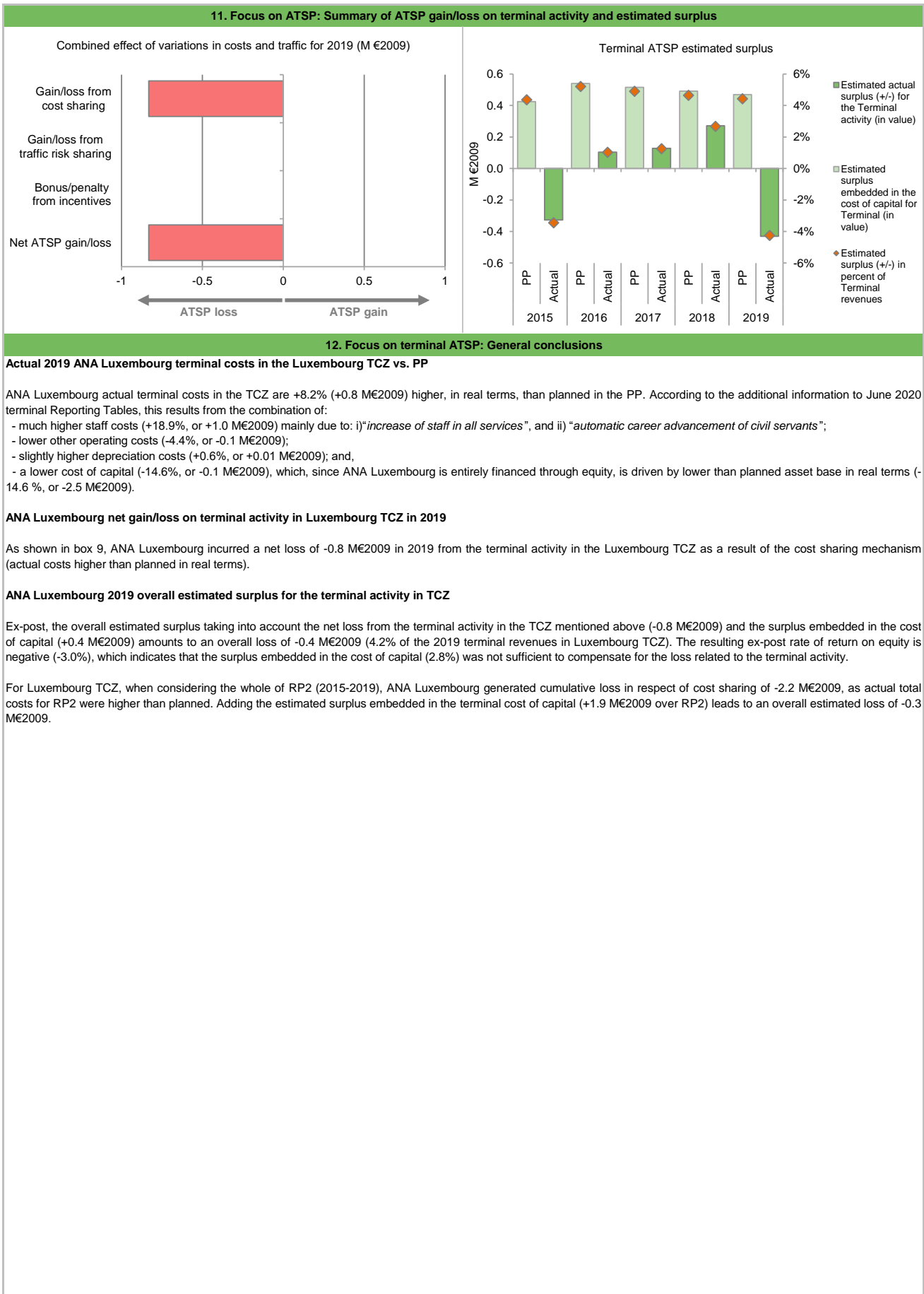
## LUXEMBOURG: Terminal ATSP (ANA LUX)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	9 499	10 070	10 142	10 171	10 138
Actual costs for the ATSP	10 164	10 354	10 374	10 334	10 969
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-665	-284	-231	-163	-832
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-665</b>	<b>-284</b>	<b>-231</b>	<b>-163</b>	<b>-832</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-665</b>	<b>-284</b>	<b>-231</b>	<b>-163</b>	<b>-832</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the Profit & Loss accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	15 283	19 433	18 522	17 686	16 881
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	15 283	19 433	18 522	17 686	16 881
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	425	540	515	492	469
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	2.8%	2.8%	2.8%	2.8%	2.8%
Estimated surplus embedded in the cost of capital for terminal (in value)	425	540	515	492	469
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>425</b>	<b>540</b>	<b>515</b>	<b>492</b>	<b>469</b>
<b>Revenue/costs for the terminal activity</b>	<b>9 737</b>	<b>10 381</b>	<b>10 510</b>	<b>10 597</b>	<b>10 618</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>4.4%</b>	<b>5.2%</b>	<b>4.9%</b>	<b>4.6%</b>	<b>4.4%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>2.8%</b>	<b>2.8%</b>	<b>2.8%</b>	<b>2.8%</b>	<b>2.8%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	12 126	13 956	12 923	15 635	14 421
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	12 126	13 956	12 923	15 635	14 421
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	337	388	359	435	401
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	2.8%	2.8%	2.8%	2.8%	2.8%
Estimated surplus embedded in the cost of capital for terminal (in value)	337	388	359	435	401
Net ATSP gain(+)/loss(-) on terminal activity	-665	-284	-231	-163	-832
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>-327</b>	<b>104</b>	<b>128</b>	<b>272</b>	<b>-431</b>
<b>Revenue/costs for the terminal activity</b>	<b>9 499</b>	<b>10 070</b>	<b>10 142</b>	<b>10 171</b>	<b>10 138</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>-3.4%</b>	<b>1.0%</b>	<b>1.3%</b>	<b>2.7%</b>	<b>-4.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>-2.7%</b>	<b>0.7%</b>	<b>1.0%</b>	<b>1.7%</b>	<b>-3.0%</b>

**LUXEMBOURG: Terminal ATSP (ANA LUX)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## BELGIUM &amp; LUXEMBOURG: Gate-to-gate

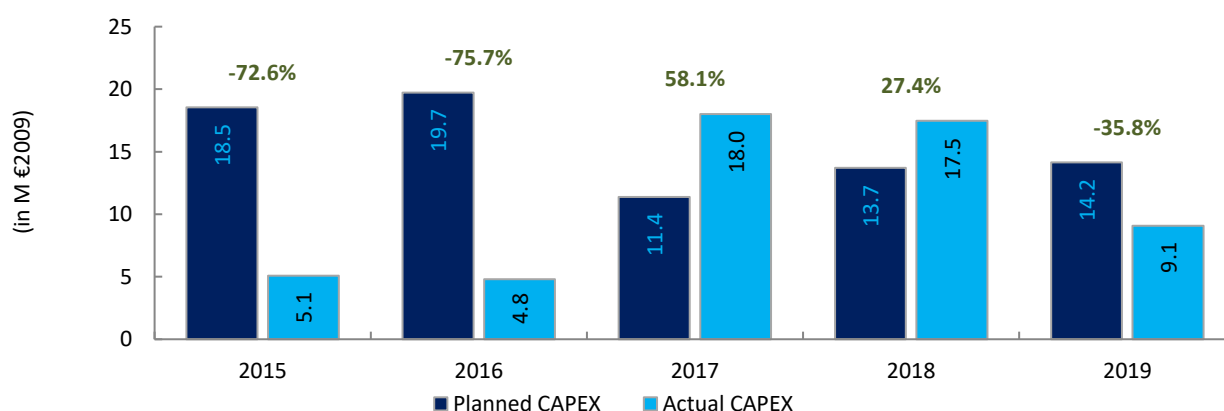
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Belgium &amp; Luxembourg: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	150 757 603	152 984 440	154 897 964	155 652 698	156 055 562																																							
Real terminal costs (EUR2009)	60 454 020	62 447 468	63 779 064	64 278 977	64 020 519																																							
Real gate-to-gate costs (EUR2009)	211 211 623	215 431 908	218 677 028	219 931 675	220 076 081																																							
En-route share (%)	71.4%	71.0%	70.8%	70.8%	70.9%																																							
<b>Belgium &amp; Luxembourg: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	144 755 264	147 180 265	154 375 434	155 272 510	166 782 827																																							
Real terminal costs (EUR2009)	55 840 520	59 511 295	61 005 061	63 470 272	66 284 966																																							
Real gate-to-gate costs (EUR2009)	200 595 784	206 691 560	215 380 495	218 742 782	233 067 793																																							
En-route share (%)	72.2%	71.2%	71.7%	71.0%	71.6%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)																																												
in value	-10 615 839	-8 740 348	-3 296 533	-1 188 893	12 991 712																																							
in %	-5.0%	-4.1%	-1.5%	-0.5%	5.9%																																							
En-route share																																												
in p.p.	0.8 p.p.	0.2 p.p.	0.8 p.p.	0.2%	0.6%																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +5.9% (+13.0 M€2009) higher than planned due to higher costs in real terms for both en-route (+6.9%, or +10.7 M€2009) and terminal (+3.5%, or +2.3 M€2009) ANS.</p> <p>The actual share of en-route in gate-to-gate ANS costs (71.6%) is very similar than the foreseen in the PP for 2019 (70.9%).</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>71.4%</td> <td>28.6%</td> </tr> <tr> <td>Actual</td> <td>72.2%</td> <td>27.8%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>71.0%</td> <td>29.0%</td> </tr> <tr> <td>Actual</td> <td>71.2%</td> <td>28.8%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>70.8%</td> <td>29.2%</td> </tr> <tr> <td>Actual</td> <td>71.7%</td> <td>28.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>70.8%</td> <td>29.2%</td> </tr> <tr> <td>Actual</td> <td>71.0%</td> <td>29.0%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>70.9%</td> <td>29.1%</td> </tr> <tr> <td>Actual</td> <td>71.6%</td> <td>28.4%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	71.4%	28.6%	Actual	72.2%	27.8%	2016	Determined	71.0%	29.0%	Actual	71.2%	28.8%	2017	Determined	70.8%	29.2%	Actual	71.7%	28.3%	2018	Determined	70.8%	29.2%	Actual	71.0%	29.0%	2019	Determined	70.9%	29.1%	Actual	71.6%	28.4%
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<b>3. Technical notes on en-route and terminal information reported by Belgium &amp; Luxembourg</b>																																												
<b>Note 1: Financing from State or regional authorities in Belgian TCZs</b>																																												
<p>According to the information provided in the additional information to the June 2020 terminal Reporting Tables "Based on the Royal Decrees of 19 December 2014, 26 December 2015, 25 December 2016, 7 December 2017, 7 December 2018, and of 20 December 2019, the regional airports (100%) and a part of EBBR (25%) are financed through other revenues from the State or regional authorities".</p> <p>As the terminal ANS activities are therefore fully financed through "income from other sources" in four of the five Belgium TCZs (with the exception of Brussels TCZ), the analysis of the terminal economic surplus for these TCZs is void. Nevertheless, the analysis at Belgium TCZ level still looks at the deviation between the terminal actual unit cost and the terminal DUC reported for 2019 in the RP2 PP.</p>																																												
<b>Note 2: Modulation of terminal charges in Luxembourg TCZ</b>																																												
<p>It is noted, that in the June 2020 submission of terminal Reporting Tables, the traffic adjustment reported by Luxembourg refers to the difference between modulation effect (resulting from the application of modulation of charges in TCZ) and the traffic effect, resulting from variation in traffic. According to additional information to June 2020 terminal Reporting Tables, this was implemented for 2019 since "the official reporting tables do not foresee any mechanism to report over- or under-coverage due to a modulation of the UR, as it is the case for the traffic effect".</p>																																												

## BELGIUM

## Monitoring of CAPEX for 2019

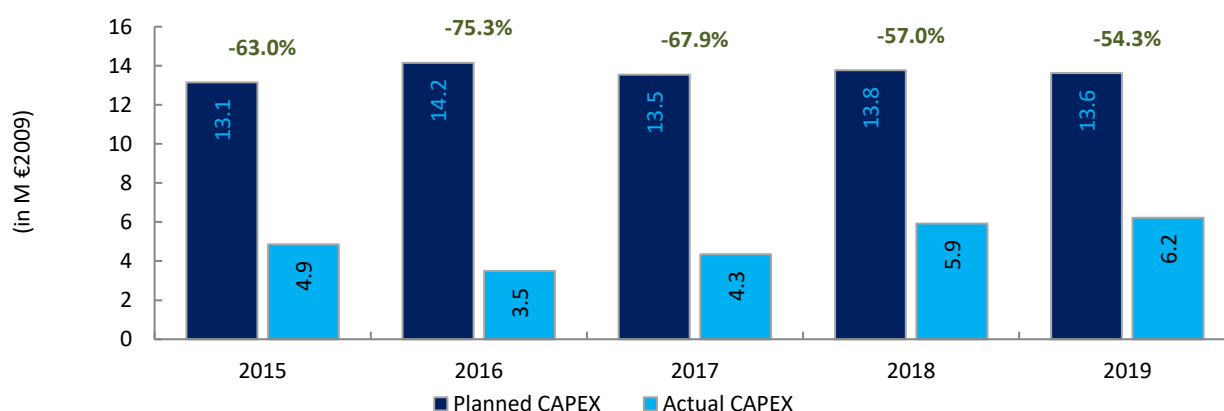
Contextual Information						
ANSP: skeyes						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	20.7	22.3	13.0	15.9	16.6	88.5
Main CAPEX (in nominal M)	16.0	19.3	10.0	11.5	10.2	67.0
Inflation %	1.1%	1.2%	1.3%	1.4%	1.4%	
Inflation index (100 in 2009)	111.6	112.9	114.4	116.0	117.6	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>18.5</b>	<b>19.7</b>	<b>11.4</b>	<b>13.7</b>	<b>14.2</b>	<b>77.5</b>
Main CAPEX (in M €2009)	14.4	17.1	8.7	9.9	8.7	58.7
% Main of Total CAPEX	77.5%	86.7%	76.6%	72.1%	61.2%	75.8%
Real gate-to-gate ANSP costs (in M €2009)	140.9	143.8	146.0	145.9	145.2	721.7
Total CAPEX as % of Real gate-to-gate ANSP costs	13.2%	13.7%	7.8%	9.4%	9.8%	10.7%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	5.6	5.4	20.8	20.6	10.9	63.4
Main CAPEX (in nominal M)	3.3	2.2	16.8	15.3	5.6	43.2
Inflation %	0.6%	1.8%	2.2%	2.3%	1.2%	
Inflation index (100 in 2009)	111.1	113.1	115.5	118.2	119.6	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>5.1</b>	<b>4.8</b>	<b>18.0</b>	<b>17.5</b>	<b>9.1</b>	<b>54.4</b>
Main CAPEX (in M €2009)	3.0	2.0	14.5	12.9	4.7	37.1
% Main of Total CAPEX	58.4%	41.3%	80.7%	74.0%	51.9%	68.2%
Real gate-to-gate ANSP costs (in M €2009)	132.8	135.2	143.0	145.5	154.2	710.7
Total CAPEX as % of Real gate-to-gate ANSP costs	3.8%	3.6%	12.6%	12.0%	5.9%	7.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-15.1	-16.8	7.8	4.7	-5.8	-25.2
Total CAPEX (in M €2009)	-13.5	-14.9	6.6	3.8	-5.1	-23.1
<b>Total CAPEX (in %, M €2009)</b>	<b>-72.6%</b>	<b>-75.7%</b>	<b>58.1%</b>	<b>27.4%</b>	<b>-35.8%</b>	<b>-29.8%</b>



## MUAC

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: MUAC						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	14.5	15.8	15.4	15.9	15.9	77.6
Main CAPEX (in nominal M)	12.7	14.7	14.7	15.2	15.3	72.5
Inflation %	1.0%	1.2%	1.4%	1.5%	1.5%	
Inflation index (100 in 2009)	110.6	112.0	113.6	115.3	117.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>13.1</b>	<b>14.2</b>	<b>13.5</b>	<b>13.8</b>	<b>13.6</b>	<b>68.2</b>
Main CAPEX (in M €2009)	11.5	13.1	12.9	13.2	13.1	63.7
% Main of Total CAPEX	87.3%	92.7%	95.5%	95.7%	95.8%	93.4%
Real gate-to-gate ANSP costs (in M €2009)	133.8	133.5	135.9	138.1	139.8	681.2
Total CAPEX as % of Real gate-to-gate ANSP costs	9.8%	10.6%	10.0%	10.0%	9.7%	10.0%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	5.3	3.8	4.8	6.7	7.2	27.9
Main CAPEX (in nominal M)	5.1	3.5	4.2	6.7	7.2	26.6
Inflation %	0.2%	0.1%	1.3%	1.6%	2.7%	
Inflation index (100 in 2009)	109.7	109.8	111.3	113.1	116.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>4.9</b>	<b>3.5</b>	<b>4.3</b>	<b>5.9</b>	<b>6.2</b>	<b>24.8</b>
Main CAPEX (in M €2009)	4.6	3.2	3.7	5.9	6.2	23.7
% Main of Total CAPEX	94.9%	92.3%	86.3%	99.6%	99.4%	95.3%
Real gate-to-gate ANSP costs (in M €2009)	123.6	131.9	135.7	139.2	149.7	679.9
Total CAPEX as % of Real gate-to-gate ANSP costs	3.9%	2.7%	3.2%	4.3%	4.2%	3.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-9.2	-12.0	-10.5	-9.2	-8.7	-49.6
Total CAPEX (in M €2009)	-8.3	-10.7	-9.2	-7.8	-7.4	-43.4
<b>Total CAPEX (in %, M €2009)</b>	<b>-63.0%</b>	<b>-75.3%</b>	<b>-67.9%</b>	<b>-57.0%</b>	<b>-54.3%</b>	<b>-63.6%</b>



Note: Planned and actual inflation indices used to calculate CAPEX in real terms above, are based on the inflation indices for the Netherlands. This is different from the calculation of gate-to-gate ANSP costs in real terms, since for MUAC, this is based on the MUAC States' inflation indices.

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# Annual Monitoring Report 2019

## Local level view

### France

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## FRANCE

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	74	C	D	C	C	B
DSNA	92	D	E	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		97%				
Source of RAT data:	DSAC					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	4	3				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>14</b>	<b>4</b>				
DSNA	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	3	0				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>24</b>	<b>0</b>				
Observations						
<p>The State did not reach the RP2 target in 2019 by only one question in the EoS Component/area of Safety Culture, out of 36 questions. That question was self-assessed and not reviewed by EASA.</p> <p>All other safety targets have been met.</p>						

**FRANCE**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

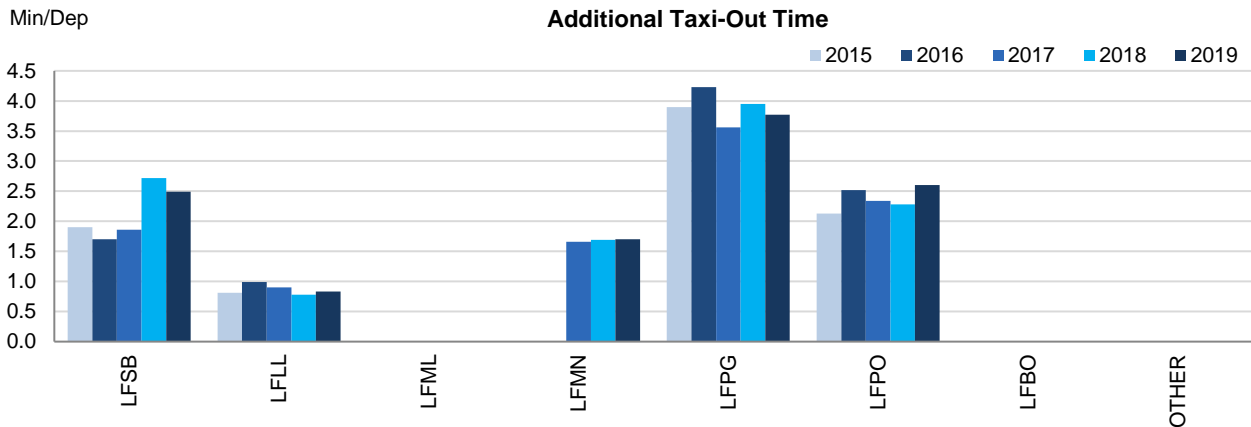
**1. Overview**

For France, the scope of the RP2 monitoring comprises a total of 60 airports. However, 53 of these 60 airports are grouped into a basket ("OTHER") for monitoring and target setting purposes.

In the beginning of 2019, the Airport Operator Data Flow is only fully established for 5 of the 7 airports independently monitored and for none of the airports within the basket. Accordingly, the monitoring of the environmental performance is limited. Marseille and Toulouse have implemented the data reporting in the course of 2019, but the data provision is limited for this year.

The traffic at the ensemble of these 60 airports has not significantly changed since the beginning of RP2 (+5% with respect to 2015) and the environmental indicators for the airports that can be monitored have not changed much in general terms, showing in most cases better performance than similar airports in terms of movements.

**2. Additional Taxi-Out Time**



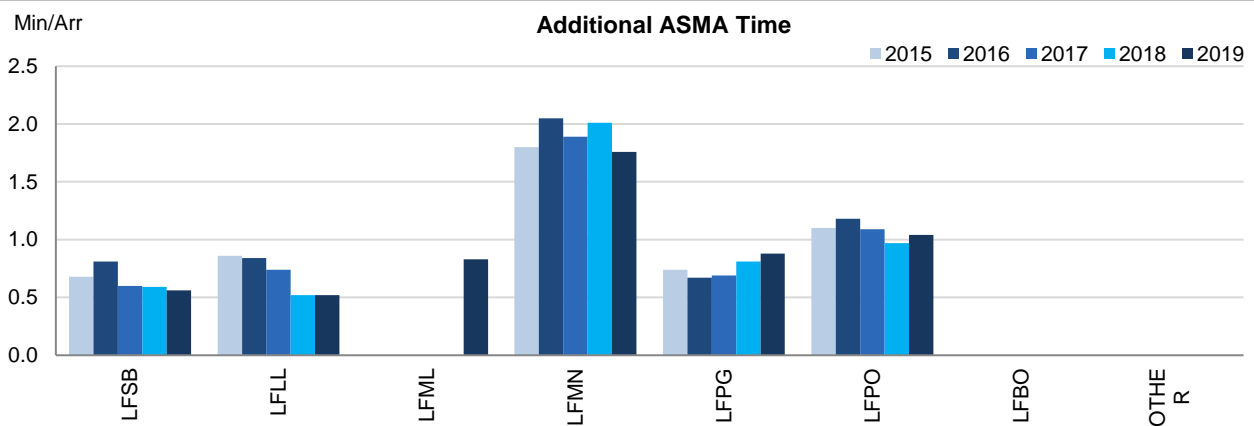
The additional taxi-out times at 4 of the 5 airports where these times can be analysed, range below the SES average in 2019 (3.56 min/dep.)

Charles de Gaulle (LFPG) shows slightly shorter additional taxi-out times, with a quite stable performance, only altered in January probably due to de-icing procedures, when the average additional TXOT exceeded the 5 min/dep.

The increase at Paris Orly (LFPO; 2018: 2.28 min/dep.; 2019: 2.6 min/dep.) is driven by the impact of the closure of RWY08/26 from the end of July until the beginning of December.

Bâle-Mulhouse (LFSB), after a significant deterioration in 2018, has reduced the additional TXOT but still averages 2.49 min/dep., with high impact of the seasonality (in July these times reach almost 4 min/dep.)

**3. Additional ASMA Time**



Additional times in the terminal area at French airports are in general very good and well below the RP2 average (1.82 min/arr.)

Nice (LFMN) shows an improvement in 2019, but additional ASMA times are still the highest amongst these airports (LFMN; 2018: 2.01 min/arr.; 2019: 1.76 min/arr.)

Performance at Charles de Gaulle and Orly has slightly worsen in 2019, but both airports still show very low additional times and Charles de Gaulle is once again the airport above 200000 movements with the lowest additional ASMA times.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bâle-Mulhouse	LFSB	1.90	1.70	1.86	2.72	2.49	0.68	0.81	0.60	0.59	0.56
Lyon-Saint-Exupéry	LFLM	0.81	0.99	0.90	0.78	0.83	0.86	0.84	0.74	0.52	0.52
Marseille-Provence	LFML	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.83
Nice-Côte d'Azur	LFMN	n/a	n/a	1.66	1.69	1.70	1.80	2.05	1.89	2.01	1.76
Paris-Charles-de-Gaulle	LFPG	3.90	4.23	3.56	3.95	3.77	0.74	0.67	0.69	0.81	0.88
Paris-Orly	LFPO	2.13	2.52	2.34	2.28	2.60	1.10	1.18	1.09	0.97	1.04
Toulouse-Blagnac	LFBO	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Agen-La Garenne	LFBA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ajaccio-Napoléon-Bonaparte	LFKJ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Albert-Bray	LFAQ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Angers-Marcé	LFJR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Annecy-Meythet	LFLP	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Avignon-Caumont	LFMV	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bastia-Poretta	LFKB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Beauvais-Tillé	LFOB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bergerac-Roumanière	LFBE	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Béziers-Vias	LFMU	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Biarritz-Meypeyre	LFMZ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bordeaux-Mérignac	LFBD	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brest-Bretagne	LFBR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brive-Souillac	LFSL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Caen-Carpiquet	LFRC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Calvi-Sainte-Catherine	LFKC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cannes-Mandelieu	LFMD	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Carcassonne-Salvaza	LFMK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Châlons-Vatry	LFOK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Chambéry-Aix-les-Bains	LFLB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Châteauroux-Déols	LFLX	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Clermont-Ferrand-Auvergne	LFCL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Deauville-Normandie	LFRO	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dinard-Pleurtuit-Saint-Malo	LFDR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dôle-Tavaux	LFJJ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Figari-Sud Corse	LFKF	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Grenoble-Isère	LFLS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hyères-Le Palyvestre	LFTH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Istres-Le Tubé	LFMI	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
La Rochelle-Ile de Ré	LFBR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lannion	LFRO	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Le Havre-Octeville	LFHO	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lille-Lesquin	LFQQ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Limoges-Bellegarde	LFBL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lorient-Lann Bihoué	LFRL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lyon-Bron	LFLY	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Metz-Nancy-Lorraine	LFJL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Montpellier-Méditerranée	LFTT	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nantes-Atlantique	LFRS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nîmes-Garons	LFTW	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paris-Le Bourget	LFPG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Pau-Pyrénées	LFBP	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Perpignan-Rivesaltes	LFMP	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Poitiers-Biard	LFBI	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Quimper-Pluguffan	LFRQ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rennes-Saint-Jacques	LFRN	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rodez-Marcillac	LFMR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Saint-Etienne-Bouthéon	LFMH	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Saint-Nazaire-Montoir	LFRZ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Strasbourg-Entzheim	LFST	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tarbes-Lourdes Pyrénées	LFBT	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tours-Val de Loire	LFOT	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Toussus-le-Noble	LFPN	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**FRANCE**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.37	0.40	0.40	0.39	0.32	Exclusive use of CRSTMP codes means that the PRB is unable to independently validate the results for incentive purposes. Actual performance reported here is for all causes of delay and includes NM post operations adjustment.
Deadband +/-	N/A	N/A	N/A	N/A	N/A	
Actual performance	0.84	1.18	0.97	1.80	1.32	

**National capacity incentive scheme**

The capacity delay target at FAB level was set at an average of 0.33 min/flight for only CRSTMP causes of ATFM delays.

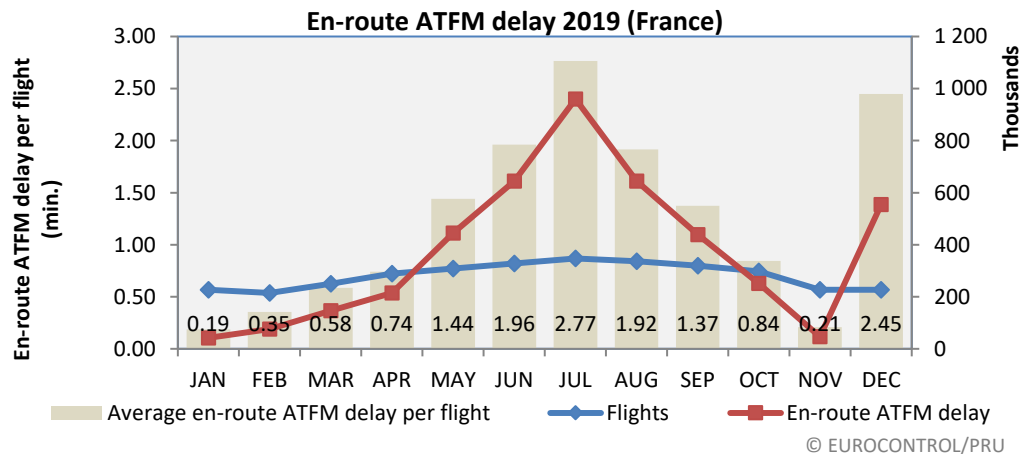
DSNA's broken down target was set at 0.21 min/flight. (See FABEC graphic regarding incentives in FABEC section of monitoring report.)

- 2019 achievement (As reported by FABEC)
- FABEC: 1.22 min/flight for CRSTMP ATFM delays
  - DSNA: 0.86 min/flight for CRSTMP ATFM delays

**BONUS / MALUS**

DSNA, as an ANSP contributing to the under-performance, achieved a malus of -0.26% of the total ANSP's revenue in 2019, which equates to a penalty of €3,022,157.80

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.47	0.18	2.53	0.45	0.54	0.53	0.66	0.84	1.18	0.97	1.80	1.32

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual	actual	
High	2 978		3 065		3 181		3 270		3 367		3 463	
Base	2 944	<b>2 947</b>	3 005	<b>2 992</b>	3 076	<b>3 124</b>	3 127	<b>3 241</b>	3 187	<b>3 328</b>	3 254	<b>3 372</b>
Low	2 905		2 935		2 947		2 957		2 976		3 002	

Traffic levels in France in 2019 rose by just over 1% on 2018 levels. Traffic levels remain below the high traffic scenario forecasted by STATFOR back in 2014 when the FAB performance plans and associated capacity plans were being determined.

En route AFTM delay improved year on year, from 1.78 minutes per flight in 2018 to 1.17 minutes in 2019, excluding the 462k minutes of delays that were reattributed to France via the post-ops performance adjustment process - in 2019 462k minutes relating to the eNM/S19 measures, in 2018 - 63k minutes of delay were reattributed to France (due to industrial action).

In France, 39% of original ATFM delays were attributed to ATC staffing, 19% were attributed to industrial action, 18% were attributed to ATC capacity and another 18% were attributed to adverse weather during 2019.

The airspace users highlighted Marseille ACC as generating a high amount of delays.

The actual amount of delays bears no relation to the delays predicted for France in the NOP 2019 -2024.

Delay forecast - DSNA						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.35	0.48	0.47	0.35	N/A	N/A
<b>NOP 2019 - 2024</b>	5.26	5.91	3.56 - 6.48			

### Planning and Effective Use of CDRs

France provided no information on this indicator in the annual monitoring report.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
59%	63%	67%	63%	64%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
6%	9%	12%	13%	10%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	82%	78%	76%

The PRB notes that France provided revised historical values for this indicator without any explanation for the revision. The figures shown above are as reported in previous years.

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.



**FRANCE**

**Monitoring of Airports Contribution to CAPACITY for 2019**

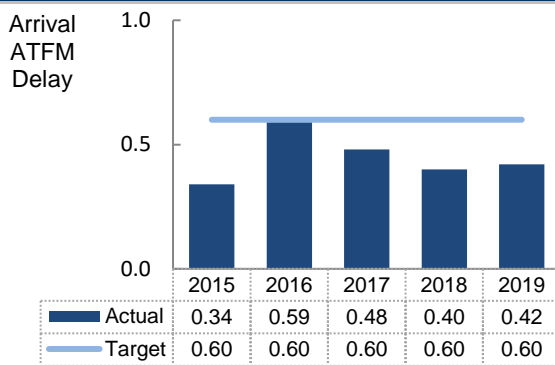
**1. Overview**

For France, ANS at a total of 60 airports fall under the scope of RP2 monitoring. For practical reasons, the monitoring focuses on 7 major airports in terms of IFR movements and aggregates the 53 other airports into a residual group. Traffic levels at these airports have slightly increased during RP2 (+5.4% with respect to 2015) and arrival ATFM delays are moderately higher than those in the beginning of the reference period (+24% in 2019 with respect to 2015). France has established a constant national target for arrival ATFM delay during RP2. Arrival ATFM delays in 2019 (all causes, national level 2019: 0.42 min/arr.) meet the target (0.60 min/arr.).

The observed performance in terms of ATFM slot adherence at the 7 major airports has seen some improvements with respect to 2017 but it still ranges at the lower margin in comparison with other European airports. At national level, the ATFM slot adherence has improved during RP2 (2015: 85.8%; 2019: 88.4%), but it is still the third lowest national aggregate in the SES area.

The monitoring of pre-departure delay is still not possible at most of the French airports.

**2. Arrival ATFM Delay**



During 2019, arrival ATFM delays in France have slightly increased with respect to the previous year (2018: 0.40 min/arr, 2019: 0.42 min/arr). Although the biggest contributors to the ATFM delay in France are Paris Orly and Charles de Gaulle, the third and fourth contributors in terms of total minutes of delay are smaller airports: Le Bourget (LFPB) and Cannes (LFMD) that have in fact the highest delay per arrival (LFPB; 2019: 1.57 min/arr. and LFMD; 2019: 3.26 min/arr.).

Paris Orly (LFPO) suffered heavily of aerodrome capacity constraints that generated 47% of its ATFM delays. Industrial action by ATC in the month of December also had a significant impact. Thanks to the coordinated measures to reduce the flight schedule those months, the closure of RWY08/26 from the end of July until the beginning of December did not seem to have a great impact in terms of regulations, as the delays are kept at similar levels as the previous months.

At Paris Charles de Gaulle, weather was associated to 81% of the delays, followed by industrial action in December like in Charles de Gaulle.

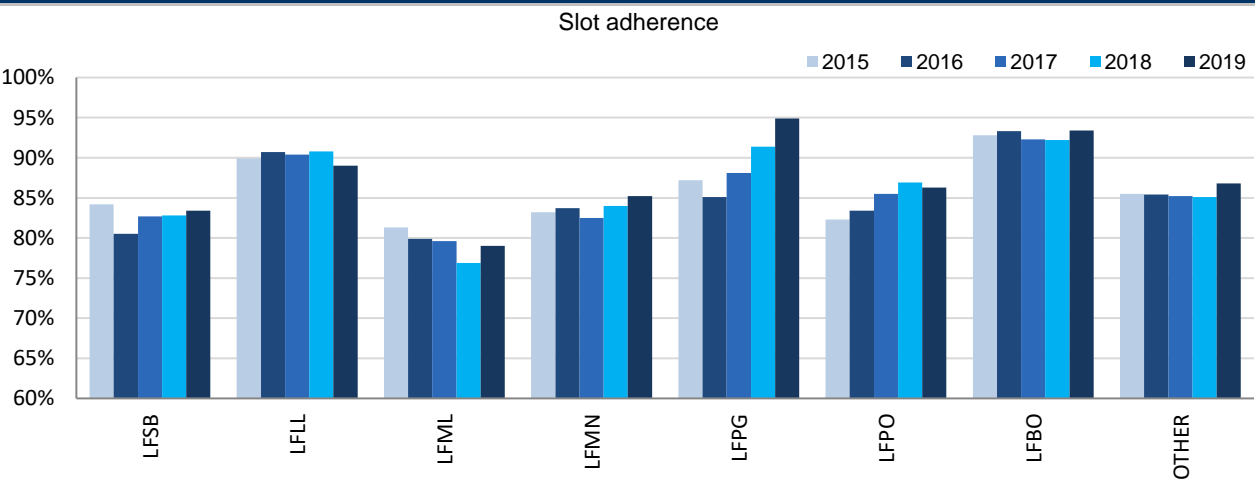
At national level, and according to reported reasons for the ATFM delays in France, the main cause is weather (35%) followed by aerodrome capacity (30%, mainly at Paris Orly, but also a significant contribution by Cannes and Le Bourget) and ATC Industrial action (10%).

**3. Arrival ATFM Delay – National Target and Incentive Scheme**

France established a constant national target on arrival ATFM delay for RP2 (all causes: 0.60 min/arr. and CRSTMP: 0.15 min/arr.) as presented in the FABEC performance plan.

Arrival ATFM delays associated with CRSTMP causes achievement (0.08 min/arr) meets the target (0.15 min/arr.), but falls within the dead band of both incentive schemes as defined in the FABEC performance plan (CZ1 and CZ2) therefore no bonus applies for DSNA for 2019.

**4. ATFM Slot Adherence**



According to calculated values, ATFM slot adherence shows a general improvement, and Charles de Gaulle (A-CDM implemented) shows a remarkable improvement almost reaching the best-in-class category threshold of 95% (LFPG; 2019: 94.9%)

The general performance in terms of slot adherence ranges around or above the legal compliance boundary of 80%, except for Marseille (LFML) which is just under the threshold (79%).

However, it appears that the calculated values might have been based in wrong information sent to NMOC, National level and main national individual airports involved are above the 80% threshold of compliance except for LFML

DSNA identified that one reason generating this lack of measured adherence was wrong information sent to NMOC. Indeed, except in the two main Paris airports, the signal for activating the flight plan in the current FDPS system of DSNA (CAUTRA) is also used as the first system activation message (FSA) signal sent to the NMOC. However, this takes place at a time after off-block time (OBT), but well before the actual take-off, while it is interpreted by NMOC as Take-Off Time (TOT). Hence, NMOC detects a large percentage of regulated flights as taking off in advance of the tolerance window, although the actual take-off time is later and actually generally within the STW.

This appears in particular for Marseille (LFML). This is now acknowledged by DSNA as a clear deviation on many airports where the taxiing time is significant. According to the FABEC monitoring report, this issue was corrected last year in Paris-Charles-de-Gaulle and Paris-Orly through a specific local system that allows sending the NMOC a correct take-off time (TOT). DSNA is currently preparing a device to correct the time sent to the NMOC on the other main airports. Since on smaller airports, the taxiing time is short, the deviation has little impact. It is aimed that the new device sending the correct information will be in place at all controlled airports in 2020.

## 5. ATC Pre-departure Delay

The monitoring of ATC pre-departure delay is only possible at 3 of the 60 French airports covered by the performance plan: Paris Orly (LFPO), Bâle Mulhouse (LFSB) and Nice Côte d'Azur (LFMN).

The lack of data due to the non-establishment of the required data flow by the airports, together with an insufficient reporting of the observed delays in some cases like Charles de Gaulle (LFPG) or Marseille (LFML) (where more than 40% of the delays are left unexplained) make the monitoring of the indicator not possible.

ATC pre-departure delays observed at LFPO (0.56 min/dep.), LFMN (0.31 min/dep.) and LFSB (0.12 min/dep.) are commensurate with the level of traffic.

Toulouse joined the Airport Operator Data Flow in the month of May, so the annual monitoring of the required indicators in the Performance Scheme will be possible as of 2020. France shall encourage the timely implementation of the Airport Operator Data Flow and a proper reporting of the pre-departure delays through this data flow.

## 6. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

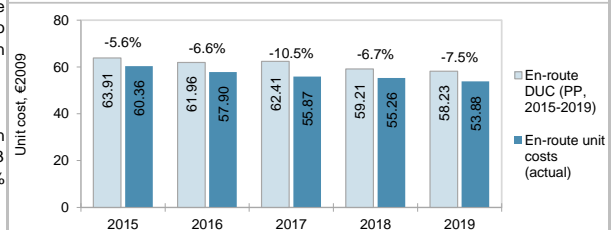
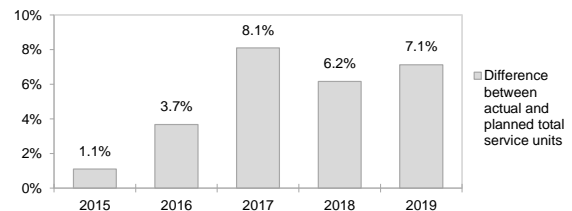
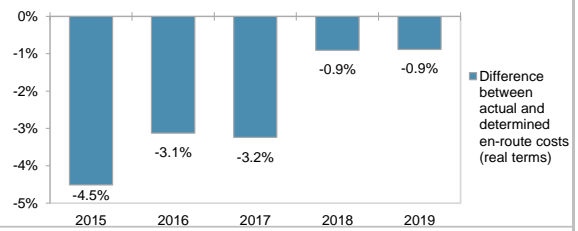
Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bâle-Mulhouse	LFSB	0.14	0.32	0.06	0.22	0.27	84.2%	80.5%	82.7%	82.8%	83.4%	n/a	n/a	n/a	0.09	0.12
Lyon-Saint-Exupéry	LFLL	0.03	0.03	0.10	0.09	0.05	89.9%	90.7%	90.4%	90.8%	89.0%	0.12	n/a	n/a	n/a	n/a
Marseille-Provence	LFML	0.12	0.54	0.13	0.16	0.17	81.3%	79.9%	79.6%	76.9%	79.0%	n/a	n/a	n/a	n/a	n/a
Nice-Côte d'Azur	LFMN	0.23	0.20	0.20	0.27	0.24	83.2%	83.7%	82.5%	84.0%	85.2%	n/a	n/a	0.36	0.34	0.31
Paris-Charles-de-Gaulle	LFPG	0.35	0.53	0.34	0.28	0.31	87.2%	85.1%	88.1%	91.4%	94.9%	0.40	0.37	n/a	n/a	n/a
Paris-Orly	LFPO	0.96	1.90	1.40	1.38	1.38	82.3%	83.4%	85.5%	86.9%	86.3%	n/a	0.65	0.71	n/a	0.56
Toulouse-Blagnac	LFBO	0.26	0.41	0.21	0.24	0.09	92.8%	93.3%	92.3%	92.2%	93.4%	n/a	n/a	n/a	n/a	n/a
Agen-La Garenne	LFBA	0.00	0.00	0.00	0.00	0.00	83.0%	82.1%	83.1%	83.2%	83.0%	n/a	n/a	n/a	n/a	n/a
Ajaccio-Napoléon-Bonaparte	LFKJ	0.01	0.09	0.04	0.00	0.01	88.6%	83.3%	84.8%	83.9%	85.1%	n/a	n/a	n/a	n/a	n/a
Albert-Bray	LFAQ	0.39	0.03	0.00	0.00	0.00	44.0%	54.7%	55.2%	70.5%	47.2%	n/a	n/a	n/a	n/a	n/a
Angers-Marcé	LFJR	0.04	0.05	0.01	0.00	0.02	85.5%	88.3%	85.7%	89.2%	87.7%	n/a	n/a	n/a	n/a	n/a
Annecy-Meythet	LFLP	0.15	0.00	0.00	0.07	0.18	84.2%	90.0%	89.5%	82.3%	84.0%	n/a	n/a	n/a	n/a	n/a
Avignon-Caumont	LFMV	0.04	0.31	0.13	0.08	0.27	81.5%	77.7%	74.6%	74.0%	77.7%	n/a	n/a	n/a	n/a	n/a
Bastia-Poretta	LFKB	0.00	0.02	0.01	0.01	0.10	84.5%	81.6%	81.9%	83.9%	85.9%	n/a	n/a	n/a	n/a	n/a
Beauvais-Tillé	LFOB	0.29	1.65	0.06	0.09	0.09	55.3%	49.5%	44.5%	47.3%	55.3%	n/a	n/a	n/a	n/a	n/a
Bergerac-Roumanière	LFBE	0.00	0.00	0.03	0.00	0.00	79.1%	79.4%	83.9%	81.5%	83.4%	n/a	n/a	n/a	n/a	n/a
Béziers-Vias	LFMU	0.00	0.00	0.00	0.00	0.00	97.0%	89.6%	92.6%	95.1%	85.0%	n/a	n/a	n/a	n/a	n/a

Biarritz-Bayonne-Anglet	LFBZ	0.00	0.00	0.16	0.35	0.78	88.5%	87.8%	82.9%	81.8%	87.6%	n/a	n/a	n/a	n/a	n/a
Bordeaux-Mérignac	LFBF	0.12	0.23	0.35	0.15	0.41	87.7%	89.1%	87.0%	88.0%	89.9%	n/a	n/a	n/a	n/a	n/a
Brest-Bretagne	LFRB	0.01	0.02	0.02	0.09	0.01	90.3%	91.4%	91.7%	91.6%	95.0%	n/a	n/a	n/a	n/a	n/a
Brive-Souillac	LFSL	0.00	0.00	0.00	0.00	0.00	94.3%	96.2%	95.2%	93.7%	95.2%	n/a	n/a	n/a	n/a	n/a
Caen-Carpique	LFRK	0.00	0.00	0.00	0.07	0.00	84.9%	86.3%	90.8%	88.2%	89.7%	n/a	n/a	n/a	n/a	n/a
Calvi-Sainte-Catherine	LFKC	0.22	0.23	0.58	0.48	0.43	90.5%	94.0%	88.5%	91.6%	90.9%	n/a	n/a	n/a	n/a	n/a
Cannes-Mandelieu	LFMD	1.15	1.96	1.76	2.22	3.26	94.9%	95.1%	94.4%	93.8%	94.7%	n/a	n/a	n/a	n/a	n/a
Carcassonne-Salvaza	LFMK	0.00	0.00	0.00	0.04	0.00	77.2%	80.9%	83.4%	86.2%	86.0%	n/a	n/a	n/a	n/a	n/a
Châlons-Vatry	LFOK	0.09	0.00	0.00	0.00	0.05	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Chambéry-Aix-les-Bains	LFLB	1.62	1.31	0.71	1.08	0.62	89.1%	91.0%	82.8%	87.3%	88.5%	n/a	n/a	n/a	n/a	n/a
Châteauroux-Déols	LFLX	0.00	0.00	0.00	0.00	0.00	84.8%	86.7%	94.2%	95.0%	89.1%	n/a	n/a	n/a	n/a	n/a
Clermont-Ferrand-Auvergne	LFLC	0.01	0.00	0.00	0.00	0.18	79.5%	83.2%	85.3%	82.4%	82.4%	n/a	n/a	n/a	n/a	n/a
Deauville-Normandie	LFRG	0.02	0.00	0.00	0.01	0.00	85.6%	86.9%	82.8%	89.4%	92.2%	n/a	n/a	n/a	n/a	n/a
Dinard-Pleurtuit-Saint-Malo	LFRD	0.00	0.00	0.00	0.00	0.00	71.2%	75.8%	81.9%	80.7%	85.6%	n/a	n/a	n/a	n/a	n/a
Dôle-Tavaux	LFGJ	0.00	0.00	0.00	0.00	0.00	57.0%	42.2%	54.4%	51.1%	46.1%	n/a	n/a	n/a	n/a	n/a
Figari-Sud Corse	LFKF	1.58	1.37	5.26	1.83	0.08	84.6%	81.0%	80.9%	79.3%	80.2%	n/a	n/a	n/a	n/a	n/a
Grenoble-Isère	LFLS	1.70	2.77	1.33	0.75	1.22	95.1%	91.5%	92.7%	93.4%	96.5%	n/a	n/a	n/a	n/a	n/a
Hyères-Le Palyvestre	LFTH	0.00	0.01	0.05	0.09	0.14	84.3%	85.1%	81.5%	83.3%	85.3%	n/a	n/a	n/a	n/a	n/a
Istres-Le Tubé	LFMI	0.00	0.00	0.00	0.00	0.00	75.0%	70.8%	73.0%	74.4%	72.6%	n/a	n/a	n/a	n/a	n/a
La Rochelle-Ile de Ré	LFBH	0.10	0.00	0.01	0.00	0.07	89.2%	86.9%	90.5%	93.4%	93.7%	n/a	n/a	n/a	n/a	n/a
Lannion	LFRO	0.00	0.00	0.00	0.13	0.00	92.9%	93.7%	96.5%	95.6%	83.3%	n/a	n/a	n/a	n/a	n/a
Le Havre-Octeville	LFOH	0.00	0.00	0.00	0.00	0.00	82.4%	80.4%	92.3%	88.1%	82.4%	n/a	n/a	n/a	n/a	n/a
Lille-Lesquin	LFQQ	0.34	0.22	0.11	0.04	0.08	89.3%	84.3%	86.1%	88.1%	90.5%	n/a	n/a	n/a	n/a	n/a
Limoges-Bellegarde	LFBL	0.03	0.11	0.04	0.15	0.14	91.7%	92.4%	93.8%	93.9%	93.5%	n/a	n/a	n/a	n/a	n/a
Lorient-Lann Bihoué	LFRH	0.00	0.00	0.02	0.01	0.00	86.7%	84.4%	89.6%	88.8%	92.6%	n/a	n/a	n/a	n/a	n/a
Lyon-Bron	LFLY	0.00	0.01	0.01	0.01	0.23	92.9%	92.1%	95.9%	90.2%	93.9%	n/a	n/a	n/a	n/a	n/a
Metz-Nancy-Lorraine	LFJL	0.00	0.00	0.01	0.00	0.00	75.4%	77.5%	77.8%	81.9%	80.7%	n/a	n/a	n/a	n/a	n/a
Montpellier-Méditerranée	LFMT	0.02	0.01	0.00	0.01	0.00	92.0%	89.8%	91.1%	91.0%	91.9%	n/a	n/a	n/a	n/a	n/a
Nantes-Atlantique	LFRS	0.16	0.33	0.18	0.33	0.20	88.6%	88.6%	91.5%	90.6%	92.2%	n/a	n/a	n/a	n/a	n/a
Nîmes-Garons	LFTW	0.00	0.00	0.00	0.00	0.00	91.4%	87.9%	90.7%	89.1%	91.7%	n/a	n/a	n/a	n/a	n/a
Paris-Le Bourget	LFPB	0.35	1.00	2.99	0.93	1.57	91.0%	90.0%	91.7%	92.7%	93.2%	n/a	n/a	n/a	n/a	n/a
Pau-Pyrénées	LFBP	0.01	0.00	0.00	0.12	0.01	89.7%	88.2%	82.5%	84.8%	84.1%	n/a	n/a	n/a	n/a	n/a
Perpignan-Rivesaltes	LFMP	0.57	0.00	0.02	0.00	0.32	96.8%	93.7%	95.9%	94.5%	90.8%	n/a	n/a	n/a	n/a	n/a
Poitiers-Biard	LFBI	0.01	0.00	0.00	0.00	0.00	90.4%	87.1%	83.7%	87.1%	87.6%	n/a	n/a	n/a	n/a	n/a
Quimper-Pluguffan	LFRQ	0.00	0.00	0.06	0.05	0.00	89.9%	92.3%	93.3%	92.3%	90.7%	n/a	n/a	n/a	n/a	n/a
Rennes-Saint-Jacques	LFRN	0.00	0.00	0.00	0.00	0.00	82.2%	83.6%	84.6%	83.5%	85.1%	n/a	n/a	n/a	n/a	n/a
Rodez-Marcillac	LFMR	0.00	0.00	0.00	0.00	0.00	94.6%	95.8%	94.6%	77.4%	95.0%	n/a	n/a	n/a	n/a	n/a
Saint-Etienne-Bouthéon	LFMH	0.00	0.00	0.03	0.00	0.00	91.3%	92.0%	90.8%	69.8%	80.9%	n/a	n/a	n/a	n/a	n/a
Saint-Nazaire-Montoir	LFRZ	0.00	0.00	0.00	0.00	0.00	88.6%	90.2%	95.2%	90.4%	90.9%	n/a	n/a	n/a	n/a	n/a
Strasbourg-Entzheim	LFST	0.01	0.00	0.02	0.06	0.06	78.9%	80.9%	82.3%	81.3%	81.9%	n/a	n/a	n/a	n/a	n/a
Tarbes-Lourdes Pyrénées	LFBT	0.00	0.00	0.00	0.00	0.00	95.8%	94.0%	92.3%	93.0%	93.7%	n/a	n/a	n/a	n/a	n/a
Tours-Val de Loire	LFOT	0.04	0.00	0.00	0.00	0.08	100.0%	71.4%	100.0%	0.0%	50.0%	n/a	n/a	n/a	n/a	n/a
Toussus-le-Noble	LFPN	1.68	1.59	0.51	0.84	0.92	65.0%	67.1%	68.9%	62.2%	64.0%	n/a	n/a	n/a	n/a	n/a

## FRANCE: En-route charging zone

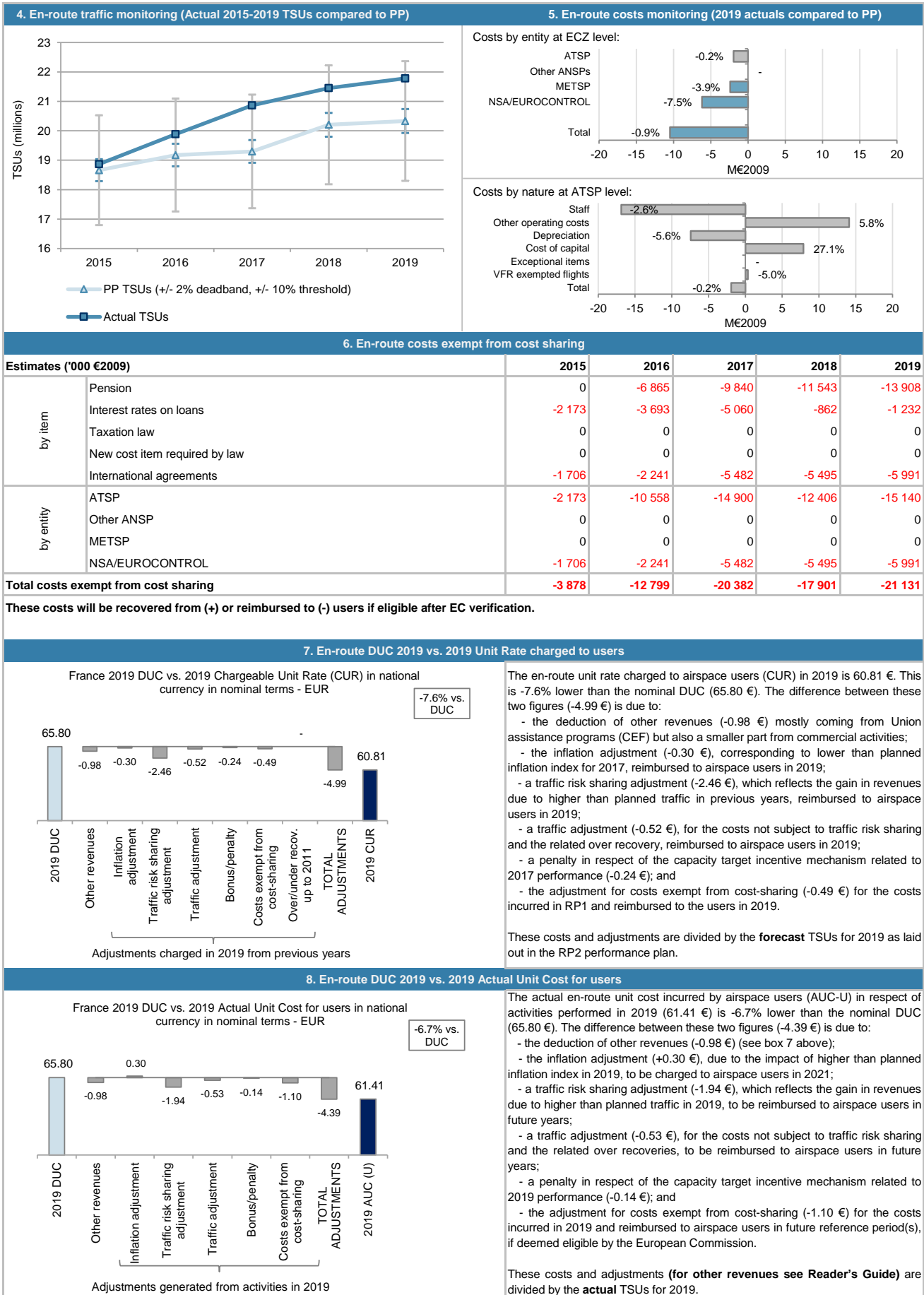
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
<ul style="list-style-type: none"> <li>France ECZ represents 19.7% of the SES en-route ANS determined costs in 2019</li> <li>ATSP: DSNA</li> <li>FAB: FABEC</li> <li>National currency: EUR</li> </ul>						
2. En-route DUC monitoring at Charging Zone level						
France: Data from RP2 Performance Plan (EC Decision 2017/553 of 22 March 2017)		2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)		1 290 640 175	1 296 576 851	1 328 676 964	1 334 112 339	1 337 956 806
Inflation %		0.1%	0.8%	1.1%	1.1%	1.3%
Inflation index (100 in 2009)		108.2	109.1	110.3	111.5	113.0
Real en-route costs (EUR2009)		1 192 625 922	1 188 249 284	1 204 538 004	1 196 187 863	1 184 005 999
Total en-route Service Units		18 662 000	19 177 000	19 300 000	20 204 000	20 333 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>63.91</b>	<b>61.96</b>	<b>62.41</b>	<b>59.21</b>	<b>58.23</b>
France: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)		1 232 156 471	1 249 336 773	1 279 604 941	1 328 736 656	1 332 578 058
Inflation %		0.1%	0.3%	1.2%	2.1%	1.3%
Inflation index (100 in 2009)		108.2	108.5	109.8	112.1	113.6
Real en-route costs (EUR2009)		1 138 811 120	1 151 121 405	1 165 490 383	1 185 348 242	1 173 519 354
Total en-route Service Units		18 867 771	19 882 659	20 862 129	21 449 867	21 782 108
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>60.36</b>	<b>57.90</b>	<b>55.87</b>	<b>55.26</b>	<b>53.88</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
En-route costs (nominal EUR)	in value	-58 483 704	-47 240 078	-49 072 024	-5 375 683	-5 378 748
	in %	-4.5%	-3.6%	-3.7%	-0.4%	-0.4%
Inflation %	in p.p.	-0.0 p.p.	-0.5 p.p.	0.1 p.p.	1.0 p.p.	-0.0 p.p.
	in p.p.	-0.0 p.p.	-0.6 p.p.	-0.5 p.p.	0.6 p.p.	0.6 p.p.
Real en-route costs (EUR2009)	in value	-53 814 802	-37 127 879	-39 047 621	-10 839 621	-10 486 645
	in %	-4.5%	-3.1%	-3.2%	-0.9%	-0.9%
Total en-route Service Units	in value	205 771	705 659	1 562 129	1 245 867	1 449 108
	in %	1.1%	3.7%	8.1%	6.2%	7.1%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-3.55</b>	<b>-4.07</b>	<b>-6.54</b>	<b>-3.94</b>	<b>-4.36</b>
	<b>in %</b>	<b>-5.6%</b>	<b>-6.6%</b>	<b>-10.5%</b>	<b>-6.7%</b>	<b>-7.5%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (53.88 €2009) is -7.5% lower than planned in the PP (58.23 €2009). This results from the combination of higher than planned TSUs (+7.1%) and slightly lower than planned en-route costs in real terms (-0.9%, or -10.5 M€2009).						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+7.1%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (DSNA) retaining an amount of +36.6 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are -0.4% (-5.4 M€) lower than planned. However, since the actual inflation index is higher than planned (+0.6 p.p.), actual en-route costs are -0.9% (-10.5 M€2009) below plans when expressed in real terms. The slightly lower than planned en-route costs in real terms are driven by DSNA (-0.2%, or -1.9 M€2009), the MET service provider (-3.9%, or -2.4 M€2009) and the NSA/EUROCONTROL (-7.5%, or -6.2 M€2009). A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of -21.1 M€2009 comprising -13.9 M€2009 for pensions, -1.2 M€2009 for interest rates on loans and -6.0 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +5.3% higher than planned, while actual costs in real terms are -2.5% lower than the determined costs (some -151.3 M€2009). As a result, the weighted average actual unit cost over RP2 (56.53 €2009) is -7.4% lower than planned in the NPP (61.08 €2009).						



FRANCE: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



## FRANCE: En-route ATSP (DSNA)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	1 052 355	1 046 866	1 062 305	1 052 762	1 039 648
Actual costs for the ATSP	1 000 045	1 013 021	1 029 695	1 050 669	1 037 710
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	52 310	33 845	32 610	2 093	1 938
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-2 173	-10 558	-14 900	-12 406	-15 140
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>50 138</b>	<b>23 288</b>	<b>17 710</b>	<b>-10 313</b>	<b>-13 202</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.1%	3.7%	8.1%	6.2%	7.1%
Determined costs for the ATSP (PP) - based on actual inflation	1 052 566	1 052 503	1 067 286	1 047 443	1 034 599
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>11 606</b>	<b>26 354</b>	<b>40 858</b>	<b>34 041</b>	<b>36 605</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>-2 247</b>	<b>-3 039</b>	<b>-4 493</b>	<b>-4 534</b>	<b>-2 661</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>59 497</b>	<b>46 602</b>	<b>54 075</b>	<b>19 194</b>	<b>20 741</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	726 555	743 507	752 317	748 055	720 648
Estimated proportion of financing through equity (in %)	35.0%	35.0%	35.0%	35.0%	35.0%
Estimated proportion of financing through equity (in value)	254 294	260 228	263 311	261 819	252 227
Estimated proportion of financing through debt (in %)	65.0%	65.0%	65.0%	65.0%	65.0%
Estimated proportion of financing through debt (in value)	472 261	483 280	489 006	486 236	468 421
Cost of capital pre-tax (in value)	34 569	35 376	35 795	30 244	29 136
Average interest on debt (in %)	2.7%	2.7%	2.7%	1.6%	1.6%
Interest on debt (in value)	12 751	13 049	13 203	7 780	7 495
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	21 818	22 328	22 592	22 464	21 641
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>21 818</b>	<b>22 328</b>	<b>22 592</b>	<b>22 464</b>	<b>21 641</b>
<b>Revenue/costs for the en-route activity</b>	<b>1 052 355</b>	<b>1 046 866</b>	<b>1 062 305</b>	<b>1 052 762</b>	<b>1 039 648</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>2.1%</b>	<b>2.1%</b>	<b>2.1%</b>	<b>2.1%</b>	<b>2.1%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	742 759	743 764	713 091	684 852	698 304
Estimated proportion of financing through equity (in %)	45.6%	36.6%	41.8%	50.8%	54.8%
Estimated proportion of financing through equity (in value)	338 549	272 069	297 787	347 973	382 461
Estimated proportion of financing through debt (in %)	54.4%	63.4%	58.2%	49.2%	45.2%
Estimated proportion of financing through debt (in value)	404 209	471 695	415 304	336 879	315 843
Cost of capital pre-tax (in value)	38 102	32 494	32 486	34 646	37 034
Average interest on debt (in %)	2.2%	1.9%	1.7%	1.4%	1.3%
Interest on debt (in value)	9 054	9 151	6 936	4 789	4 219
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	29 048	23 344	25 550	29 856	32 815
Net ATSP gain(+)/loss(-) on en-route activity	59 497	46 602	54 075	19 194	20 741
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>88 544</b>	<b>69 946</b>	<b>79 625</b>	<b>49 050</b>	<b>53 556</b>
<b>Revenue/costs for the en-route activity</b>	<b>1 059 541</b>	<b>1 059 623</b>	<b>1 083 769</b>	<b>1 069 864</b>	<b>1 058 451</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>8.4%</b>	<b>6.6%</b>	<b>7.3%</b>	<b>4.6%</b>	<b>5.1%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>26.2%</b>	<b>25.7%</b>	<b>26.7%</b>	<b>14.1%</b>	<b>14.0%</b>

## FRANCE: En-route ATSP (DSNA)

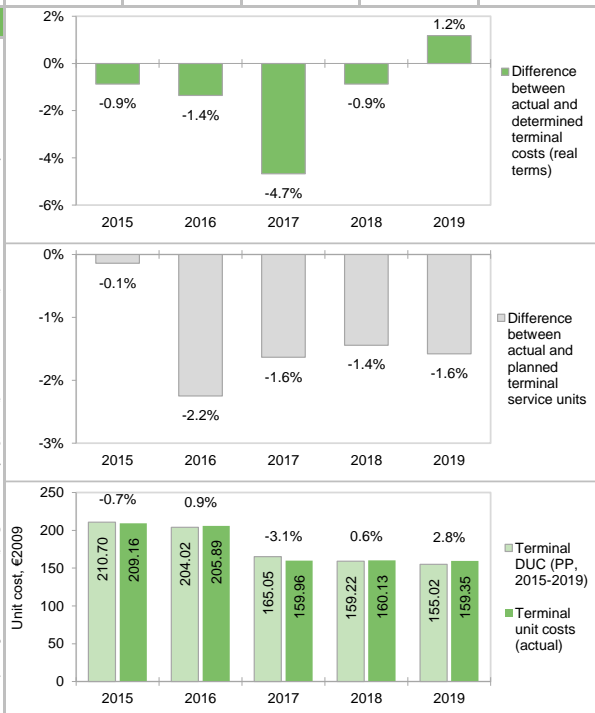
## Monitoring of en-route COST-EFFICIENCY for 2019



## FRANCE - ZONE 1: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
· France - Zone 1 TCZ represents 8.9% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP:	DSNA	· Airports with fewer than 70,000 IFRs ATMs:		0	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019:	2,	of which:	· Airports with more than 225,000 IFRs ATMs:	2	
2. Terminal DUC monitoring at Charging Zone level					
France - Zone 1: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	129 832 690	131 132 361	107 596 304	106 935 078	107 772 756
Inflation %	0.1%	0.8%	1.1%	1.1%	1.3%
Inflation index (100 in 2009)	108.2	109.1	110.3	111.5	113.0
Real terminal costs (EUR2009)	119 972 890	120 176 396	97 543 527	95 879 814	95 371 980
Total terminal Service Units	569 399	589 032	590 998	602 202	615 237
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>210.70</b>	<b>204.02</b>	<b>165.05</b>	<b>159.22</b>	<b>155.02</b>
France - Zone 1: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	128 678 295	128 659 607	102 093 616	106 535 099	109 569 878
Inflation %	0.1%	0.3%	1.2%	2.1%	1.3%
Inflation index (100 in 2009)	108.2	108.5	109.8	112.1	113.6
Real terminal costs (EUR2009)	118 929 922	118 545 160	92 988 956	95 038 541	96 491 438
Total terminal Service Units	568 604	575 780	581 340	593 522	605 514
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>209.16</b>	<b>205.89</b>	<b>159.96</b>	<b>160.13</b>	<b>159.35</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-1 154 394	-2 472 754	-5 502 688	-399 979	1 797 122
	in value				
	in %				
Inflation %	-0.9 p.p.	-1.9 p.p.	-5.1 p.p.	-0.4 p.p.	1.7 p.p.
	in p.p.				
Inflation index (100 in 2009)	-0.0 p.p.	-0.5 p.p.	0.1 p.p.	1.0 p.p.	-0.0 p.p.
	in p.p.				
Real terminal costs (EUR2009)	-1 042 967	-1 631 237	-4 554 571	-841 273	1 119 457
	in value				
	in %				
Total terminal Service Units	-795	-13 252	-9 658	-8 680	-9 723
	in value				
	in %				
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-1.54</b>	<b>1.86</b>	<b>-5.09</b>	<b>0.91</b>	<b>4.34</b>
	in value				
	in %				
	<b>-0.7%</b>	<b>0.9%</b>	<b>-3.1%</b>	<b>0.6%</b>	<b>2.8%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on France Terminal Charging Zone 1 (TCZ 1) comprising two airports: Paris-CDG (LFPG) and Paris-Orly (LFPO) (see <b>Note 1</b> at the end of this Report).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (159.35 €2009) is +2.8% higher than planned in the PP (155.02 €2009). This results from the combination of lower than planned TNSUs (-1.6%) and higher than planned terminal costs in real terms (+1.2%, or +1.1 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in France TCZ 1. The difference between actual and planned TNSUs (-1.6%) falls inside the ±2% dead band foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues (-1.4 M€2009) is therefore fully borne by the ATSP (DSNA).					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +1.7% (+1.8 M€) higher than planned. However, since the actual inflation index is also higher than planned (+0.6 p.p.), actual terminal costs are +1.2% (+1.1 M€2009) above plans when expressed in real terms. The slightly higher than planned terminal costs in real terms are driven by DSNA (+1.8%, or +1.6 M€2009), while the costs for the MET service provider (-14.3%, or -0.5 M€2009) and the NSA (-13.3%, or -0.05 M€2009) are lower than planned. A detailed analysis is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -0.5 M€2009 corresponding to pensions. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for France TCZ 1, actual TNSUs are -1.4% lower than planned, while actual costs in real terms are also -1.3% lower than the determined costs (some -7.0 M€2009). As a result, the weighted average actual unit cost over RP2 (178.47 €2009) is +0.1% higher than planned in the NPP (178.28 €2009).					





FRANCE - ZONE 1: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	1.8%
Other ANSPs	-
METSP	-14.3%
NSA	-13.3%
Total	1.2%

Costs by nature at ATSP level:

Staff	8.3%
Other operating costs	-12.7%
Depreciation	23.2%
Cost of capital	70.3%
Exceptional items	-2.1%
VFR exempted flights	62.7%
Total	1.8%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	-239	-343	-401	-484
	Interest rates on loans	-100	-169	-240	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	-100	-408	-583	-401	-484
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>-100</b>	<b>-408</b>	<b>-583</b>	<b>-401</b>	<b>-484</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

France - Zone 1 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 172.30 €. This is -1.6% lower than the nominal DUC (175.17 €). The difference between these two figures (-2.87 €) relates to:

- the deduction of other revenues (-2.13 €), which include reimbursements from the SJU, revenues from commercial activities (mostly originated from the AIS) and the co-financing of major programs by EC grants (CEF funds);
- the inflation adjustment (-0.82 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019; and
- a traffic adjustment (+0.07 €), for the costs not subject to traffic risk sharing and the related under recovery, charged to airspace users in 2019.

These costs and adjustments are divided by the **forecast TNSUs** for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

France - Zone 1 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (173.11 €) is -1.2% lower than the nominal DUC (175.17 €). The difference between these two figures (-2.06 €) is mainly due to:

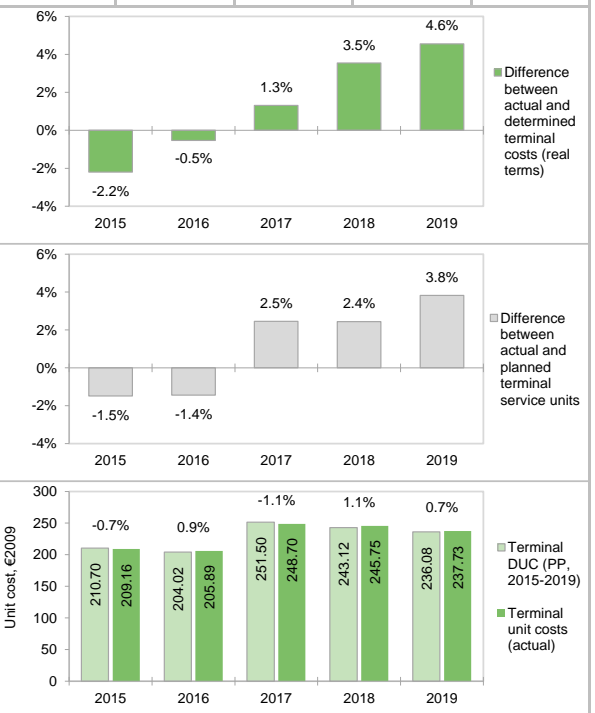
- the deduction of other revenues (-2.13 €) (see box 7 above);
- the inflation adjustment (+0.87 €), reflecting the impact of higher than planned inflation index in 2019, to be charged to airspace users in 2021;
- a traffic adjustment (+0.11 €), for the costs not subject to traffic risk sharing and the related under recoveries, to be charged to airspace users in future years; and
- the adjustment for costs exempt from cost-sharing (-0.91 €) for the costs incurred in 2019 and reimbursed to airspace users in future reference period(s), if deemed eligible by the European Commission.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual TNSUs** in 2019.

## FRANCE - ZONE 2: Terminal charging zone

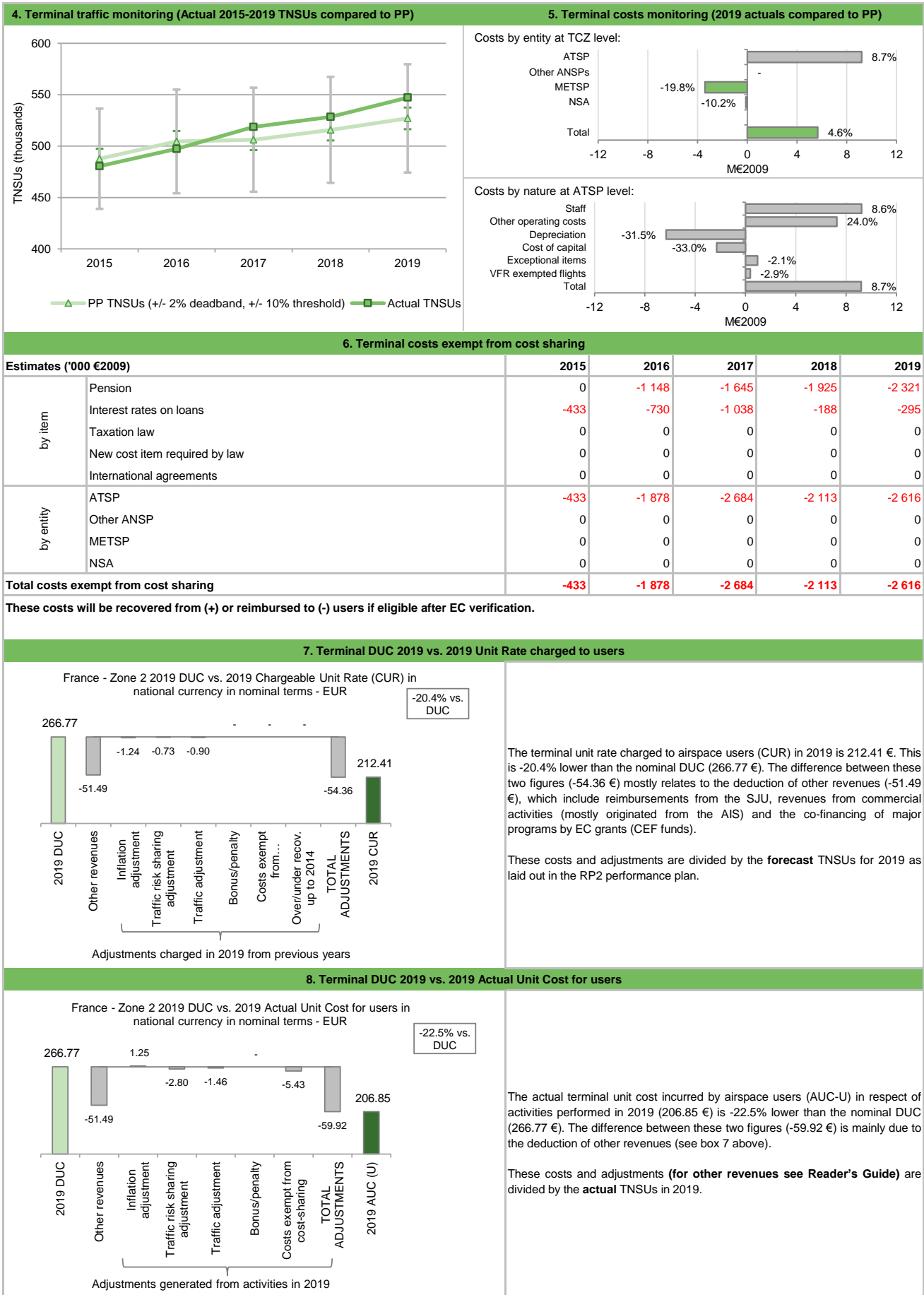
## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
· France - Zone 2 TCZ represents 11.6% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP: DSNA		· Airports with fewer than 70,000 IFRs ATMs:		53	
· National currency: EUR		· Airports with between 70,000 and 225,000 IFRs ATMs:		5	
· Number of airports in charging zone in 2019: 58, of which:		· Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level					
France - Zone 2: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	111 204 151	112 317 559	140 427 995	139 861 540	140 579 086
Inflation %	0.11%	0.8%	1.1%	1.1%	1.3%
Inflation index (100 in 2009)	108.2	109.1	110.3	111.5	113.0
Real terminal costs (EUR2009)	102 759 046	102 933 551	127 307 737	125 402 241	124 403 479
Total terminal Service Units	487 701	504 518	506 202	515 798	526 963
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>210.70</b>	<b>204.02</b>	<b>251.50</b>	<b>243.12</b>	<b>236.08</b>
France - Zone 2: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	108 735 563	111 118 121	141 611 268	145 555 636	147 697 559
Inflation %	0.09%	0.3%	1.2%	2.1%	1.3%
Inflation index (100 in 2009)	108.2	108.5	109.8	112.1	113.6
Real terminal costs (EUR2009)	100 498 006	102 382 681	128 982 443	129 848 241	130 068 136
Total terminal Service Units	480 481	497 278	518 628	528 373	547 128
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>209.16</b>	<b>205.89</b>	<b>248.70</b>	<b>245.75</b>	<b>237.73</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value -2 468 589	in value -1 199 437	in value 1 183 273	in value 5 694 096	in value 7 118 473
	in % -2.2%	in % -1.1%	in % 0.8%	in % 4.1%	in % 5.1%
Inflation %	in p.p. -0.0 p.p.	in p.p. -0.5 p.p.	in p.p. 0.1 p.p.	in p.p. 1.0 p.p.	in p.p. -0.0 p.p.
Inflation index (100 in 2009)	in p.p. -0.0 p.p.	in p.p. -0.6 p.p.	in p.p. -0.5 p.p.	in p.p. 0.6 p.p.	in p.p. 0.6 p.p.
Real terminal costs (EUR2009)	in value -2 261 041	in value -550 870	in value 1 674 706	in value 4 446 000	in value 5 664 657
	in % -2.2%	in % -0.5%	in % 1.3%	in % 3.5%	in % 4.6%
Total terminal Service Units	in value -7 220	in value -7 240	in value 12 426	in value 12 575	in value 20 165
	in % -1.5%	in % -1.4%	in % 2.5%	in % 2.4%	in % 3.8%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -1.54</b>	<b>in value 1.86</b>	<b>in value -2.80</b>	<b>in value 2.63</b>	<b>in value 1.65</b>
	<b>in % -0.7%</b>	<b>in % 0.9%</b>	<b>in % -1.1%</b>	<b>in % 1.1%</b>	<b>in % 0.7%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on France Terminal Charging Zone 2 (TCZ 2) comprising 58 airports (see <b>Note 1</b> at the end of this Report).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (237.73 €2009) is +0.7% higher than planned in the PP (236.08 €2009). This results from the combination of higher than planned TNSUs (+3.8%) and even higher than planned terminal costs in real terms (+4.6%, or +5.7 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in France TCZ 2. The difference between actual and planned TNSUs (+3.8%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (DSNA) retaining an amount of +2.7 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +5.1% (+7.1 M€) higher than planned. However, since the actual inflation is also higher than planned (+0.6 p.p.), actual terminal costs are +4.6% (+5.7 M€2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by DSNA (+8.7%, or +9.2 M€2009), while the costs for the MET provider (-19.8%, or -3.4 M€2009) and the NSA (-10.2%, or -0.1 M€2009) are lower than planned. A detailed analysis is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -2.6 M€2009 comprising -2.3 M€2009 for pensions and -0.3 M€2009 for interest rates on loans. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for France TCZ 2, actual TNSUs are +1.2% higher than planned, while actual costs in real terms are also +0.3% higher than the determined costs (some -7.0 M€2009). As a result, the weighted average actual unit cost over RP2 (178.47 €2009) is +0.3% higher than planned in the NPP (178.28 €2009).					



FRANCE - ZONE 2: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019



## FRANCE: Terminal ATSP (DSNA)

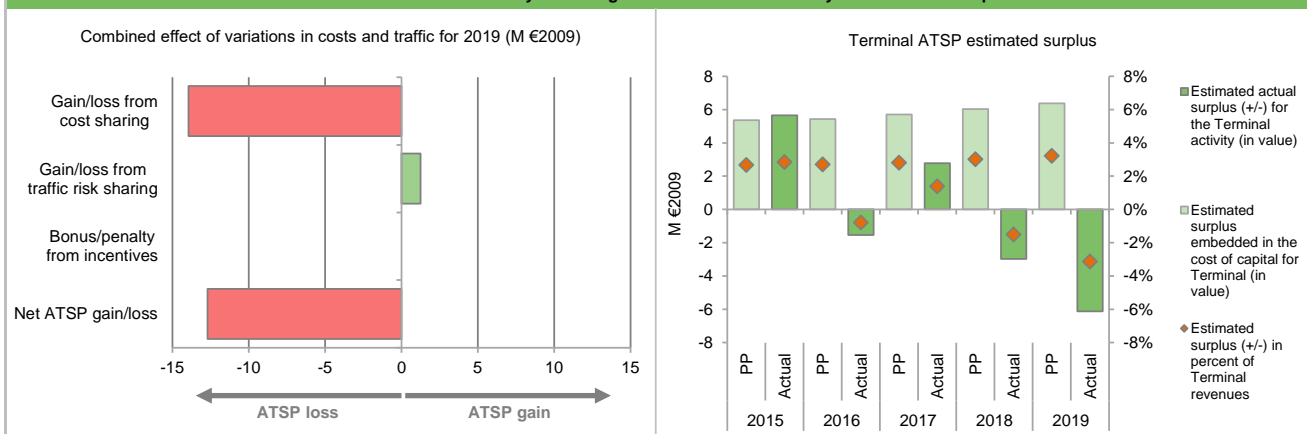
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	200 752	201 091	202 845	199 173	197 599
Actual costs for the ATSP	199 147	201 224	202 281	206 087	208 448
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 605	-132	564	-6 914	-10 848
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-534	-2 286	-3 267	-2 515	-3 099
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 072</b>	<b>-2 418</b>	<b>-2 703</b>	<b>-9 429</b>	<b>-13 948</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.8%	-1.9%	0.3%	0.3%	0.9%
Determined costs for the ATSP (PP) - based on actual inflation	200 793	202 174	203 796	198 166	196 640
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-1 413</b>	<b>-3 651</b>	<b>799</b>	<b>948</b>	<b>1 245</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-342</b>	<b>-6 069</b>	<b>-1 904</b>	<b>-8 481</b>	<b>-12 703</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	178 452	181 011	190 049	200 711	212 325
Estimated proportion of financing through equity (in %)	35.0%	35.0%	35.0%	35.0%	35.0%
Estimated proportion of financing through equity (in value)	62 458	63 354	66 517	70 249	74 314
Estimated proportion of financing through debt (in %)	65.0%	65.0%	65.0%	65.0%	65.0%
Estimated proportion of financing through debt (in value)	115 994	117 657	123 532	130 462	138 011
Cost of capital pre-tax (in value)	8 491	8 612	9 043	8 115	8 584
Average interest on debt (in %)	2.7%	2.7%	2.7%	1.6%	1.6%
Interest on debt (in value)	3 132	3 177	3 335	2 087	2 208
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	5 359	5 436	5 707	6 027	6 376
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>5 359</b>	<b>5 436</b>	<b>5 707</b>	<b>6 027</b>	<b>6 376</b>
<b>Revenue/costs for the terminal activity</b>	<b>200 752</b>	<b>201 091</b>	<b>202 845</b>	<b>199 173</b>	<b>197 599</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.7%</b>	<b>2.7%</b>	<b>2.8%</b>	<b>3.0%</b>	<b>3.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	153 551	144 583	130 798	126 364	139 819
Estimated proportion of financing through equity (in %)	45.6%	36.6%	41.8%	50.8%	54.8%
Estimated proportion of financing through equity (in value)	69 988	52 888	54 621	64 210	76 579
Estimated proportion of financing through debt (in %)	54.4%	63.4%	58.2%	49.2%	45.2%
Estimated proportion of financing through debt (in value)	83 562	91 694	76 177	62 154	63 240
Cost of capital pre-tax (in value)	7 877	6 317	5 959	6 393	7 415
Average interest on debt (in %)	2.2%	1.9%	1.7%	1.4%	1.3%
Interest on debt (in value)	1 872	1 779	1 272	883	845
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	6 005	4 538	4 687	5 509	6 570
Net ATSP gain(+)/loss(-) on terminal activity	-342	-6 069	-1 904	-8 481	-12 703
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>5 663</b>	<b>-1 531</b>	<b>2 783</b>	<b>-2 972</b>	<b>-6 132</b>
<b>Revenue/costs for the terminal activity</b>	<b>198 805</b>	<b>195 155</b>	<b>200 377</b>	<b>197 606</b>	<b>195 745</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.8%</b>	<b>-0.8%</b>	<b>1.4%</b>	<b>-1.5%</b>	<b>-3.1%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>8.1%</b>	<b>-2.9%</b>	<b>5.1%</b>	<b>-4.6%</b>	<b>-8.0%</b>

## FRANCE: Terminal ATSP (DSNA)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

**Actual 2019 DSNA terminal costs in TCZ 1 vs. PP**

In 2019, DSNA actual terminal costs in TCZ 1 are +1.8% (+1.6 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- higher staff costs (+8.3%, or +1.9 M€2009), however "taken globally (en-route + terminal zones), actual staff costs are in line with determined staff costs (difference of only -0.3%)";
- much lower other operating costs (-12.7%, or -2.0 M€2009) "slightly above planned costs globally for TZ1 and TZ2";
- much higher depreciation costs (+23.2%, or +1.6 M€2009). "In addition to the decision to substitute 4-Flight by Sysat in CDG and Orly airports, the difference comes mainly from an accounting effect specific to the French State's public accounting rules." See also explanation in the en-route analysis (Box 12);
- much higher cost of capital (+70.3%, or +1.1 M€2009);
- slightly lower exceptional costs (-2.1%, or -1.0 M€2009); and
- the deduction of higher actual costs for exempted VFR flights.

**Actual 2019 DSNA terminal costs in TCZ 2 vs. PP**

In 2019, DSNA actual terminal costs in TCZ 2 are +8.7% (+9.2 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- higher staff costs (+8.6%, or +9.2 M€2009), however "taken globally (en-route + terminal zones), actual staff costs are in line with determined staff costs (difference of only -0.3%)";
- much higher other operating costs (+24.0%, or +7.3 M€2009) "slightly above planned costs globally for TZ1 and TZ2";
- much lower depreciation costs (-31.5%, or -6.3 M€2009) mainly due to the "accounting effect specific to the French State's public accounting rules." See also explanation in the en-route analysis (Box 12);
- much lower cost of capital (-33.0%, or -2.3 M€2009);
- slightly lower exceptional costs (-2.1%, or +1.0 M€2009); and
- the deduction of slightly lower actual costs for exempted VFR flights.

**DSNA net gain/loss on terminal activity in 2019 in TCZ 1 and TCZ 2**

As shown in box 9, DSNA generated a net loss of -12.7 M€2009 on the terminal activity. This is a combination of two elements:

- a loss of -13.9 M€2009 arising from the cost sharing mechanism; and
- a gain of +1.2 M€2009 arising from the traffic risk sharing mechanism.

The table below shows a breakdown of these elements for each TCZ.

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity			
	TCZ1+TCZ2	TCZ 1	TCZ 2
<b>Cost sharing ('000 €2009)</b>	<b>2019</b>	<b>2019</b>	<b>2019</b>
Determined costs for the ATSP (PP) - based on planned inflation	197 599	91 644	105 956
Actual costs for the ATSP	208 448	93 293	115 154
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-10 848	-1 650	-9 999
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-3 099	-484	-2 616
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-13 948</b>	<b>-2 133</b>	<b>-11 814</b>
<b>Traffic risk sharing ('000 €2009)</b>	<b>2019</b>	<b>2019</b>	<b>2019</b>
Difference in total service units (actual vs PP) %	0.9%	-16%	3.8%
Determined costs for the ATSP (PP) - based on actual inflation	196 640	91 199	105 441
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk shar</b>	<b>1 245</b>	<b>-1 441</b>	<b>2 687</b>
<b>Incentives ('000 €2009)</b>	<b>2019</b>	<b>2019</b>	<b>2019</b>
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bon</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-12 703</b>	<b>-3 575</b>	<b>-9 128</b>

The loss from cost sharing mentioned above (-13.9 M€2009) includes amounts reported by DSNA for cost exempt from cost sharing (-3.1 M€2009). Should these costs not be deemed eligible by the European Commission, DSNA would record a net loss of -9.6 M€2009 for the terminal activity in 2019.

**DSNA overall estimated surplus for the terminal activity in TCZ 1 and TCZ 2**

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-12.7 M€2009) and the surplus embedded in the actual cost of capital (+6.6 M€2009) amounts to -6.1 M€2009 (3.1% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -8.0%, which indicates that the surplus embedded in the cost of capital (8.6%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019) for activity in TCZ 1 and TCZ 2, DSNA generated cumulative losses in respect of cost sharing of -27.4 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a loss of -2.1 M€2009, which reflects the fact that actual traffic was in general terms -0.2% lower than planned during RP2. Adding the estimated surplus embedded in the terminal cost of capital (+27.3 M€2009 over RP2) leads to an overall estimated surplus of -2.2 M€2009, which corresponds to an average ex-post return on equity of -0.7% (compared to 8.6% as initially planned in the NPP).

## FRANCE: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

## 1. Monitoring of gate-to-gate ANS costs

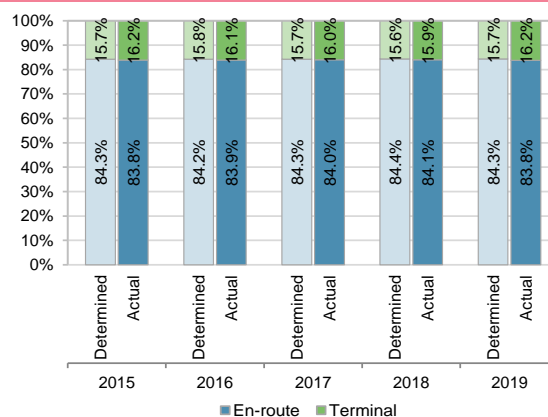
France: Data from RP2 Performance Plan		2015D	2016D	2017D	2018D	2019D
Real en-route costs (EUR2009)		1 192 625 922	1 188 249 284	1 204 538 004	1 196 187 863	1 184 005 999
Real terminal costs (EUR2009)		222 731 936	223 109 947	224 851 264	221 282 055	219 775 459
Real gate-to-gate costs (EUR2009)		1 415 357 858	1 411 359 231	1 429 389 268	1 417 469 918	1 403 781 458
En-route share (%)		84.3%	84.2%	84.3%	84.4%	84.3%
France: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
Real en-route costs (EUR2009)		1 138 811 120	1 151 121 405	1 165 490 383	1 185 348 242	1 173 519 354
Real terminal costs (EUR2009)		219 427 928	220 927 841	221 971 399	224 886 781	226 559 574
Real gate-to-gate costs (EUR2009)		1 358 239 049	1 372 049 246	1 387 461 782	1 410 235 024	1 400 078 928
En-route share (%)		83.8%	83.9%	84.0%	84.1%	83.8%
Difference between Actuals and Planned (Actuals vs. PP)		2015	2016	2017	2018	2019
Real gate-to-gate costs (EUR2009)	in value	-57 118 810	-39 309 985	-41 927 486	-7 234 894	-3 702 530
	in %	-4.0%	-2.8%	-2.9%	-0.5%	-0.3%
En-route share	in p.p.	-0.4 p.p.	-0.3 p.p.	-0.3 p.p.	-0.3 p.p.	-0.5 p.p.

## 2. Share of en-route and terminal in gate-to-gate actual costs (2019)

In 2019, actual gate-to-gate ANS costs are -0.3% (-3.7 M€2009) lower than planned due to lower than planned en-route costs (-0.9%, or -10.5 M€2009) while terminal costs are higher than planned (+3.1%, or +6.8 M€2009).

The actual share of en-route in gate-to-gate ANS costs (83.8%) is slightly lower than planned in the PP for 2019 (84.3%).

For DSNA, the estimated gate-to-gate economic surplus in 2019 amounts to 47.4 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 3.8% of gate-to-gate ANS revenues.



## 3. Technical notes on en-route and terminal information reported by France

**Note 1: Change in the scope of French Terminal Charging Zone**

From 2017 and onwards, two terminal charging zones are established in France:

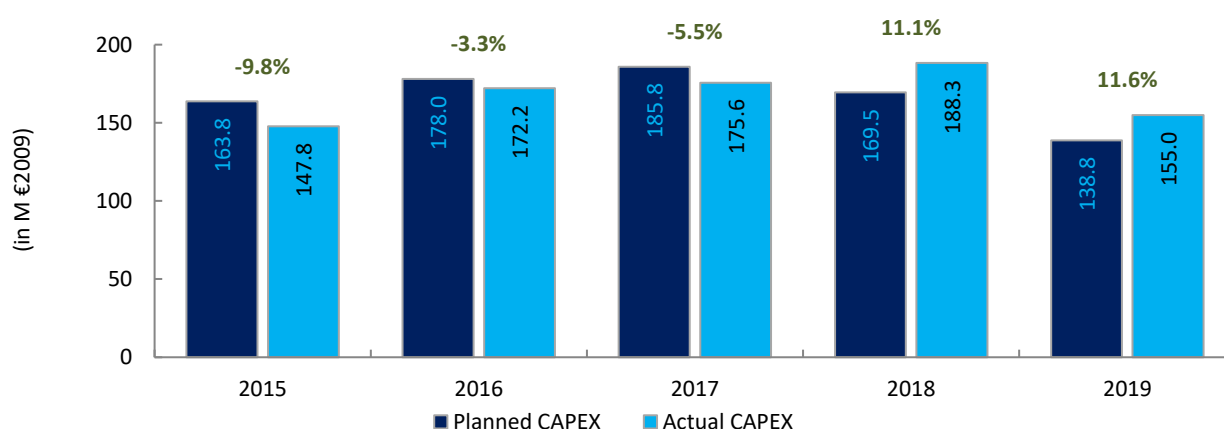
- Zone 1 for Paris-CDG and Paris-Orly (TCZ 1); and,
- Zone 2 for the other 58 aerodromes (TCZ 2).

Therefore, the monitoring analysis for 2017, 2018 and 2019 is presented separately for the two terminal charging zones, which is different from the Monitoring Reports 2015-2016 when France had a single terminal charging zone.

## FRANCE

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: DSNA						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	177.3	194.3	205.0	189.1	156.9	922.5
Main CAPEX (in nominal M)	128.3	132.6	140.3	132.0	109.9	643.1
Inflation %	0.1%	0.8%	1.1%	1.1%	1.3%	
Inflation index (100 in 2009)	108.2	109.1	110.3	111.5	113.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>163.8</b>	<b>178.0</b>	<b>185.8</b>	<b>169.5</b>	<b>138.8</b>	<b>836.0</b>
Main CAPEX (in M €2009)	118.6	121.5	127.2	118.3	97.2	582.8
% Main of Total CAPEX	72.4%	68.2%	68.4%	69.8%	70.0%	69.7%
Real gate-to-gate ANSP costs (in M €2009)	1 253.1	1 248.0	1 265.1	1 251.9	1 237.2	6 255.4
Total CAPEX as % of Real gate-to-gate ANSP costs	13.1%	14.3%	14.7%	13.5%	11.2%	13.4%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	159.9	186.9	192.8	211.1	176.0	926.6
Main CAPEX (in nominal M)	132.5	155.3	152.7	172.9	146.9	760.3
Inflation %	0.1%	0.3%	1.2%	2.1%	1.3%	
Inflation index (100 in 2009)	108.2	108.5	109.8	112.1	113.6	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>147.8</b>	<b>172.2</b>	<b>175.6</b>	<b>188.3</b>	<b>155.0</b>	<b>838.9</b>
Main CAPEX (in M €2009)	122.5	143.1	139.1	154.2	129.4	688.3
% Main of Total CAPEX	82.9%	83.1%	79.2%	81.9%	83.5%	82.0%
Real gate-to-gate ANSP costs (in M €2009)	1 199.2	1 214.2	1 232.0	1 256.8	1 246.2	6 148.3
Total CAPEX as % of Real gate-to-gate ANSP costs	12.3%	14.2%	14.3%	15.0%	12.4%	13.6%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-17.4	-7.4	-12.2	22.0	19.1	4.2
Total CAPEX (in M €2009)	-16.0	-5.8	-10.2	18.8	16.2	2.8
<b>Total CAPEX (in %, M €2009)</b>	<b>-9.8%</b>	<b>-3.3%</b>	<b>-5.5%</b>	<b>11.1%</b>	<b>11.6%</b>	<b>0.3%</b>



Note: according to the information provided by France in the FABEC FAB 2019 Monitoring Report: "To have an accurate vision of the investment costs, we have to consider the sum of investments costs as well as some operating costs which are directly associated to our investments, these costs are referred to as "T3 Tech". [...] When considering these "T3 Tech" costs, the amount spent in 2019 for the execution of the technical investment program is higher than planned in RP2 (considering also the planned "T3 Tech costs"). The cumulated amounts spent from 2015 to 2019 also exceeds the RP2 plan."

It should be noted that these "T3 Tech costs" costs noted above are not included in the planned and actual CAPEX figures disclosed in this report above. The table below summarises the total investment figures including these additional OPEX-related costs in the planned and actual CAPEX data.

Total CAPEX (incl. "T3 Tech" costs)	2015	2016	2017	2018	2019	RP2
Planned Total CAPEX (in M€)	228.6	245.9	257.5	238.5	204.0	1 174.4
Actual Total CAPEX (in M€)	229.5	262.9	270.8	298.5	266.0	1 327.7
Actual vs Planned (in M€)	1.0	17.0	13.3	60.0	62.0	153.3
Actual vs Planned (in %)	0.4%	6.9%	5.2%	25.2%	30.4%	13.1%

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# **Annual Monitoring Report 2019**

Local level view  
Germany

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## GERMANY

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	73	C	C	D	C	C
DFS	94	D	E	D	E	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	97%				
Runway Incursions (RIs)	100%	93%				
ATM Specific Occurrences (ATM-S)		97%				
Source of RAT data:	BAF					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	4	5				
Legal/Judiciary	4	3				
Occurrence reporting and Investigation	1	1				
<b>TOTAL</b>	<b>9</b>	<b>9</b>				
DFS	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
EoSM targets have been met for both State and ANSP.						
With regard the RAT application, data received from the AST mechanism show performance below targets in the application of RAT to RI ground (ANSP's responsibility), and slightly below fro ATM-S occurrences.						

**GERMANY**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

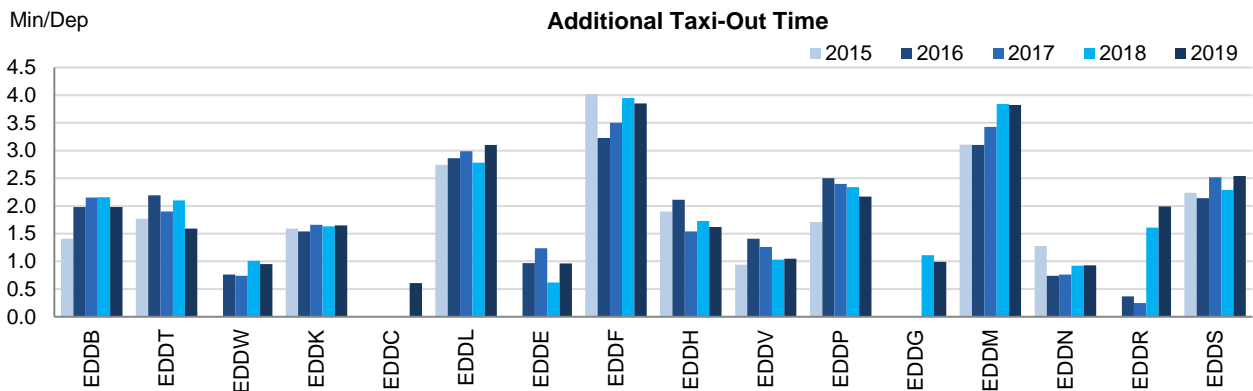
**1. Overview**

Germany identifies a total of 16 airports as subject to RP2 monitoring. Dresden implemented the Airport Operator Data Flow in 2019 and now the monitoring of the environmental indicators is possible at all 16 German airports.

In total, traffic at these German airports increased by 8% since 2015, but the evolution differs significantly from one airport to another, as for example Berlin Schoenefeld (EDDB) has significantly increased its movements by 21% since the beginning of the reference period, while other smaller airports like Bremen (EDDW) or Saarbruecken (EDDR) have in fact observed a decrease in traffic.

The performance regarding the environmental indicators varies across the German airports and, with a few exceptions, is commensurate with the level of traffic.

**2. Additional Taxi-Out Time**

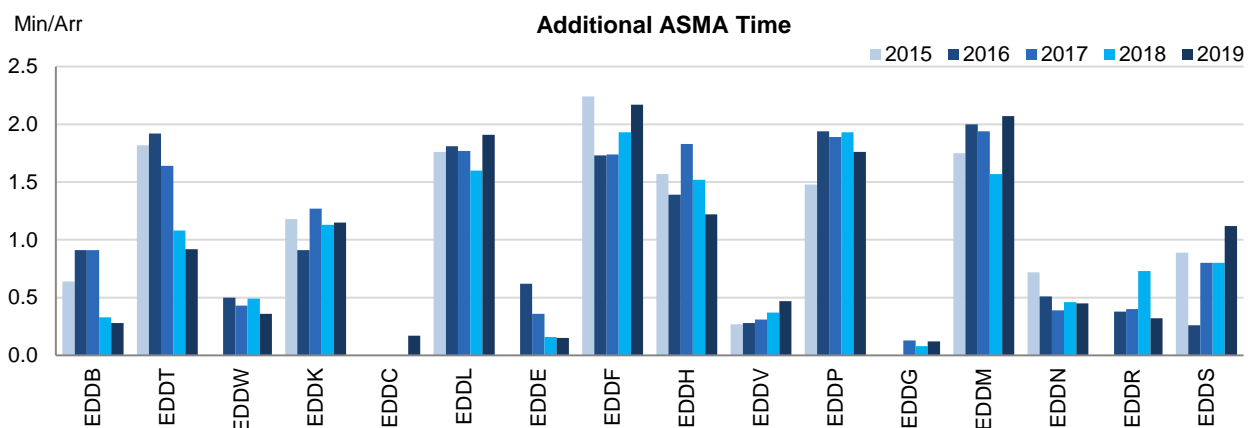


Additional taxi-out times remain at similar levels as in 2017 for most German airports. The two main German airports, Frankfurt and Munich, are the only ones slightly exceeding the SES average (3.56 min/dep.) and have not changed much after the deterioration observed in 2018. While in Frankfurt (EDDF: 3.85 min/dep) there is no drastic change from month to month, in Munich (EDDM: 3.82 min/dep) there is a clear impact of winter operations, with additional taxi-out times averaging more than 8 min/dep in January.

Dusseldorf (EDDL: 3.1 min/dep) shows a slight increase in their taxi-out times due to construction works on the Apron West between April and October. The other airport that has a small deterioration is Stuttgart (EDDS: 2.54 min/dep), driven by the impact of winter operations in January when the additional taxi-out times are close to the 6 min/dep.

Berlin Tegel (EDDT: 1.59 min/dep) shows the most significant improvement with no apparent impact of winter operations.

**3. Additional ASMA Time**



Additional ASMA times have suffered some deteriorations at Dusseldorf (EDDL; 1.91 min/arr.), Frankfurt (EDDF; 2.17 min/arr.), Stuttgart (EDDS; 1.12 min/arr.) and especially Munich (EDDM; 2.07 min/arr.)

There are a significant improvements at Hamburg (EDDH: 1.22 min/arr.) and Saarbruecken (EDDR: 0.32 min/arr.), and smaller reductions at Tegel (EDDT: 0.92 min/arr.), Leipzig (EDDP: 1.76 min/arr.) and Bremen (EDDW: 0.36 min/arr.)

#### 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Berlin/ Schoenefeld	EDDB	1.41	1.98	2.15	2.16	1.98	0.64	0.91	0.91	0.33	0.28
Berlin/ Tegel	EDDT	1.77	2.19	1.90	2.10	1.59	1.82	1.92	1.64	1.08	0.92
Bremen	EDDW	n/a	0.76	0.74	1.01	0.95	n/a	0.50	0.43	0.49	0.36
Cologne-Bonn	EDDK	1.59	1.54	1.66	1.63	1.65	1.18	0.91	1.27	1.13	1.15
Dresden	EDDC	n/a	n/a	n/a	n/a	0.61	n/a	n/a	n/a	n/a	0.17
Dusseldorf	EDDL	2.74	2.86	2.99	2.78	3.10	1.76	1.81	1.77	1.60	1.91
Erfurt	EDDE	n/a	0.97	1.24	0.62	0.96	n/a	0.62	0.36	0.16	0.15
Frankfurt	EDDF	4.02	3.23	3.50	3.95	3.85	2.24	1.73	1.74	1.93	2.17
Hamburg	EDDH	1.90	2.11	1.54	1.73	1.62	1.57	1.39	1.83	1.52	1.22
Hannover	EDDV	0.94	1.41	1.26	1.03	1.05	0.27	0.28	0.31	0.37	0.47
Leipzig-Halle	EDDP	1.71	2.50	2.40	2.34	2.17	1.48	1.94	1.89	1.93	1.76
Muenster-Osnabrueck	EDDG	n/a	n/a	n/a	1.11	0.99	n/a	n/a	0.13	0.08	0.12
Munich	EDDM	3.11	3.10	3.43	3.84	3.82	1.75	2.00	1.94	1.57	2.07
Nuremberg	EDDN	1.28	0.74	0.76	0.92	0.93	0.72	0.51	0.39	0.46	0.45
Saarbruecken	EDDR	n/a	0.37	0.25	1.61	1.99	n/a	0.38	0.40	0.73	0.32
Stuttgart	EDDS	2.24	2.14	2.52	2.29	2.54	0.89	0.26	0.80	0.80	1.12

**GERMANY**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
<b>National Capacity target</b>	N/A	N/A	N/A	N/A	N/A	Because there are two ANSPs in Germany, DFS and EUROCONTROL (MUAC), Germany did not set a national target. Exclusive use of CRSTMP codes means that the PRB is unable to independently validate the results for incentive purposes. Actual performance reported here is for all causes of delay and includes NM post operations adjustment.
<b>Deadband +/-</b>	N/A	N/A	N/A	N/A	N/A	
<b>Actual performance</b>	0.20	0.40	0.76	1.65	1.49	

**National capacity incentive scheme**

The incentive scheme is applied for delay causes listed in Art. 15 (g) of Regulation 391/2013; data used for calculation was AUA data provided by PRU. (The PRB reports at FIR level, not AUA level, for RP2.)  
 [The PRU is unable to validate the attributed cause of delay, which is determined by the ANSP requesting the ATFM regulation.]

The Capacity delay target at FAB level was set at an average of 0,34 min/flight for CRSTMP ATFM delays. (See FABEC graphic regarding incentives in FABEC section of monitoring report.)

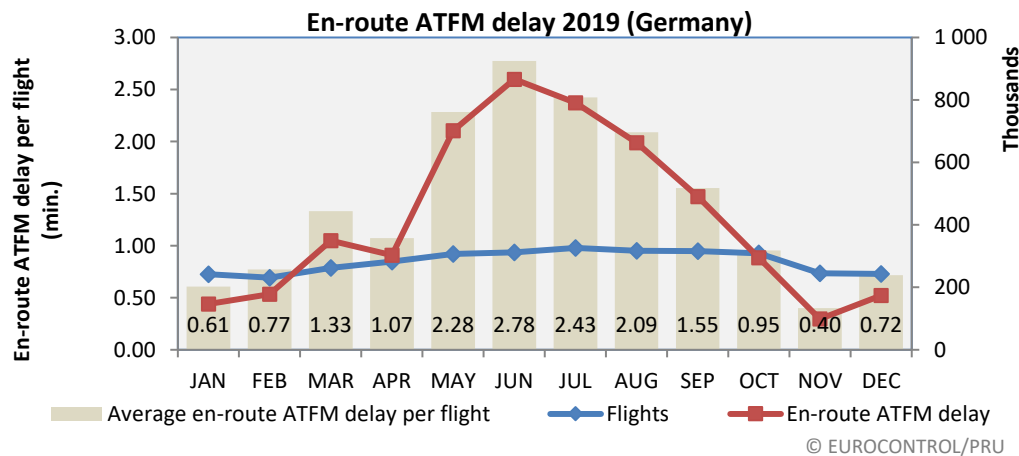
DFS broken down target was set at 0,23 min/ flight.  
 EUROCONTROL (MUAC) broken down target was set at 0.15 min/ flight

2019 achievement (As reported by FABEC)  
 - FABEC: 1.22 min/ flight for CRSTMP delays  
 - DFS: 1,28 min/ flight for CRSTMP delays  
 - EUROCONTROL (MUAC): 0.10 min/ flight for CRSTMP delays

Bonus / Malus  
 The percentage of malus for DFS was -0.44% of total ANSP's revenue in 2019 (defined as the CUR component x Actual SUs), which equates to €3 616 722,11

Although MUAC did achieve its target no incentive is applied to MUAC as the overall FABEC target was not met.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.73	0.72	1.34	0.86	0.51	0.24	0.26	0.20	0.40	0.76	1.65	1.49

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	3 027		3 121		3 246		3 348		3 456		3 561	
<b>Base</b>	2 989	<b>3 030</b>	3 056	<b>3 080</b>	3 131	<b>3 146</b>	3 192	<b>3 259</b>	3 254	<b>3 404</b>	3 323	<b>3 394</b>
<b>Low</b>	2 950		2 983		3 002		3 022		3 045		3 070	

Traffic levels in Germany decreased slightly in 2019 from what was handled in 2018. The decrease in traffic is unsurprising since eNM/S19 measures were in place to reroute traffic away from the anticipated capacity shortfall in both Maastricht and Karlsruhe UACs during summer 2019. Traffic levels in 2019 were 2% above the baseline traffic forecast, and 5% lower than the high traffic forecast, from STATFOR in February 2014 when the performance targets and associated capacity plans were being determined for RP2.

En route delay improved year on year, from 1,58 minutes per flight in 2018 to 1,33 minutes per flight in 2019 - excluding the additional delays reattributed to Germany through the post-ops performance adjustment process to protect adjacent ANSPs who received additional traffic as part of the eNM/S19 measures. In 2018, 244k minutes were reattributed to MUAC and Karlsruhe UAC through the 4ACC initiative, in 2019 490k minutes of delay were reattributed to DFS alone and an additional 15k minutes were reattributed to MUAC.

Of the 4.5 million minutes of delay originating in Germany in 2019, 58% were attributed to ATC capacity, 18% were attributed to ATC staffing, 17% were attributed to adverse weather and 5% were attributed to airspace management - military operations and training.

The airspace users highlighted Karlsruhe UAC as generating high levels of delay, despite the protection it received through the eNM/S19 measures. They also highlighted the significant improvement in capacity performance from MUAC compared to the previous year.

The DFS achieved a delay of 1,43 minutes per flight in 2019, MUAC achieved a delay of 0,17 minutes per flight. The actual results for both ANSPs are dramatically different from the predicted delay forecast published in the NOP 2019 - 2024.

Delay forecast - DFS						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	1.11	1.07	0.68	0.55	N/A	N/A
<b>NOP 2019 - 2024</b>	5.65	5.11	1.21 - 4.07			

Delay forecast - MUAC						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.89	0.79	0.47	0.40	N/A	N/A
<b>NOP 2019 - 2024</b>	1.62	1.36	1.28 - 1.56			

### Planning and Effective Use of CDRs

Germany provided no information on this indicator in the annual monitoring report.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

#### share of restricted/segregated time that was actually used

2015	2016	2017	2018	2019
40%	40%	42%	39%	36%

#### share of restricted/segregated time released with 3 hours' notice

2015	2016	2017	2018	2019
18%	19%	14%	15%	12%

#### share of restricted/segregated time (via UUP process) that was actually used

2015	2016	2017	2018	2019
47%	42%	75%	75%	70%

1. The aggregated values for SUA booking/usage are not relevant for FUA analysis and evaluation. The only relevant information remains per area. The data are available and can be delivered on request.

2. Airspace is very often released at tactical level (ASM level 3), however tactical releases are yet not always recorded in ASM systems and also not always notified to the NM.

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.



**GERMANY**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

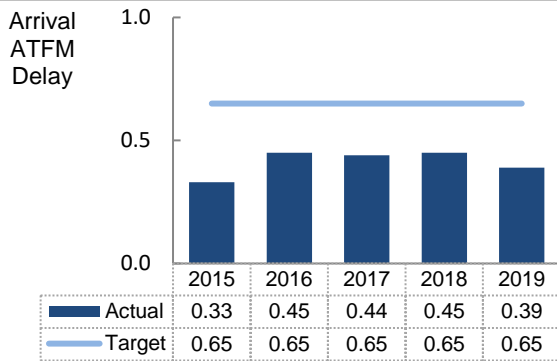
In Germany, ANS at 16 airports are subject to RP2 monitoring. Traffic levels at these airports have moderately increased during RP2 (+8.0% with respect to 2015) as well as the arrival ATFM delays (+18.8% in 2019 with respect to 2015), while ATFM slot adherence has improved (2015:93.3%; 2019: 95.2%).

Germany has established a national target on arrival ATFM delay (all causes), that is met in all years in RP2 so far.

Average national adherence to ATFM slots remains above 90%, and showing best-in-class behaviour above 95% for 12 out of the 16 airports.

ATC pre-departure delay can only be monitored for 10 airports due to lack of data quality or availability. The observed performance at those 10 airports is good and delays are below similar airports in the rest of the network.

**2. Arrival ATFM Delay**



During 2019, arrival ATFM delays in Germany have moderately decreased with respect to the previous year (2018: 0.45 min/arr, 2019: 0.39 min/arr). However at airport level there were a few significant changes, with Frankfurt, Munich and Köln showing big improvements (EDDF: 2018: 0.87 min/arr.; 2019: 0.69 min/arr.; EDDM: 2018: 0.44 min/arr.; 2019: 0.25 min/arr.; EDDK: 2018: 0.47 min/arr.; 2019: 0.31 min/arr.) and Dusseldorf showing a considerable deterioration (EDDL: 2018: 0.45 min/arr.; 2019: 0.68 min/arr.)

66% of the arrival ATFM delays at German airports are attributed to weather (mainly at Frankfurt, Munich, Leipzig, Berlin Tegel and Stuttgart), followed by aerodrome capacity issues (22%, concentrated mostly at Hamburg, Köln and Dusseldorf). At Bremen most of the delays are associated with ATC staffing. The reasons for regulations at these airports have not changed with respect to 2018, showing no improvement in the aerodrome capacity and staffing issues. It is worth noticing that the post ops adjustment relocated 44069 minutes of delay resulting from an original arrival regulation reason *ATC equipment* at Frankfurt in the month of March, relocated to en-route delay.

The national average (all causes) in 2019 (0.39 min/arr.) fully meets the RP2 target (0.65 min/arr.)

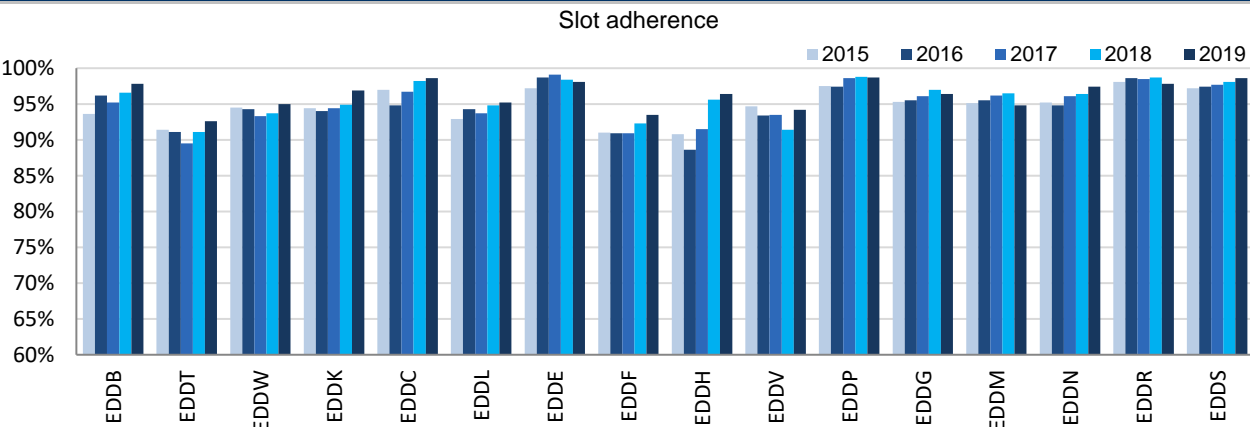
**3. Arrival ATFM Delay – National Target and Incentive Scheme**

Germany established a national target on arrival ATFM delay (all causes: 0.65 min/arr.; CRSTMP causes: 0.09 min/arr.) as presented in the FABEC performance plan.

The plan also presents an incentive scheme for the national target on CRSTMP causes. The actual performance exceeds the target, i.e. all causes: 0.39 min/arr. and associated to CRSTMP reasons: 0.01 min/arr. in 2019.

In accordance, the maximum bonus (0.5% of the total ANSP's terminal revenues in 2019) is awarded to DFS.

**4. ATFM Slot Adherence**



The adherence to ATFM slots in Germany at national level has once more slightly improved in the past year (2018: 94.6%; 2019: 95.2%) and for 12 of the 16 airports exceeds now the 95% threshold of best-in-class performance, contributing to the predictability of the network.

## 5. ATC Pre-departure Delay

ATC pre-departure delay at smaller German airports is commensurate with the number of movements, while Munich and Frankfurt show low ATC pre-departure delay compared to other airports in the network, even with lower number of movements.

The performance at Munich (EDDM) is once more noteworthy, with the lowest pre-departure delay for airports above 200 000 movements per year, showing best-in-class performance together with Oslo, Stockholm and Copenhagen.

In early 2019 Dresden implemented the Airport Operator Data Flow and now all German airports provide the required data through this flow. However, some of them still show a very poor reporting of the pre-departure delays, where more than 40% of the delays are left unexplained, making the monitoring of the ATC pre-departure delay not possible. Accordingly, there is a limited level of valid reporting for 2019 (i.e. n/a label in the table in the appendix). Germany shall encourage a proper reporting of the pre-departure delays at all airports.

## 6. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Berlin/ Schoenefeld	EDDB	0.00	0.05	0.04	0.01	0.04	93.6%	96.2%	95.2%	96.6%	97.8%	n/a	n/a	n/a	n/a	n/a
Berlin/ Tegel	EDDT	0.20	0.53	0.39	0.18	0.19	91.4%	91.1%	89.5%	91.1%	92.6%	n/a	n/a	n/a	n/a	n/a
Bremen	EDDW	0.00	0.03	0.01	0.41	0.34	94.5%	94.3%	93.3%	93.7%	95.0%	0.02	0.04	0.04	0.15	0.16
Cologne-Bonn	EDDK	0.02	0.08	0.39	0.47	0.31	94.4%	94.0%	94.4%	94.9%	96.9%	n/a	n/a	n/a	n/a	n/a
Dresden	EDDC	0.00	0.01	0.00	0.00	0.00	97.0%	94.8%	96.7%	98.2%	98.6%	n/a	n/a	n/a	n/a	0.00
Dusseldorf	EDDL	0.34	0.54	0.73	0.45	0.68	92.9%	94.3%	93.7%	94.8%	95.2%	n/a	n/a	n/a	n/a	0.46
Erfurt	EDDE	0.00	0.00	0.00	0.01	0.00	97.2%	98.7%	99.1%	98.4%	98.1%	n/a	n/a	0.00	0.00	0.00
Frankfurt	EDDF	0.67	0.86	0.84	0.87	0.69	91.0%	90.9%	90.9%	92.3%	93.5%	n/a	0.52	0.65	0.58	0.64
Hamburg	EDDH	0.57	0.39	0.26	0.55	0.55	90.8%	88.6%	91.5%	95.6%	96.4%	n/a	0.32	0.49	0.28	0.25
Hannover	EDDV	0.00	0.00	0.00	0.03	0.00	94.7%	93.4%	93.5%	91.4%	94.2%	0.09	0.14	0.13	0.34	n/a
Leipzig-Halle	EDDP	0.00	0.18	0.12	0.35	0.35	97.5%	97.4%	98.6%	98.8%	98.7%	0.20	0.14	0.08	0.09	0.08
Muenster-Osnabruock	EDDG	0.00	0.00	0.00	0.00	0.00	95.3%	95.5%	96.1%	97.0%	96.4%	n/a	n/a	n/a	n/a	n/a
Munich	EDDM	0.33	0.49	0.35	0.44	0.25	95.1%	95.5%	96.2%	96.5%	94.8%	n/a	0.04	0.07	0.08	0.06
Nuremberg	EDDN	0.00	0.00	0.01	0.00	0.00	95.2%	94.8%	96.1%	96.4%	97.4%	0.10	0.04	n/a	n/a	n/a
Saarbruecken	EDDR	0.00	0.00	0.00	0.00	0.00	98.1%	98.6%	98.5%	98.7%	97.8%	n/a	n/a	0.00	0.00	0.00
Stuttgart	EDDS	0.09	0.08	0.13	0.14	0.14	97.2%	97.4%	97.7%	98.1%	98.6%	n/a	n/a	0.11	0.21	0.24

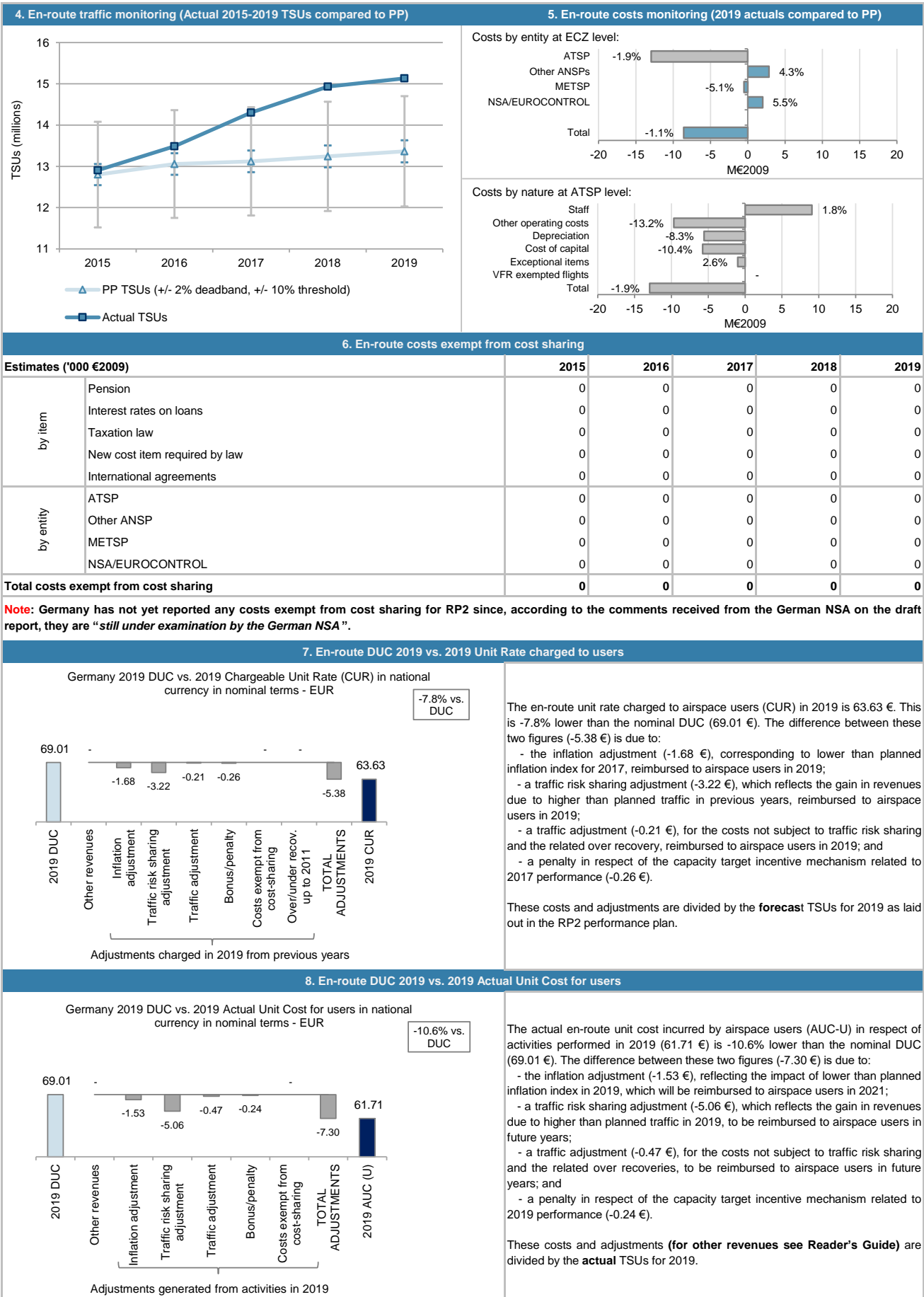
## GERMANY: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services																													
<ul style="list-style-type: none"> <li>Germany ECZ represents 13.0% of the SES en-route ANS determined costs in 2019</li> <li>ATSP: DFS</li> <li>FAB: FABEC</li> <li>National currency: EUR</li> </ul>																													
2. En-route DUC monitoring at Charging Zone level																													
Germany: Data from RP2 Performance Plan (EC Decision 2017/553 of 22 March 2017)	2015D	2016D	2017D	2018D	2019D																								
En-route costs (nominal EUR)	1 069 142 223	1 039 587 943	933 436 977	927 369 907	922 283 254																								
Inflation %	1.4%	1.6%	1.7%	1.7%	1.7%																								
Inflation index (100 in 2009)	109.9	111.7	113.6	115.5	117.5																								
Real en-route costs (EUR2009)	972 517 385	930 742 228	821 735 846	802 748 084	784 999 985																								
Total en-route Service Units	12 801 000	13 057 000	13 122 000	13 242 000	13 365 000																								
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>75.97</b>	<b>71.28</b>	<b>62.62</b>	<b>60.62</b>	<b>58.74</b>																								
Germany: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A																								
En-route costs (nominal EUR)	998 129 209	961 086 891	864 811 310	905 909 401	889 361 603																								
Inflation %	0.1%	0.4%	1.7%	1.9%	1.4%																								
Inflation index (100 in 2009)	108.6	109.0	110.9	113.0	114.5																								
Real en-route costs (EUR2009)	919 323 427	881 679 013	780 096 371	801 931 881	776 413 598																								
Total en-route Service Units	12 906 339	13 489 534	14 303 636	14 931 581	15 132 422																								
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>71.23</b>	<b>65.36</b>	<b>54.54</b>	<b>53.71</b>	<b>51.31</b>																								
Difference between Actuals and Planned	2015	2016	2017	2018	2019																								
En-route costs (nominal EUR)	-71 013 015	-78 501 052	-68 625 667	-21 460 506	-32 921 651																								
in %	-6.6%	-7.6%	-7.4%	-2.3%	-3.6%																								
Inflation %	-1.3 p.p.	-1.2 p.p.	0.0 p.p.	0.2 p.p.	-0.3 p.p.																								
Inflation index (100 in 2009)	-1.4 p.p.	-2.7 p.p.	-2.7 p.p.	-2.6 p.p.	-2.9 p.p.																								
Real en-route costs (EUR2009)	-53 193 958	-49 063 214	-41 639 475	-816 203	-8 586 387																								
in %	-5.5%	-5.3%	-5.1%	-0.1%	-1.1%																								
Total en-route Service Units	105 339	432 534	1 181 636	1 689 581	1 767 422																								
in %	0.8%	3.3%	9.0%	12.8%	13.2%																								
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-4.74</b>	<b>-5.92</b>	<b>-8.08</b>	<b>-6.91</b>	<b>-7.43</b>																							
<b>in %</b>	<b>-6.2%</b>	<b>-8.3%</b>	<b>-12.9%</b>	<b>-11.4%</b>	<b>-12.6%</b>																								
3. Focus on en-route at State/Charging Zone level																													
<p><b>En-route unit cost</b> In 2019, the actual en-route unit cost in real terms (51.31 €2009) is -12.6% lower than planned in the PP (58.74 €2009). This results from the combination of much higher than planned TSUs (+13.2%) and slightly lower than planned en-route costs in real terms (-1.1%, or -8.6 M€2009).</p> <p><b>En-route service units</b> The difference between actual and planned TSUs (+13.2%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSPs and the airspace users,</p> <p><b>En-route costs</b> In nominal terms, actual en-route costs are -3.6% (-32.9 M€) lower than planned. However, since the actual inflation index is also lower than planned (-2.9 p.p.), actual en-route costs are -1.1% (-8.6 M€2009) below plans when expressed in real terms. The slightly lower than planned en-route costs in real terms are driven by DFS (-1.9%, or -12.9 M€2009) and the MET service provider (-5.1%, or -0.5 M€2009), while the costs for MUAC (+4.3%, or +2.9 M€2009) and the NSA/EUROCONTR additional surplus calculation approach, which would exclude for each year the state contribution from the actual costs reported so far as a negative exceptional item in the Reporting TablesOL (+5.5%, or +2.0 M€2009) are higher than planned. A detailed analysis for the main ATSP level is provided in box 12. Costs exempt from cost-sharing have not been reported so far for RP2, since is still under examination by the German NSA.</p> <p><b>RP2 summary</b> When considering the whole of RP2 (2015-2019) for the Germany charging zone, actual en-route TSUs are +7.9% higher than planned, while actual costs in real terms are -3.6% lower than the determined costs (some -153.3 M€2009). As a result, the weighted average actual unit cost over RP2 (58.78 €2009) is -10.6% lower than planned in the NPP (65.76 €2009).</p>																													
<table border="1"> <caption>Difference between actual and determined en-route costs (real terms)</caption> <thead> <tr> <th>Year</th> <th>Difference (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>-5.5%</td> </tr> <tr> <td>2016</td> <td>-5.3%</td> </tr> <tr> <td>2017</td> <td>-5.1%</td> </tr> <tr> <td>2018</td> <td>-0.1%</td> </tr> <tr> <td>2019</td> <td>-1.1%</td> </tr> </tbody> </table>						Year	Difference (%)	2015	-5.5%	2016	-5.3%	2017	-5.1%	2018	-0.1%	2019	-1.1%												
Year	Difference (%)																												
2015	-5.5%																												
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2019	-1.1%																												
<table border="1"> <caption>Difference between actual and planned total service units</caption> <thead> <tr> <th>Year</th> <th>Difference (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>0.8%</td> </tr> <tr> <td>2016</td> <td>3.3%</td> </tr> <tr> <td>2017</td> <td>9.0%</td> </tr> <tr> <td>2018</td> <td>12.8%</td> </tr> <tr> <td>2019</td> <td>13.2%</td> </tr> </tbody> </table>						Year	Difference (%)	2015	0.8%	2016	3.3%	2017	9.0%	2018	12.8%	2019	13.2%												
Year	Difference (%)																												
2015	0.8%																												
2016	3.3%																												
2017	9.0%																												
2018	12.8%																												
2019	13.2%																												
<table border="1"> <caption>En-route DUC (PP, 2015-2019) vs En-route unit costs (actual)</caption> <thead> <tr> <th>Year</th> <th>En-route DUC (PP, €2009)</th> <th>En-route unit costs (actual, €2009)</th> <th>Difference (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>75.97</td> <td>71.23</td> <td>-6.2%</td> </tr> <tr> <td>2016</td> <td>71.28</td> <td>65.36</td> <td>-8.3%</td> </tr> <tr> <td>2017</td> <td>62.62</td> <td>54.54</td> <td>-12.9%</td> </tr> <tr> <td>2018</td> <td>60.62</td> <td>53.71</td> <td>-11.4%</td> </tr> <tr> <td>2019</td> <td>58.74</td> <td>51.31</td> <td>-12.6%</td> </tr> </tbody> </table>						Year	En-route DUC (PP, €2009)	En-route unit costs (actual, €2009)	Difference (%)	2015	75.97	71.23	-6.2%	2016	71.28	65.36	-8.3%	2017	62.62	54.54	-12.9%	2018	60.62	53.71	-11.4%	2019	58.74	51.31	-12.6%
Year	En-route DUC (PP, €2009)	En-route unit costs (actual, €2009)	Difference (%)																										
2015	75.97	71.23	-6.2%																										
2016	71.28	65.36	-8.3%																										
2017	62.62	54.54	-12.9%																										
2018	60.62	53.71	-11.4%																										
2019	58.74	51.31	-12.6%																										

**GERMANY: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## GERMANY: En-route ATSP (DFS)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
<b>Cost sharing ('000 €2009)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Determined costs for the ATSP (PP) - based on planned inflation	812 550	755 932	709 432	690 931	672 960
Actual costs for the ATSP	762 125	703 760	667 057	686 799	660 017
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	50 425	52 172	42 375	4 132	12 943
Amounts excluded from cost sharing to be recovered (+) or reimbursed (-) (see note below)	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>50 425</b>	<b>52 172</b>	<b>42 375</b>	<b>4 132</b>	<b>12 943</b>
<b>Traffic risk sharing ('000 €2009)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Difference in total service units (actual vs PP) %	0.8%	3.3%	9.0%	12.8%	13.2%
Determined costs for the ATSP (PP) - based on actual inflation	822 753	774 573	726 927	706 580	690 238
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>6 770</b>	<b>18 542</b>	<b>29 815</b>	<b>31 090</b>	<b>30 370</b>
<b>Incentives ('000 €2009)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>-2 829</b>	<b>-3 839</b>	<b>-3 157</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>57 195</b>	<b>70 714</b>	<b>69 361</b>	<b>31 382</b>	<b>40 156</b>
<b>Note: Costs exempt from cost-sharing have not been reported so far for RP2, since is still under examination by the German NSA</b>					
<b>Alternate DFS gain/loss for the en-route activity excluding the state contribution ('000 €2009) *see Note 1</b>					
Actual costs for the ATSP excluding the state contribution	798 713	785 756	747 683	765 921	738 047
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>20 607</b>	<b>-11 283</b>	<b>-11 264</b>	<b>-47 740</b>	<b>-37 874</b>
<b>10. Focus on ATSP: En-route ATSP estimated surplus *</b>					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
<b>ATSP estimated surplus ('000 €2009) from RP2 Performance Plan</b>	<b>2015P</b>	<b>2016P</b>	<b>2017P</b>	<b>2018P</b>	<b>2019P</b>
Total asset base	1 356 648	1 289 129	1 227 898	1 165 907	1 104 511
Estimated proportion of financing through equity (in %)	30.1%	32.7%	35.6%	38.6%	42.3%
Estimated proportion of financing through equity (in value)	408 169	421 762	436 722	450 328	467 152
Estimated proportion of financing through debt (in %)	69.9%	67.3%	64.4%	61.4%	57.7%
Estimated proportion of financing through debt (in value)	948 479	867 368	791 176	715 579	637 359
Cost of capital pre-tax (in value)	62 410	60 499	58 854	57 103	55 549
Average interest on debt (in %)	3.4%	3.4%	3.3%	3.3%	3.3%
Interest on debt (in value)	32 001	29 078	26 318	23 553	20 746
Determined RoE pre-tax rate (in %)	7.5%	7.5%	7.5%	7.5%	7.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	30 409	31 421	32 536	33 549	34 803
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>30 409</b>	<b>31 421</b>	<b>32 536</b>	<b>33 549</b>	<b>34 803</b>
<b>Revenue/costs for the en-route activity</b>	<b>812 550</b>	<b>755 932</b>	<b>709 432</b>	<b>690 931</b>	<b>672 960</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.7%</b>	<b>4.2%</b>	<b>4.6%</b>	<b>4.9%</b>	<b>5.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>
<b>ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables</b>	<b>2015A</b>	<b>2016A</b>	<b>2017A</b>	<b>2018A</b>	<b>2019A</b>
Total asset base	1 397 725	1 457 775	1 471 128	1 416 599	1 401 325
Estimated proportion of financing through equity (in %)	34.1%	39.6%	46.4%	54.6%	59.0%
Estimated proportion of financing through equity (in value)	476 728	577 082	682 599	773 512	826 108
Estimated proportion of financing through debt (in %)	65.9%	60.4%	53.6%	45.4%	41.0%
Estimated proportion of financing through debt (in value)	920 997	880 693	788 529	643 087	575 217
Cost of capital pre-tax (in value)	62 663	67 784	63 633	83 993	49 783
Average interest on debt (in %)	2.9%	2.8%	1.6%	4.1%	-2.0%
Interest on debt (in value)	27 147	24 791	12 779	26 367	-11 762
Determined RoE pre-tax rate (in %)	7.5%	7.5%	7.5%	7.5%	7.5%
Estimated surplus embedded in the cost of capital for en-route (in value)	35 516	42 993	50 854	57 627	61 545
Net ATSP gain(+)/loss(-) on en-route activity	57 195	70 714	69 361	31 382	40 156
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>92 712</b>	<b>113 706</b>	<b>120 215</b>	<b>89 009</b>	<b>101 701</b>
<b>Revenue/costs for the en-route activity</b>	<b>819 320</b>	<b>774 473</b>	<b>736 418</b>	<b>718 182</b>	<b>700 173</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>11.3%</b>	<b>14.7%</b>	<b>16.3%</b>	<b>12.4%</b>	<b>14.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>19.4%</b>	<b>19.7%</b>	<b>17.6%</b>	<b>11.5%</b>	<b>12.3%</b>
<b>Alternate DFS overall estimated surplus for the en-route activity excluding the state contribution ('000 €2009) *see Note 1</b>					
Net ATSP gain(+)/loss(-) on en-route activity	20 607	-11 283	-11 264	-47 740	-37 874
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>56 123</b>	<b>31 710</b>	<b>39 589</b>	<b>9 887</b>	<b>23 671</b>
<b>Revenue/costs for the en-route activity</b>	<b>819 320</b>	<b>774 473</b>	<b>736 418</b>	<b>718 182</b>	<b>700 173</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.8%</b>	<b>4.1%</b>	<b>5.4%</b>	<b>1.4%</b>	<b>3.4%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>11.8%</b>	<b>5.5%</b>	<b>5.8%</b>	<b>1.3%</b>	<b>2.9%</b>

## GERMANY: En-route ATSP (DFS)

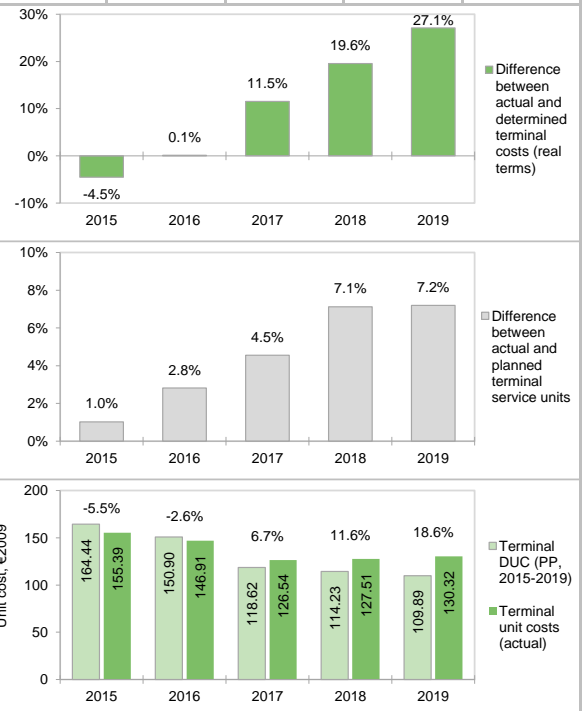
## Monitoring of en-route COST-EFFICIENCY for 2019



**GERMANY: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services					
Germany TCZ represents 14.3% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes	
ATSP:	DFS	Airports with fewer than 70,000 IFRs ATMs:		9	
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		5	
Number of airports in charging zone in 2019:	16, of which:	Airports with more than 225,000 IFRs ATMs:		2	
2. Terminal DUC monitoring at Charging Zone level					
Germany: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	240 938 212	228 762 834	183 533 387	181 581 437	179 750 173
Inflation %	1.4%	1.6%	1.7%	1.7%	1.7%
Inflation index (100 in 2009)	109.9	111.7	113.6	115.5	117.5
Real terminal costs (EUR2009)	219 163 171	204 811 176	161 570 590	157 180 161	152 994 086
Total terminal Service Units	1 332 800	1 357 300	1 362 100	1 376 000	1 392 200
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>164.44</b>	<b>150.90</b>	<b>118.62</b>	<b>114.23</b>	<b>109.89</b>
Germany: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	227 170 560	223 478 656	199 771 705	212 326 316	222 772 427
Inflation %	0.1%	0.4%	1.7%	1.9%	1.4%
Inflation index (100 in 2009)	108.6	109.0	110.9	113.0	114.5
Real terminal costs (EUR2009)	209 234 652	205 014 180	180 202 526	187 956 149	194 480 559
Total terminal Service Units	1 346 490	1 395 519	1 424 060	1 474 074	1 492 294
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>155.39</b>	<b>146.91</b>	<b>126.54</b>	<b>127.51</b>	<b>130.32</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-13 767 652	-5 284 178	16 238 318	30 744 879	43 022 254
	in value				
	in %				
Inflation %	-1.3 p.p.	-1.2 p.p.	0.0 p.p.	0.2 p.p.	-0.3 p.p.
	in p.p.				
Inflation index (100 in 2009)	-1.4 p.p.	-2.7 p.p.	-2.7 p.p.	-2.6 p.p.	-2.9 p.p.
	in p.p.				
Real terminal costs (EUR2009)	-9 928 519	203 003	18 631 936	30 775 988	41 486 473
	in value				
	in %				
Total terminal Service Units	13 690	38 219	61 960	98 074	100 094
	in value				
	in %				
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-9.05</b>	<b>-3.99</b>	<b>7.92</b>	<b>13.28</b>	<b>20.43</b>
	in value				
	in %				
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Germany Terminal Charging Zone (TCZ) comprising 16 airports.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (130.32 €2009) is +18.6% higher than planned in the PP (109.89 €2009). This results from the combination of higher than planned TNSUs (+7.2%) and much higher than planned terminal costs in real terms (+27.1%, or +41.5 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Germany TCZ. The difference between actual and planned TNSUs (+7.2%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +23.9% (+43.0 M€) higher than planned. However, since the actual inflation index is lower than planned (-2.9 p.p.), actual terminal costs are +27.1% (+41.5 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by DFS (+27.3%, or +40.7 M€2009) and the MET service provider (+31.8%, or +0.9 M€2009), while the costs for the NSA (-16.5%, or -0.1 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing have not been reported so far for RP2, since is still under examination by the German NSA.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Germany TCZ, actual TNSUs are +4.6% higher than planned, while actual costs in real terms are also +9.1% higher than the determined costs (some +81.2 M€2009). As a result, the weighted average actual unit cost over RP2 (136.96 €2009) is +4.3% higher than planned in the NPP (131.33 €2009).					



**GERMANY: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	27.3%
Other ANSPs	-
METSP	31.8%
NSA	-16.5%
Total	27.1%

Costs by nature at ATSP level:

Staff	31.4%
Other operating costs	23.8%
Depreciation	8.4%
Cost of capital	-47.3%
Exceptional items	2.6%
VFR exempted flights	-
Total	27.3%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Note:** Germany has not yet reported any costs exempt from cost sharing for RP2 since, according to the comments received from the German NSA on the draft report, they are "still under examination by the German NSA".

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Germany 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 124.34 €. This is -3.7% lower than the nominal DUC (129.11 €). The difference between these two figures (-4.77 €) relates to:

- the inflation adjustment (-3.17 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (-2.30 €), which reflects the gain in revenues due to higher than planned traffic in previous years, reimbursed to airspace users in 2019;
- a traffic adjustment (+0.05 €), for the costs not subject to traffic risk sharing and the related under recovery, charged to airspace users in 2019; and
- a bonus in respect of the capacity target incentive mechanism related to 2017 performance (+0.65 €).

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Germany 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (122.22 €) is -5.3% lower than the nominal DUC (129.11 €). The difference between these two figures (-6.89 €) is mainly due to:

- the inflation adjustment (-3.02 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic risk sharing adjustment (-4.27 €), which reflects the gain in revenues due to higher than planned traffic in 2019, to be reimbursed to airspace users in future years;
- a traffic adjustment (-0.21 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years; and
- a bonus in respect of the capacity target incentive mechanism related to 2019 performance (+0.61 €).

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.



## GERMANY: Terminal ATSP (DFS)

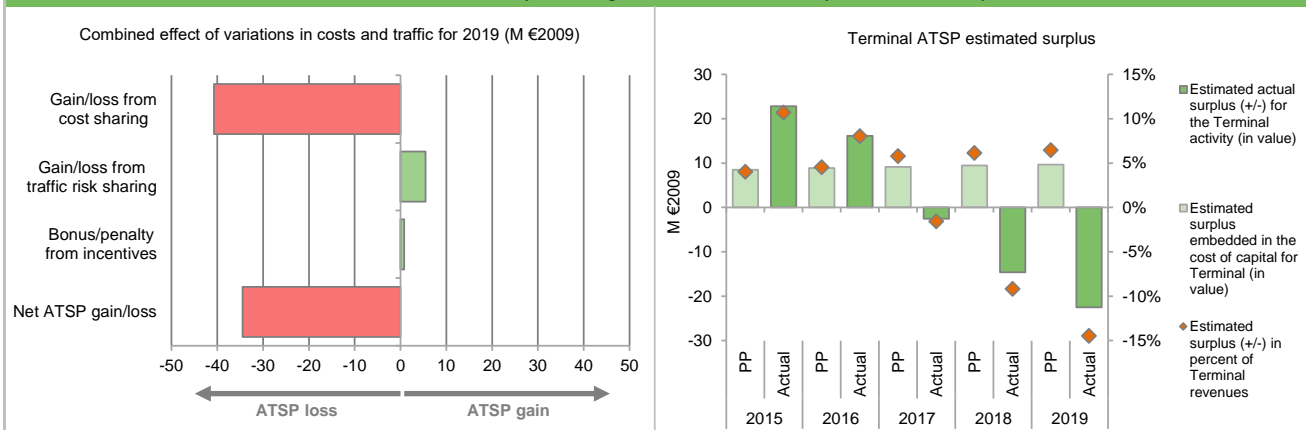
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	210 177	195 531	157 857	153 499	149 272
Actual costs for the ATSP	199 370	195 153	176 258	184 281	189 989
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	10 806	379	-18 401	-30 781	-40 718
Amounts excluded from cost sharing to be recovered (+) or reimbursed (-) (see note below)	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>10 806</b>	<b>379</b>	<b>-18 401</b>	<b>-30 781</b>	<b>-40 718</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.0%	2.8%	4.5%	7.1%	7.2%
Determined costs for the ATSP (PP) - based on actual inflation	212 816	200 353	161 749	156 976	153 104
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>2 186</b>	<b>4 497</b>	<b>4 472</b>	<b>5 554</b>	<b>5 446</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>883</b>	<b>969</b>	<b>821</b>	<b>817</b>	<b>791</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>13 875</b>	<b>5 845</b>	<b>-13 109</b>	<b>-24 411</b>	<b>-34 481</b>
<b>Note: Costs exempt from cost-sharing have not been reported so far for RP2, since is still under examination by the German NSA</b>					
Alternate DFS gain/loss for the terminal activity excluding the state contribution ('000 €2009) *see Note 1					
Actual costs for the ATSP excluding the State contribution	208 834	216 362	227 752	234 815	239 825
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>4 411</b>	<b>-15 364</b>	<b>-64 603</b>	<b>-74 944</b>	<b>-84 317</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	362 420	346 978	325 651	309 335	293 544
Estimated proportion of financing through equity (in %)	31.4%	34.3%	37.6%	40.9%	44.2%
Estimated proportion of financing through equity (in value)	113 692	119 173	122 306	126 664	129 641
Estimated proportion of financing through debt (in %)	68.6%	65.7%	62.4%	59.1%	55.8%
Estimated proportion of financing through debt (in value)	248 728	227 805	203 345	182 671	163 903
Cost of capital pre-tax (in value)	16 865	16 516	15 868	15 456	14 985
Average interest on debt (in %)	3.4%	3.4%	3.3%	3.3%	3.2%
Interest on debt (in value)	8 395	7 637	6 757	6 020	5 327
Determined RoE pre-tax rate (in %)	7.5%	7.5%	7.5%	7.5%	7.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	8 470	8 878	9 112	9 437	9 658
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>8 470</b>	<b>8 878</b>	<b>9 112</b>	<b>9 437</b>	<b>9 658</b>
<b>Revenue/costs for the terminal activity</b>	<b>210 177</b>	<b>195 531</b>	<b>157 857</b>	<b>153 499</b>	<b>149 272</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>4.0%</b>	<b>4.5%</b>	<b>5.8%</b>	<b>6.1%</b>	<b>6.5%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>7.5%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	365 861	383 014	379 780	330 856	347 717
Estimated proportion of financing through equity (in %)	32.9%	36.0%	37.3%	39.6%	46.3%
Estimated proportion of financing through equity (in value)	120 316	138 064	141 549	131 165	160 900
Estimated proportion of financing through debt (in %)	67.1%	64.0%	62.7%	60.4%	53.7%
Estimated proportion of financing through debt (in value)	245 546	244 949	238 230	199 690	186 817
Cost of capital pre-tax (in value)	16 199	17 193	14 408	17 959	7 890
Average interest on debt (in %)	2.9%	2.8%	1.6%	4.1%	-2.2%
Interest on debt (in value)	7 235	6 907	3 863	8 187	-4 097
Determined RoE pre-tax rate (in %)	7.5%	7.5%	7.5%	7.5%	7.5%
Estimated surplus embedded in the cost of capital for terminal (in value)	8 964	10 286	10 545	9 772	11 987
Net ATSP gain(+)/loss(-) on terminal activity	13 875	5 845	-13 109	-24 411	-34 481
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>22 839</b>	<b>16 130</b>	<b>-2 563</b>	<b>-14 639</b>	<b>-22 494</b>
<b>Revenue/costs for the terminal activity</b>	<b>213 245</b>	<b>200 997</b>	<b>163 149</b>	<b>159 870</b>	<b>155 508</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>10.7%</b>	<b>8.0%</b>	<b>-1.6%</b>	<b>-9.2%</b>	<b>-14.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>19.0%</b>	<b>11.7%</b>	<b>-1.8%</b>	<b>-11.2%</b>	<b>-14.0%</b>
Alternate DFS overall estimated surplus for the terminal activity excluding the state contribution ('000 €2009) *see Note 1					
Net ATSP gain(+)/loss(-) on terminal activity	4 411	-15 364	-64 603	-74 944	-84 317
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>13 375</b>	<b>-5 078</b>	<b>-54 057</b>	<b>-65 173</b>	<b>-72 330</b>
<b>Revenue/costs for the terminal activity</b>	<b>213 245</b>	<b>200 997</b>	<b>163 149</b>	<b>159 870</b>	<b>155 508</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>6.3%</b>	<b>-2.5%</b>	<b>-33.1%</b>	<b>-40.8%</b>	<b>-46.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>11.1%</b>	<b>-3.7%</b>	<b>-38.2%</b>	<b>-49.7%</b>	<b>-45.0%</b>

## GERMANY: Terminal ATSP (DFS)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 DFS terminal costs vs. PP

In 2019, DFS actual terminal costs are +27.3% (+40.7 M€2009) higher, in real terms, than planned in the PP. According to the NSA 2019 Monitoring report, the underlying reasons are "within RP2, analysis showed, the need for maintenance for the Tower-related equipment is higher than planned. This was not reflected in the Performance Plan with this amount. This led to higher costs for terminal services. DFS set up several measures to standardize and harmonize the systems with the aim to reduce maintenance costs".

In 2019, DFS actual terminal costs are +27.3% (+40.7 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much higher staff costs (+31.4%, or +42.2 M€2009), which is explained by: "On the one hand, there is a decline in the number of support staff due to the DFS cost reduction programme of the last years. However, these effects are overcompensated by salary increases based on collective agreements and career development. On the other hand, the number of air traffic controllers exceeds the planned number in the performance plan. Additional staff is also being trained as air traffic controllers. In addition, there is an increase in overtime compensation due to a substantial increase in traffic, which is recorded as a provision, as well as costs for voluntarily additional shifts. In addition, there are higher costs for recuperation cures for operative staff";
- much higher other operating costs (+23.8%, or +5.3 M€2009), explained mainly by "[...] higher costs for staff recruitment, such as the selection process at the DLR (Deutsches Zentrum für Luft- und Raumfahrt) and marketing measures to activate suitable applicants for the following years";
- higher depreciation costs (+8.4%, or +1.3 M€2009) "mainly due to the modernization of the energy power plant";
- much lower cost of capital (-47.3%, or -7.1 M€2009); and,
- higher exceptional costs (+2.6%).

## DFS net gain/loss on terminal activity in 2019

As shown in box 9, DFS generated a net loss of -34.5 M€2009 on the terminal activity. This is a combination of three elements:

- a loss of -40.7 M€2009 arising from the cost sharing mechanism;
- a gain of +5.4 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +0.8 M€2009 (or +0.91 M€ in nominal terms), corresponding to a bonus as part of the terminal capacity target incentive mechanism. This amount corresponds to 0.5% of DFS terminal revenues (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

## DFS overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-34.5 M€2009) and the surplus embedded in the actual cost of capital (+12.0 M€2009) amounts to -22.5 M€2009 (14.5% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -14.0%, which indicates that the surplus embedded in the cost of capital (7.5%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019), DFS generated cumulative losses in respect of cost sharing of -78.7 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +22.2 M€2009, which reflects the fact that actual traffic was in general terms +4.6% higher than planned during RP2. Adding the gain of +4.3 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+51.6 M€2009 over RP2) leads to an overall estimated surplus of -0.7 M€2009, which corresponds to an average ex-post return on equity of -0.1% (compared to 7.5% as initially planned in the NPP).

## Alternate DFS net gain/loss on en-route activity in 2019 excluding the German State contribution (see Note 1 at the end of the report)

When excluding the German State contribution for 2019 (i.e. 57.1 M€ in nominal terms or 49.8 M€2009) DFS generated a net loss of -84.3 M€2009 on the terminal activity. This is a combination of three elements:

- a loss of -90.6 M€2009 arising from the cost sharing mechanism;
- a gain of +5.4 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +0.8 M€2009 (or +0.91 M€ in nominal terms), corresponding to a bonus as part of the terminal capacity target incentive mechanism. This amount corresponds to 0.5% of DFS terminal revenues (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

## Alternate DFS overall estimated surplus for the en-route activity excluding the German State contribution (see Note 1 at the end of the report)

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-84.3 M€2009) and the surplus embedded in the actual cost of capital (+12.0 M€2009) amounts to -72.3 M€2009 (46.5% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -45.0%, which indicates that the surplus embedded in the cost of capital (7.5%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019), DFS generated cumulative losses in respect of cost sharing of -261.3 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +22.2 M€2009, which reflects the fact that actual traffic was in general terms +4.6% higher than planned during RP2. Adding the gain of +4.3 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+51.6 M€2009 over RP2) leads to an overall estimated surplus of -183.3 M€2009, which corresponds to an average ex-post return on equity of -26.5% (compared to 7.5% as initially planned in the NPP).

## GERMANY: Gate-to-gate

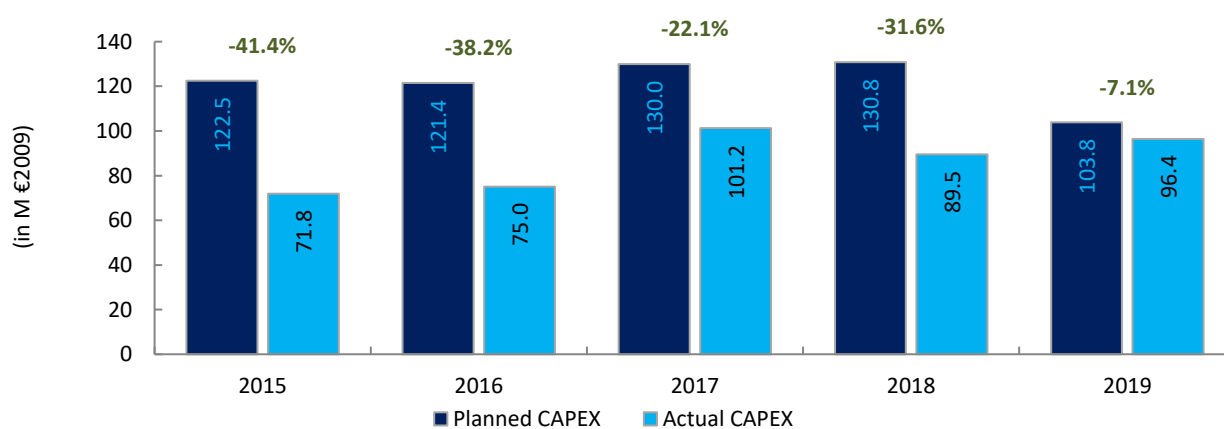
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																															
<b>Germany: Data from RP2 Performance Plan</b>																																															
	2015D	2016D	2017D	2018D	2019D																																										
Real en-route costs (EUR2009)	972 517 385	930 742 228	821 735 846	802 748 084	784 999 985																																										
Real terminal costs (EUR2009)	219 163 171	204 811 176	161 570 590	157 180 161	152 994 086																																										
Real gate-to-gate costs (EUR2009)	1 191 680 556	1 135 553 404	983 306 436	959 928 244	937 994 071																																										
En-route share (%)	81.6%	82.0%	83.6%	83.6%	83.7%																																										
<b>Germany: Actual data from Reporting Tables</b>																																															
	2015A	2016A	2017A	2018A	2019A																																										
Real en-route costs (EUR2009)	919 323 427	881 679 013	780 096 371	801 931 881	776 413 598																																										
Real terminal costs (EUR2009)	209 234 652	205 014 180	180 202 526	187 956 149	194 480 559																																										
Real gate-to-gate costs (EUR2009)	1 128 558 079	1 086 693 193	960 298 897	989 888 030	970 894 157																																										
En-route share (%)	81.5%	81.1%	81.2%	81.0%	80.0%																																										
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																															
	2015	2016	2017	2018	2019																																										
Real gate-to-gate costs (EUR2009) in value	-63 122 477	-48 860 211	-23 007 539	29 959 785	32 900 086																																										
in %	-5.3%	-4.3%	-2.3%	3.1%	3.5%																																										
En-route share in p.p.	-0.1 p.p.	-0.8 p.p.	-2.3 p.p.	-2.6 p.p.	-3.7 p.p.																																										
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																															
<p>In 2019, actual gate-to-gate ANS costs are +3.5% (+32.9 M€2009) higher than planned due to higher than planned terminal costs (+27.1%, or +41.5 M€2009) while en-route costs are lower than planned (-1.1%, or -8.6 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (80.0%) is lower than planned in the PP for 2019 (83.7%).</p> <p>For DFS, the estimated gate-to-gate economic surplus in 2019 amounts to 79.2 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 9.3% of gate-to-gate ANS revenues.</p> <p>Alternate DFS estimated gate-to-gate economic surplus in 2019 excluding the German State contribution (see Note 1 below) amounts to -48.7 M€2009 corresponding to 5.7% of gate-to-gate ANS revenues.</p>																																															
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>81.6%</td> <td>18.4%</td> </tr> <tr> <td>Actual</td> <td>81.5%</td> <td>18.5%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>82.0%</td> <td>18.0%</td> </tr> <tr> <td>Actual</td> <td>81.1%</td> <td>18.9%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>83.6%</td> <td>16.4%</td> </tr> <tr> <td>Actual</td> <td>81.2%</td> <td>18.8%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>83.6%</td> <td>16.4%</td> </tr> <tr> <td>Actual</td> <td>81.0%</td> <td>19.0%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>83.7%</td> <td>16.3%</td> </tr> <tr> <td>Actual</td> <td>80.0%</td> <td>20.0%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	81.6%	18.4%	Actual	81.5%	18.5%	2016	Determined	82.0%	18.0%	Actual	81.1%	18.9%	2017	Determined	83.6%	16.4%	Actual	81.2%	18.8%	2018	Determined	83.6%	16.4%	Actual	81.0%	19.0%	2019	Determined	83.7%	16.3%	Actual	80.0%	20.0%			
Year	Type	En-route (%)	Terminal (%)																																												
2015	Determined	81.6%	18.4%																																												
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2019	Determined	83.7%	16.3%																																												
	Actual	80.0%	20.0%																																												
<b>3. Technical notes on en-route and terminal information reported by Germany</b>																																															
<b>Note 1: Contributions by the German State to DFS equity</b>																																															
<p>As indicated on p. 30 of DFS 2018 Annual Report:</p> <p>"The German legislator approved a contribution of €50 million to the registered capital of DFS in 2015 as well as €112.5 million in each of the following four years (a total of €500 million). [...] Federal Republic of Germany as the sole Shareholder undertook to raise the registered capital accordingly. On 25 November 2016, the German Bundestag furthermore approved an additional capital contribution of €101.9 million for 2017 [...]. Moreover, it paid the outstanding contributions to the registered capital in the amount of €112.5 million (two times) in 2018."</p> <p>As reflected in the DFS cash flow statement (p. 73 of DFS 2018 Annual Report) the amounts are paid by the German State (the shareholder) to DFS, increasing correspondingly, by a direct accounting entry, the equity under the subscribed capital (see p. 128 of DFS 2018 Annual Report). Therefore, these amounts are not reflected in the DFS Income Statement, neither as revenues nor negative costs.</p> <p>The table below summarises the payment plan:</p> <table border="1"> <thead> <tr> <th>in M€</th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Contributions from the Shareholder</td> <td>50.0</td> <td>112.5</td> <td>112.5</td> <td>225.0</td> <td>-</td> <td>500.0</td> </tr> <tr> <td>Additional capital contribution payment</td> <td></td> <td></td> <td>101.9</td> <td></td> <td></td> <td>101.9</td> </tr> </tbody> </table> <p>The above amounts are recorded as <b>negative exceptional costs for charging purposes</b> in the RP2 en-route and terminal Reporting Tables (RTs) for DFS on an annual basis. The table below summarises these amounts:</p> <table border="1"> <thead> <tr> <th>in M€</th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Recorded in en-route reporting tables</td> <td>-39.7</td> <td>-89.4</td> <td>-89.4</td> <td>-89.4</td> <td>-89.4</td> <td>-397.2</td> </tr> <tr> <td>Recorded in terminal reporting tables</td> <td>-10.3</td> <td>-23.1</td> <td>-57.1</td> <td>-57.1</td> <td>-57.1</td> <td>-204.7</td> </tr> </tbody> </table> <p>This reporting reduces the determined costs charged to the airspace users and the corresponding DFS ANS revenues. However, the negative exceptional item is also included as part of actual costs reported in the RTs, which artificially reduces the DFS actual costs reported in the RTs. In turn, this generates a difference between the DFS accounting profit and the estimated ATSP economic surplus resulting from the fact that the DFS Income Statement includes the effect of the state contribution on the ANS revenues (since the determined costs charged to users are lowered by this factor), while the positive cash flow or payment by the State is not reflected in the Income Statement as either revenue or reduction in costs (only reflected as direct entry in the equity). The estimated ATSP economic surplus calculation is based only on the data included in the RTs. Therefore, the State contribution is considered as reported in the RTs, in both, the determined costs and the actual costs.</p> <p>In order not to incur this difference, DFS proposes an additional calculation approach for estimated economic surplus, which excludes the state contribution from the actual costs for each year. By doing so, the actual DFS costs increase (since exceptional items are negative) and reflects the actual costs recorded in the financial statements, and the gain to be retained by the ATSP in respect of cost sharing (DC-AC) decreases in the same amount as the State contribution reported for each year.</p>						in M€	2015	2016	2017	2018	2019	Total	Contributions from the Shareholder	50.0	112.5	112.5	225.0	-	500.0	Additional capital contribution payment			101.9			101.9	in M€	2015	2016	2017	2018	2019	Total	Recorded in en-route reporting tables	-39.7	-89.4	-89.4	-89.4	-89.4	-397.2	Recorded in terminal reporting tables	-10.3	-23.1	-57.1	-57.1	-57.1	-204.7
in M€	2015	2016	2017	2018	2019	Total																																									
Contributions from the Shareholder	50.0	112.5	112.5	225.0	-	500.0																																									
Additional capital contribution payment			101.9			101.9																																									
in M€	2015	2016	2017	2018	2019	Total																																									
Recorded in en-route reporting tables	-39.7	-89.4	-89.4	-89.4	-89.4	-397.2																																									
Recorded in terminal reporting tables	-10.3	-23.1	-57.1	-57.1	-57.1	-204.7																																									

## GERMANY

## Monitoring of CAPEX for 2019

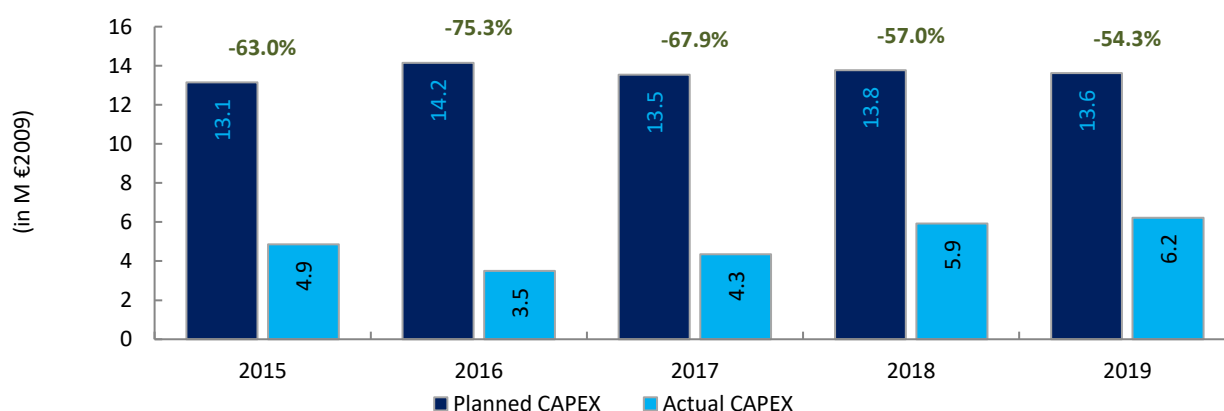
Contextual Information						
ANSP: DFS						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	134.7	135.6	147.6	151.1	122.0	691.1
Main CAPEX (in nominal M)	109.6	112.1	108.8	85.5	61.6	477.5
Inflation %	1.4%	1.6%	1.7%	1.7%	1.7%	
Inflation index (100 in 2009)	109.9	111.7	113.6	115.5	117.5	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>122.5</b>	<b>121.4</b>	<b>130.0</b>	<b>130.8</b>	<b>103.8</b>	<b>608.6</b>
Main CAPEX (in M €2009)	99.7	100.3	95.8	74.0	52.4	422.2
% Main of Total CAPEX	81.3%	82.6%	73.7%	56.6%	50.5%	69.4%
Real gate-to-gate ANSP costs (in M €2009)	1 022.7	951.5	867.3	844.4	822.2	4 508.1
Total CAPEX as % of Real gate-to-gate ANSP costs	12.0%	12.8%	15.0%	15.5%	12.6%	13.5%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	78.0	81.8	112.2	101.1	110.5	483.6
Main CAPEX (in nominal M)	56.1	59.3	89.3	62.9	70.9	338.5
Inflation %	0.1%	0.4%	1.7%	1.9%	1.4%	
Inflation index (100 in 2009)	108.6	109.0	110.9	113.0	114.5	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>71.8</b>	<b>75.0</b>	<b>101.2</b>	<b>89.5</b>	<b>96.4</b>	<b>434.0</b>
Main CAPEX (in M €2009)	51.7	54.4	80.6	55.7	61.9	304.2
% Main of Total CAPEX	71.9%	72.5%	79.6%	62.2%	64.2%	70.1%
Real gate-to-gate ANSP costs (in M €2009)	961.5	898.9	843.3	871.1	850.0	4 424.8
Total CAPEX as % of Real gate-to-gate ANSP costs	7.5%	8.3%	12.0%	10.3%	11.3%	9.8%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-56.7	-53.9	-35.4	-50.0	-11.5	-207.6
Total CAPEX (in M €2009)	-50.7	-46.4	-28.7	-41.3	-7.4	-174.6
<b>Total CAPEX (in %, M €2009)</b>	<b>-41.4%</b>	<b>-38.2%</b>	<b>-22.1%</b>	<b>-31.6%</b>	<b>-7.1%</b>	<b>-28.7%</b>



## MUAC

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: MUAC						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	14.5	15.8	15.4	15.9	15.9	77.6
Main CAPEX (in nominal M)	12.7	14.7	14.7	15.2	15.3	72.5
Inflation %	1.0%	1.2%	1.4%	1.5%	1.5%	
Inflation index (100 in 2009)	110.6	112.0	113.6	115.3	117.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>13.1</b>	<b>14.2</b>	<b>13.5</b>	<b>13.8</b>	<b>13.6</b>	<b>68.2</b>
Main CAPEX (in M €2009)	11.5	13.1	12.9	13.2	13.1	63.7
% Main of Total CAPEX	87.3%	92.7%	95.5%	95.7%	95.8%	93.4%
Real gate-to-gate ANSP costs (in M €2009)	133.8	133.5	135.9	138.1	139.8	681.2
Total CAPEX as % of Real gate-to-gate ANSP costs	9.8%	10.6%	10.0%	10.0%	9.7%	10.0%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	5.3	3.8	4.8	6.7	7.2	27.9
Main CAPEX (in nominal M)	5.1	3.5	4.2	6.7	7.2	26.6
Inflation %	0.2%	0.1%	1.3%	1.6%	2.7%	
Inflation index (100 in 2009)	109.7	109.8	111.3	113.1	116.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>4.9</b>	<b>3.5</b>	<b>4.3</b>	<b>5.9</b>	<b>6.2</b>	<b>24.8</b>
Main CAPEX (in M €2009)	4.6	3.2	3.7	5.9	6.2	23.7
% Main of Total CAPEX	94.9%	92.3%	86.3%	99.6%	99.4%	95.3%
Real gate-to-gate ANSP costs (in M €2009)	123.6	131.9	135.7	139.2	149.7	679.9
Total CAPEX as % of Real gate-to-gate ANSP costs	3.9%	2.7%	3.2%	4.3%	4.2%	3.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-9.2	-12.0	-10.5	-9.2	-8.7	-49.6
Total CAPEX (in M €2009)	-8.3	-10.7	-9.2	-7.8	-7.4	-43.4
<b>Total CAPEX (in %, M €2009)</b>	<b>-63.0%</b>	<b>-75.3%</b>	<b>-67.9%</b>	<b>-57.0%</b>	<b>-54.3%</b>	<b>-63.6%</b>



Note: Planned and actual inflation indices used to calculate CAPEX in real terms above, are based on the inflation indices for the Netherlands. This is different from the calculation of gate-to-gate ANSP costs in real terms, since for MUAC, this is based on the MUAC States' inflation indices.

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# Annual Monitoring Report 2019

Local level view  
Luxembourg

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## LUXEMBOURG

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	68	C	B	C	C	C
ANA LUX	84	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	N/A	N/A				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	DAC					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	9	0				
Legal/Judiciary	4	3				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>15</b>	<b>3</b>				
ANA LUX	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
One (Safety Risk Management) EoSM Components of the State did not meet the 2019 EoSM target level "C". Only one question out of 36 questions were rated as level "B".						
All other safety targets have been met.						

## LUXEMBOURG

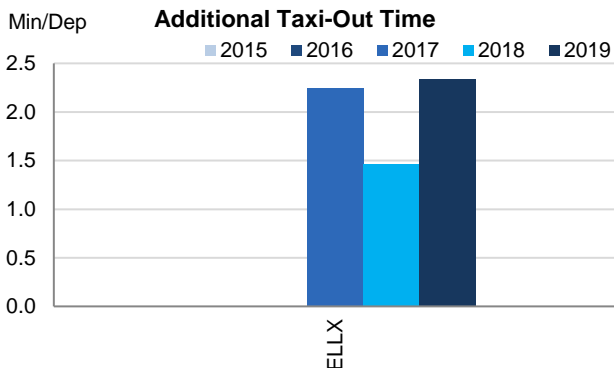
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

The scope of RP2 monitoring for Luxembourg comprises the main airport (ELLX), where traffic has significantly increased since the beginning of RP2 (+25% with respect to 2015)

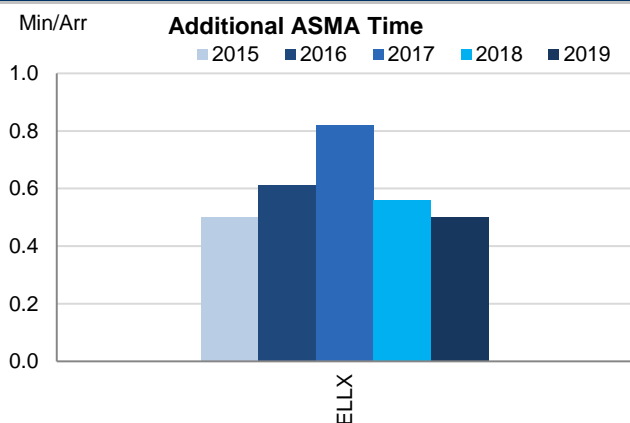
The Airport Operator Data Flow is fully implemented and both environment indicators can be properly monitored as of 2017. Both environmental indicators are commensurate with the level of traffic and are below the average values for airports subject to RP2 monitoring.

## 2. Additional Taxi-Out Time



The additional taxi-out times at Luxembourg, after the improvement observed in 2018, have now increased significantly and reach 2.34 min/dep. The highest additional TXOT are observed in May and June.

## 3. Additional ASMA Time



Additional times in the terminal airspace remain low in average (0.5 min/arr.) and they are reduced to zero in summer.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Luxembourg	ELLX	n/a	n/a	2.25	1.46	2.34	0.50	0.61	0.82	0.56	0.50

## LUXEMBOURG

## Monitoring of Airports Contribution to CAPACITY for 2019

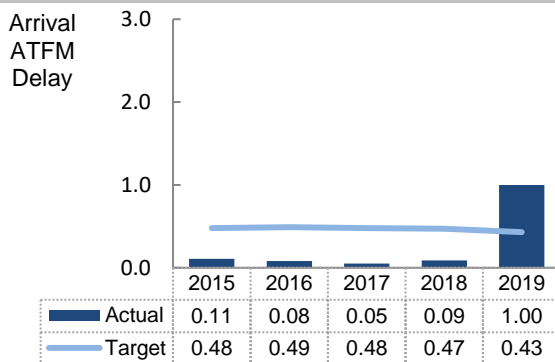
## 1. Overview

In Luxembourg, ANS at Luxembourg airport (ELLX) are subject to RP2 monitoring, where traffic levels have drastically increased during RP2 (+25.3% with respect to 2015). In terms of arrival ATFM delays, values had remained very low during other years of RP2, but in 2019 delays have multiplied by 10 due to restrictions associated with a specific implementation. This fact makes Luxembourg miss the terminal delay target for the first time in RP2.

ATFM slot adherence has improved (2015: 82.6%; 2019: 86.2%) along RP2 but it is still lower than most European airports.

The ATC pre-departure delay was negligible during the entire RP2, and in 2019 was even reduced to only 0.01 min/dep.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Luxembourg have drastically increased with respect to the previous year (2018: 0.09 min/arr, 2019: 1.00 min/arr)

Whereas ANA stayed well below the target from January to May (average 0.15 min/arr.), restrictions related to the surveillance chain upgrade project, which were in place from June to December, caused very high delays (average 1.55 min/arr.) in those months. Beginning 2020, ANA reached again a normal level (close to 0.20 min/arr.)

The surveillance chain upgrade project caused 34529 minutes of delay for arrivals into Luxembourg.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

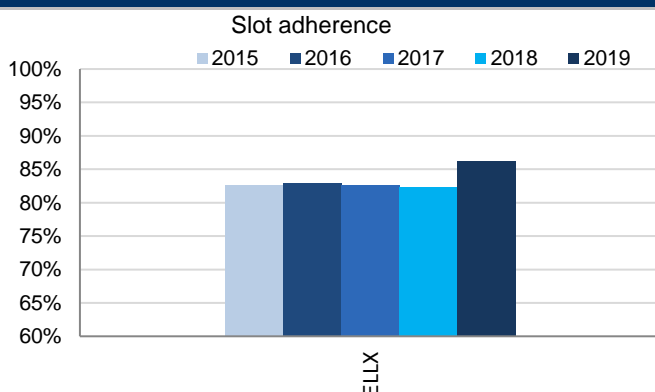
The FABEC performance plan establishes a national target on arrival ATFM delay for Luxembourg.

The established target (all causes) ranges consistently about 1/3 minute above the historic performance observed at Luxembourg (ELLX). For ANS attributable delay causes (i.e. CRSTMP) this buffer increases to about 0.45 min/arr.

Luxembourg has not established an incentive scheme for the national target on arrival ATFM delay.

Luxembourg reports that upon request of the European Commission, an incentive scheme has been developed, which was endorsed by the NSA and the Ministry. The scheme was presented to users during a local users meeting (AUC) in November 2017 but was not approved. There is no intention to apply the scheme in the last year of RP2.

## 4. ATFM Slot Adherence



After 4 years when the adherence to ATFM slots remained just above the minimum 80% threshold, in 2019 there is a clear improvement, reaching 86.2%. Nevertheless this performance is still below the European average and has a corresponding impact on network predictability.

## 5. ATC Pre-departure Delay

ATC pre-departure delay at Luxembourg (ELLX) has decreased from an already low level, to almost zero in 2019 (2018: 0.09 min/dep.; 2019: 0.01 min/dep.) The level of this delay is very constant throughout the year.

## 6. Appendix

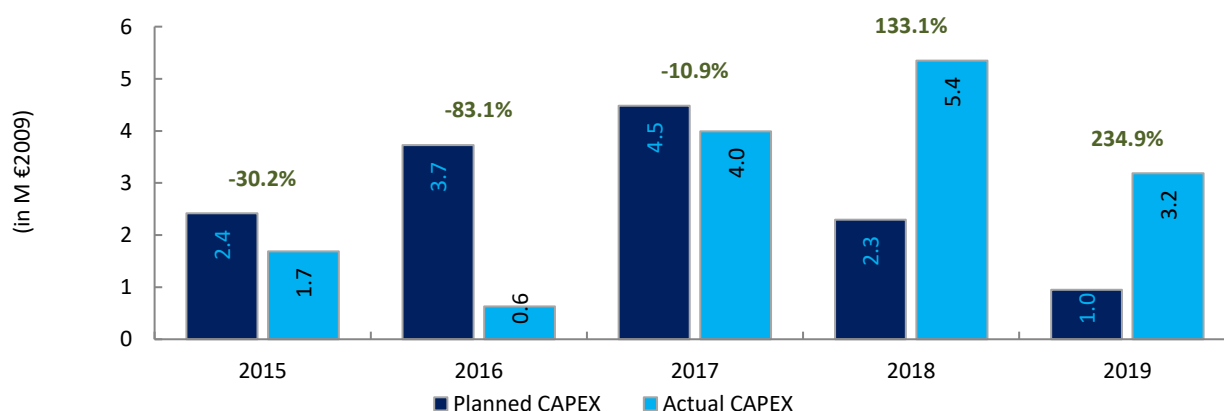
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Luxembourg	ELLX	0.11	0.08	0.05	0.09	1.00	82.6%	82.9%	82.6%	82.3%	86.2%	0.02	0.01	0.04	0.09	0.01

## LUXEMBOURG

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: ANA LUX						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	2.8	4.3	5.3	2.8	1.2	16.4
Main CAPEX (in nominal M)	2.8	4.3	5.3	2.8	1.2	16.4
Inflation %	1.8%	1.8%	1.8%	1.9%	1.9%	
Inflation index (100 in 2009)	114.4	116.4	118.6	120.9	123.2	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>2.4</b>	<b>3.7</b>	<b>4.5</b>	<b>2.3</b>	<b>1.0</b>	<b>13.9</b>
Main CAPEX (in M €2009)	2.4	3.7	4.5	2.3	1.0	13.9
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	14.7	15.5	15.7	15.8	15.7	77.4
Total CAPEX as % of Real gate-to-gate ANSP costs	16.4%	24.0%	28.6%	14.6%	6.0%	17.9%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	1.9	0.7	4.6	6.3	3.8	17.2
Main CAPEX (in nominal M)	1.9	0.7	4.6	6.2	2.4	15.8
Inflation %	0.1%	0.0%	2.1%	2.0%	1.6%	
Inflation index (100 in 2009)	112.5	112.5	114.8	117.1	119.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>1.7</b>	<b>0.6</b>	<b>4.0</b>	<b>5.4</b>	<b>3.2</b>	<b>14.8</b>
Main CAPEX (in M €2009)	1.7	0.6	4.0	5.3	2.0	13.6
% Main of Total CAPEX	100.0%	100.0%	100.0%	99.0%	63.3%	91.8%
Real gate-to-gate ANSP costs (in M €2009)	15.6	15.8	15.7	15.7	16.4	79.2
Total CAPEX as % of Real gate-to-gate ANSP costs	10.8%	4.0%	25.4%	34.2%	19.4%	18.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-0.9	-3.6	-0.7	3.5	2.6	0.9
Total CAPEX (in M €2009)	-0.7	-3.1	-0.5	3.1	2.2	1.0
<b>Total CAPEX (in %, M €2009)</b>	<b>-30.2%</b>	<b>-83.1%</b>	<b>-10.9%</b>	<b>133.1%</b>	<b>234.9%</b>	<b>7.0%</b>

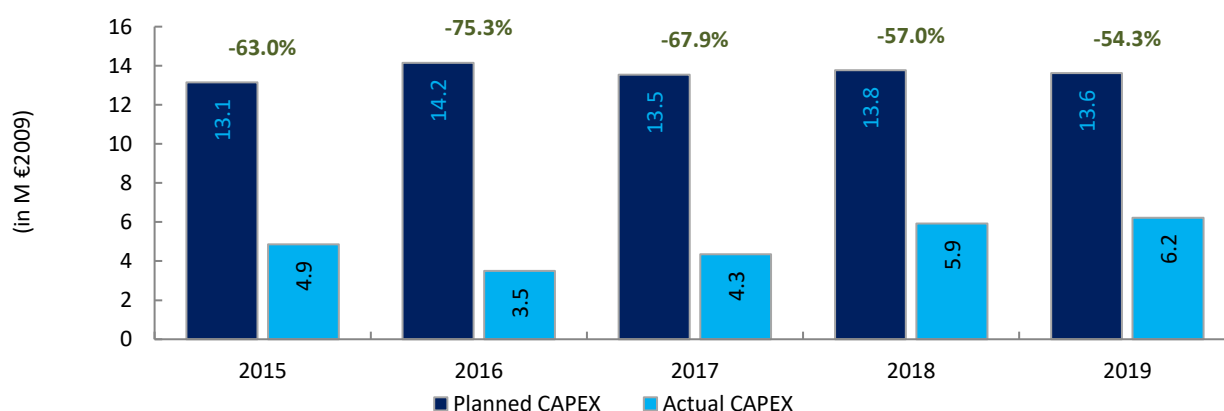


Note: Planned and actual inflation indices used to calculate CAPEX in real terms above are based on the Terminal Reporting Tables. Two separate inflation indices are used to calculate the gate-to-gate ANSP costs in real terms.

## MUAC

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: MUAC						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	14.5	15.8	15.4	15.9	15.9	77.6
Main CAPEX (in nominal M)	12.7	14.7	14.7	15.2	15.3	72.5
Inflation %	1.0%	1.2%	1.4%	1.5%	1.5%	
Inflation index (100 in 2009)	110.6	112.0	113.6	115.3	117.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>13.1</b>	<b>14.2</b>	<b>13.5</b>	<b>13.8</b>	<b>13.6</b>	<b>68.2</b>
Main CAPEX (in M €2009)	11.5	13.1	12.9	13.2	13.1	63.7
% Main of Total CAPEX	87.3%	92.7%	95.5%	95.7%	95.8%	93.4%
Real gate-to-gate ANSP costs (in M €2009)	133.8	133.5	135.9	138.1	139.8	681.2
Total CAPEX as % of Real gate-to-gate ANSP costs	9.8%	10.6%	10.0%	10.0%	9.7%	10.0%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	5.3	3.8	4.8	6.7	7.2	27.9
Main CAPEX (in nominal M)	5.1	3.5	4.2	6.7	7.2	26.6
Inflation %	0.2%	0.1%	1.3%	1.6%	2.7%	
Inflation index (100 in 2009)	109.7	109.8	111.3	113.1	116.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>4.9</b>	<b>3.5</b>	<b>4.3</b>	<b>5.9</b>	<b>6.2</b>	<b>24.8</b>
Main CAPEX (in M €2009)	4.6	3.2	3.7	5.9	6.2	23.7
% Main of Total CAPEX	94.9%	92.3%	86.3%	99.6%	99.4%	95.3%
Real gate-to-gate ANSP costs (in M €2009)	123.6	131.9	135.7	139.2	149.7	679.9
Total CAPEX as % of Real gate-to-gate ANSP costs	3.9%	2.7%	3.2%	4.3%	4.2%	3.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-9.2	-12.0	-10.5	-9.2	-8.7	-49.6
Total CAPEX (in M €2009)	-8.3	-10.7	-9.2	-7.8	-7.4	-43.4
<b>Total CAPEX (in %, M €2009)</b>	<b>-63.0%</b>	<b>-75.3%</b>	<b>-67.9%</b>	<b>-57.0%</b>	<b>-54.3%</b>	<b>-63.6%</b>



Note: Planned and actual inflation indices used to calculate CAPEX in real terms above, are based on the inflation indices for the Netherlands. This is different from the calculation of gate-to-gate ANSP costs in real terms, since for MUAC, this is based on the MUAC States' inflation indices.

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# Annual Monitoring Report 2019

Local level view  
Netherlands

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## NETHERLANDS

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	74	C	B	C	D	C
LVNL	83	D	D	D	D	C
MUAC	78	D	D	D	D	D

Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.

Application of the severity classification of the Risk Analysis Tool (RAT)		
	RAT application (%)	
	ATM Ground	ATM Overall
Separation Minima Infringements (SMIs)	N/A	100%
Runway Incursions (RIs)	100%	100%
ATM Specific Occurrences (ATM-S)		100%
<b>Source of RAT data:</b>	ILT	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

Just culture		
State level	Number of questions answered	
	YES	NO
Policy and its implementation	7	2
Legal/Judiciary	7	0
Occurrence reporting and Investigation	1	1
<b>TOTAL</b>	<b>15</b>	<b>3</b>

LVNL	Number of questions answered	
	YES	NO
Policy and its implementation	13	0
Legal/Judiciary	3	0
Occurrence reporting and Investigation	8	0
<b>TOTAL</b>	<b>24</b>	<b>0</b>

MUAC	Number of questions answered	
	YES	NO
Policy and its implementation	10	3
Legal/Judiciary	1	2
Occurrence reporting and Investigation	5	3
<b>TOTAL</b>	<b>16</b>	<b>8</b>

#### Observations

One (Safety Risk Management) EoSM Components of the State did not meet the 2019 EoSM target level "C". Only two questions out of 36 questions were rated as level "B".

All other safety targets have been met.

## NETHERLANDS

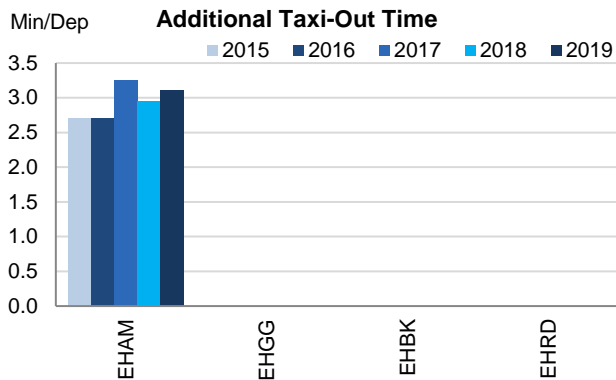
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

For the Netherlands, the scope of the performance monitoring of terminal services under RP2 comprises a total of 4 airports. At the time being the Airport Operator Data Flow is only established for Amsterdam, where traffic in 2019 is at the same level as the previous two years, as the airport arrived to its maximum allowed capacity of 500 000 movements per year (second busiest airport in SES area).

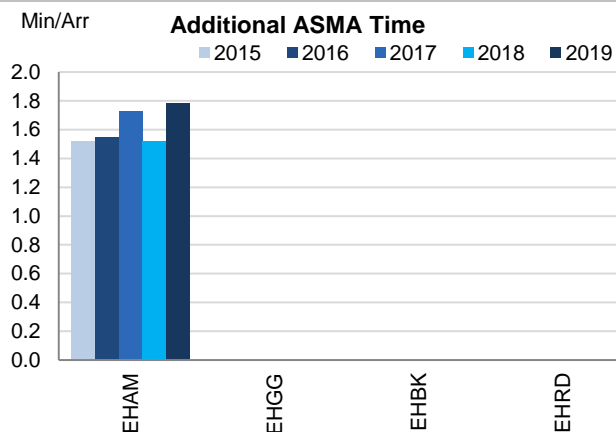
Both environmental indicators have worsened in 2019, but are however still below the SES averages, showing once more good environmental performance for an airport of this size and traffic.

## 2. Additional Taxi-Out Time



The taxi-out times have slightly increased in 2019 (EHAM; 2018: 2.94 min/dep.; 2019: 3.11 min/dep.), impacted mainly by the performance in January, when additional TXOT averaged more than 4 min/dep.

## 3. Additional ASMA Time



Additional times in the terminal area of Amsterdam have moderately increased in 2019 (EHAM; 2018: 1.52 min/arr.; 2019: 1.78 min/arr.)

The worst performance is observed in May with 2.70 min/arr. average. This coincides with the implementation of the electronic flight strips transition phase.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Amsterdam/ Schiphol	EHAM	2.70	2.70	3.25	2.94	3.11	1.52	1.55	1.73	1.52	1.78
Groningen	EHGG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Maastricht-Aachen	EHBK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rotterdam	EHRD	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**NETHERLANDS**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
<b>National Capacity target</b>	N/A	N/A	N/A	N/A	N/A	Because there are two ANSPs in the Netherlands: LVNL and EUROCONTROL (MUAC), the Netherlands did not set a national target. Exclusive use of CRSTMP codes means that the PRB is unable to independently validate the results for incentive purposes. Actual performance reported here is for all causes of delay and includes NM post operations adjustment.
<b>Deadband +/-</b>	N/A	N/A	N/A	N/A	N/A	
<b>Actual performance</b>	0.09	0.29	0.30	0.20	0.10	

**National capacity incentive scheme**

The incentive scheme is applied for delay causes listed in Art. 15 (g) of Regulation 391/2013; data used for calculation was AUA data provided by PRU. (The PRB reports at FIR level, not AUA level, for RP2.)

[The PRU is unable to validate the attributed cause of delay, which is determined by the ANSP requesting the ATFM regulation.]

The Capacity delay target at FAB level was set at an average of 0,34 min/flight for CRSTMP ATFM delays. (See FABEC graphic regarding incentives in FABEC section of monitoring report.)

LVNL broken down target was set at 0,14 min/ flight.

EUROCONTROL (MUAC) broken down target was set at 0.15 min/ flight

2019 achievement (As reported by FABEC)

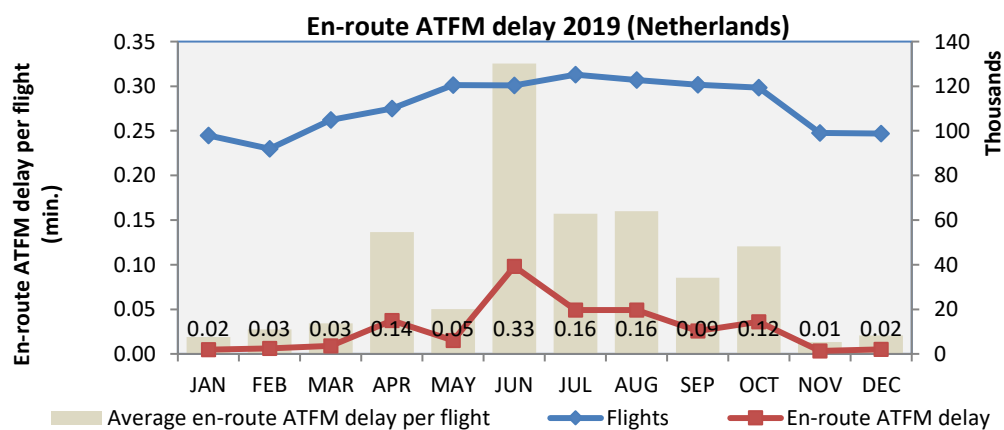
- FABEC: 1.22 min/ flight for CRSTMP delays
- LVNL: 0,04 min/ flight for CRSTMP delays
- EUROCONTROL (MUAC): 0.10 min/ flight for CRSTMP delays

Bonus / Malus

Although LVNL did achieve its target no incentive is applied to LVNL as the overall FABEC target was not met.

Although MUAC did achieve its target no incentive is applied to MUAC as the overall FABEC target was not met.

**Observations regarding national capacity performance**



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En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.04	0.04	0.18	0.12	0.17	0.11	0.12	0.09	0.29	0.30	0.20	0.10

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	1 143		1 185		1 226		1 262		1 302		1 339	
<b>Base</b>	1 134	1 138	1 170	1 176	1 199	1 241	1 224	1 287	1 250	1 329	1 278	1 332
<b>Low</b>	1 124		1 146		1 152		1 159		1 169		1 180	

Traffic levels in the Netherlands increased very slightly <1% in 2019 from what was handled in 2018. Traffic levels in 2019 were 4% above the baseline traffic forecast to just under the high traffic forecast, from STATFOR in February 2014 when the performance targets and associated capacity plans were being determined for RP2.

En route delay improved significantly year on year, from 0,2 minutes per flight in 2018 to 0,1 minutes per flight in 2019. [The additional 15k minutes of delay reattributed to MUAC through the post-ops performance adjustment process to protect adjacent ANSPs who received additional traffic as part of the eNM/S19 measures made no discernible impact on national capacity performance in the Netherlands.]

Of the ATFM delays originating in the Netherlands in 2019, 40% were attributed to adverse weather, 30% were attributed to ATC capacity and 20% were attributed to ATC staffing.

The airspace users highlighted the significant improvement in MUACs performance from the previous year.

LVNL achieved a delay of 0,07 minutes per flight in 2019, almost exactly as predicted in the NOP 2019 - 2024. MUAC achieved a delay of 0,17 minutes per flight, a significant improvement on the 1,62 minutes per flight predicted in the NOP 2019 - 2024.

Delay forecast - LVNL						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.10	0.11	0.12	0.13	N/A	N/A
<b>NOP 2019 - 2024</b>	0.06	0.07	0.07 - 0.21			

Delay forecast - MUAC						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.89	0.79	0.47	0.40	N/A	N/A
<b>NOP 2019 - 2024</b>	1.62	1.36	1.28 - 1.56			

### Planning and Effective Use of CDRs

The Netherlands provided no information on this indicator in the annual monitoring report.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
68%	60%	57%	85%	88%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
5%	13%	17%	0%	<1%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
82%	83%	79%	51%	73%

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

**NETHERLANDS**

**Monitoring of Airports Contribution to CAPACITY for 2019**

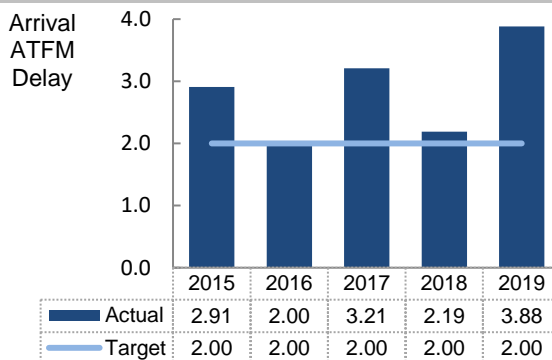
**1. Overview**

In The Netherlands, ANS at a total of 4 airports are subject to RP2 monitoring. Traffic levels at these airports have moderately increased during RP2 (+9.7% with respect to 2015). Given the traffic share at the different airports, the aggregated national performance is driven by Amsterdam/Schiphol (EHAM).

In terms of arrival ATFM delays, the situation along RP2 has been changing from year to year. In 2019, the ATFM delays are worse than any other year in RP2, missing the target once more.

ATFM slot adherence has improved (2015: 88.1%; 2019: 97.2%) and it is excellent. With respect to ATC pre-departure delay, data quality and availability issues prevent from the calculation of the indicator.

**2. Arrival ATFM Delay**



During 2019, arrival ATFM delays in Netherlands have drastically increased with respect to the previous year (2018: 2.19 min/arr, 2019: 3.88 min/arr), missing the national target of 2.00 min/arr.

Amsterdam shows the highest arrival ATFM delay per flight in the SES performance scheme (EHAM: 4.23 min/arr.) and is the biggest contributor to delays, generating almost 20% of all arrival ATFM delays of the network under monitoring.

42% of delays at Amsterdam are associated to weather, with a great impact in March 2019 due to strong winds that added almost 10 minutes of delay to each arrival into EHAM. 36% of the delays are associated with aerodrome capacity, especially high in the months of May, June, September and October, when this reason added more than 2 minutes to the delay of each arrival.

The third most important reason for delays in Amsterdam in 2019 is the implementation of the electronic flight strips in April and May. This single event generated 19% of the total 2019 delays in Amsterdam. According to FABEC monitoring report: *although some capacity restrictions were planned for safety reasons, actual restrictions led to more delays than planned. Lessons have been learned from this system implementation and measures have been identified to reduce the impact in future implementations.*

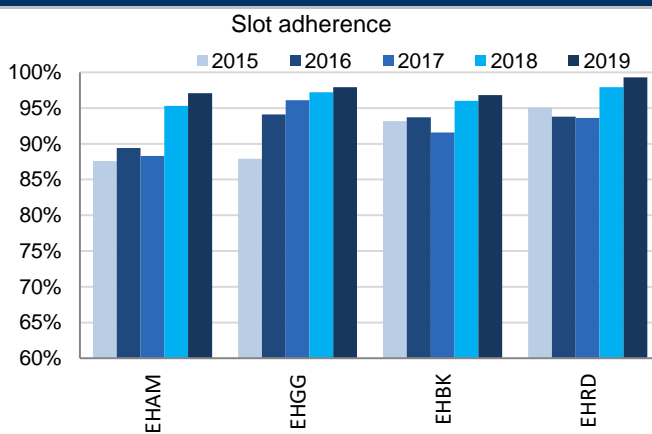
The Schiphol terminal CRSTMP target (average 0,5 minute per controlled flight) was not achieved, with 0.80 min/arr. of terminal ATFM delay allocated to CRSTMP causes in 2019. The vast majority (98%) of these CRSTMP delays being related to the implementation of the electronic flight strips.

**3. Arrival ATFM Delay – National Target and Incentive Scheme**

The FABEC performance plan establishes a national target on arrival ATFM delay for The Netherlands. The plan set out a national target (all causes) of 2.0 min/arr. with a breakdown for Amsterdam/Schiphol (EHAM) of 0.5 min/arr. (CRSTMP causes).

A respective incentive scheme is implemented by The Netherlands, based on CRSTMP performance at EHAM. The achieved performance attributed to CRSTMP causes is worse than 50% of the CRSTMP delay target, leading to a maximum malus of 0.5% of terminal ANS revenue for Schiphol Airport. A malus will be paid by LVNL to the users in 2021.

**4. ATFM Slot Adherence**



ATFM slot adherence at Dutch airports has increased once again in 2019, and all of them show excellent performance with adherence above 95%.

### 5. ATC Pre-departure Delay

The monitoring of pre-departure delay is dependent on the establishment of the Airport Operator Data Flow.

Amsterdam implemented the Airport Operator Data Flow in July 2017 but the quality of the reporting still does not allow for the calculation of the ATC pre-departure delay indicator. For the other airports the launch of the implementation is still pending.

The Netherlands shall encourage the implementation of the Airport Operator Data Flow in the monitored airports and a proper reporting of the pre-departure delays through this data flow at all airports.

### 6. Appendix

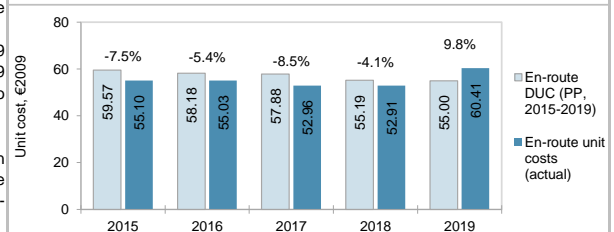
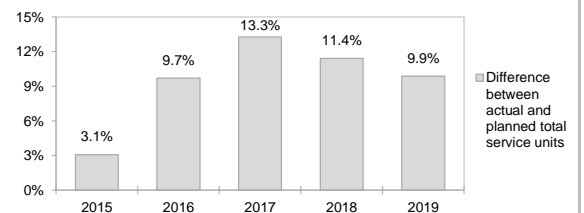
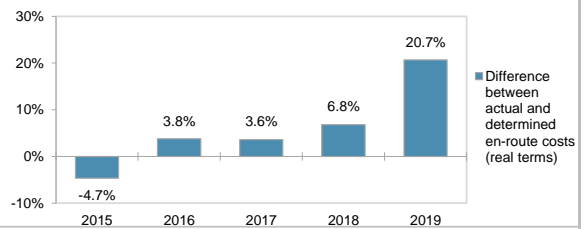
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Amsterdam/ Schiphol	EHAM	3.18	2.17	3.47	2.39	4.23	87.6%	89.4%	88.3%	95.3%	97.1%	n/a	n/a	n/a	n/a	n/a
Groningen	EHGG	0.00	0.00	0.00	0.00	0.00	87.9%	94.1%	96.1%	97.2%	97.9%	n/a	n/a	n/a	n/a	n/a
Maastricht-Aachen	EHBK	0.03	0.00	0.02	0.03	0.01	93.2%	93.7%	91.6%	96.0%	96.8%	n/a	n/a	n/a	n/a	n/a
Rotterdam	EHRD	0.01	0.00	0.01	0.00	0.00	95.1%	93.8%	93.6%	97.9%	99.3%	n/a	n/a	n/a	n/a	n/a

## NETHERLANDS: En-route charging zone

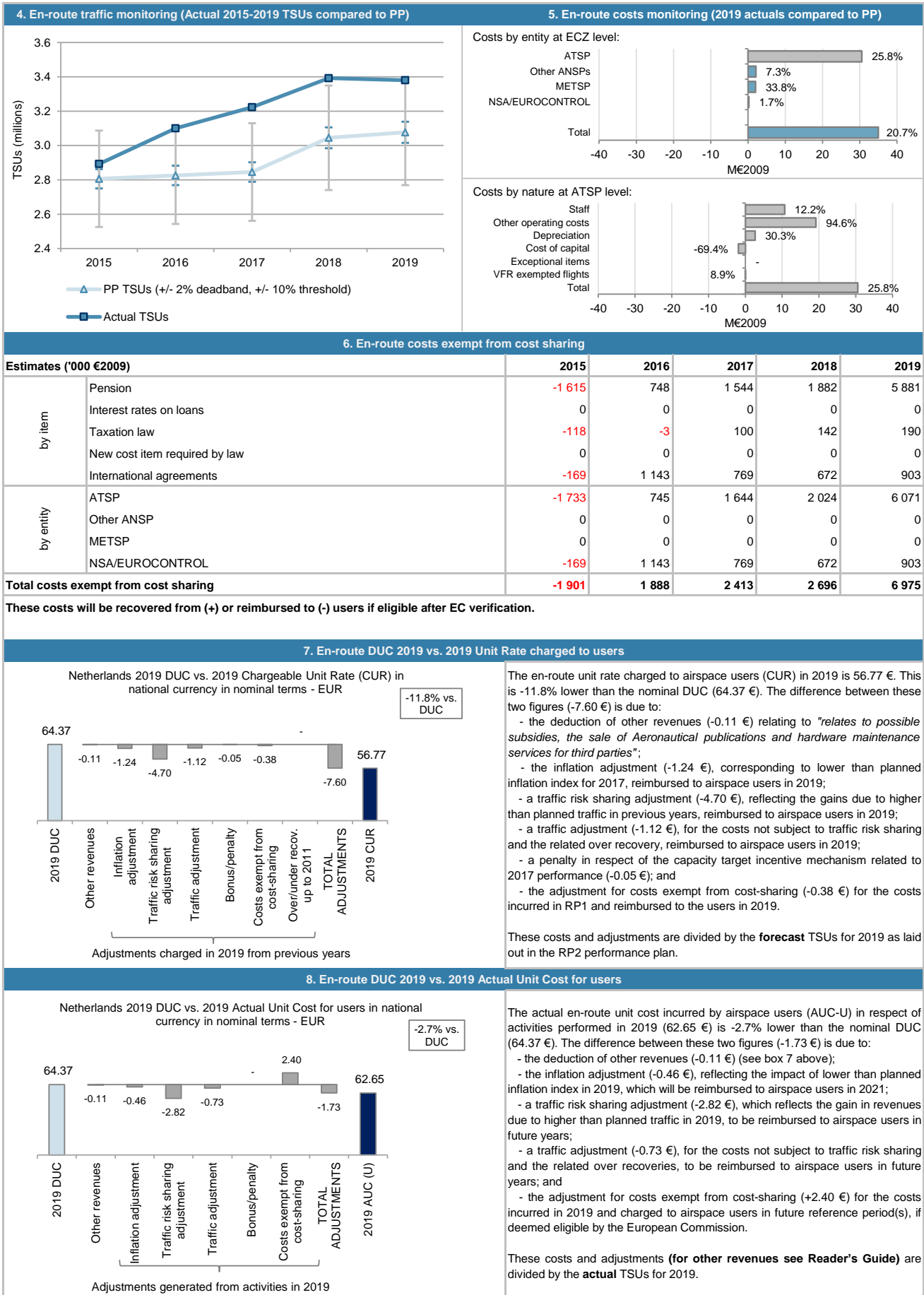
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· Netherlands ECZ represents 2.8% of the SES en-route ANS determined costs in 2019						
· ATSP:	LVNL					
· FAB:	FABEC					
· National currency:	EUR					
2. En-route DUC monitoring at Charging Zone level						
Netherlands: Data from RP2 Performance Plan (EC Decision 2017/553 of 22 March 2017)	2015D	2016D	2017D	2018D	2019D	
En-route costs (nominal EUR)	184 921 748	184 103 594	187 092 113	193 763 267	198 069 117	
Inflation %	1.0%	1.2%	1.4%	1.5%	1.5%	
Inflation index (100 in 2009)	110.6	112.0	113.6	115.3	117.0	
Real en-route costs (EUR2009)	167 178 324	164 400 112	164 697 149	168 065 588	169 244 781	
Total en-route Service Units	2 806 192	2 825 835	2 845 616	3 045 000	3 077 000	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>59.57</b>	<b>58.18</b>	<b>57.88</b>	<b>55.19</b>	<b>55.00</b>	
Netherlands: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
En-route costs (nominal EUR)	174 897 819	187 391 677	189 932 536	202 928 049	237 137 991	
Inflation %	0.2%	0.1%	1.3%	1.6%	2.7%	
Inflation index (100 in 2009)	109.7	109.8	111.3	113.1	116.1	
Real en-route costs (EUR2009)	159 378 607	170 593 253	170 687 405	179 494 225	204 239 196	
Total en-route Service Units	2 892 654	3 099 952	3 223 221	3 392 469	3 380 622	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>55.10</b>	<b>55.03</b>	<b>52.96</b>	<b>52.91</b>	<b>60.41</b>	
Difference between Actuals and Planned	2015	2016	2017	2018	2019	
En-route costs (nominal EUR)	-10 023 928	3 288 083	2 840 423	9 164 782	39 068 874	
in %	-5.4%	1.8%	1.5%	4.7%	19.7%	
Inflation %	-0.8 p.p.	-1.1 p.p.	-0.1 p.p.	0.1 p.p.	1.2 p.p.	
Inflation index (100 in 2009)	-0.9 p.p.	-2.1 p.p.	-2.3 p.p.	-2.2 p.p.	-0.9 p.p.	
Real en-route costs (EUR2009)	-7 799 718	6 193 141	5 990 256	11 428 638	34 994 415	
in %	-4.7%	3.8%	3.6%	6.8%	20.7%	
Total en-route Service Units	86 462	274 117	377 605	347 469	303 622	
in %	3.1%	9.7%	13.3%	11.4%	9.9%	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-4.48</b>	<b>-3.15</b>	<b>-4.92</b>	<b>-2.28</b>	<b>5.41</b>
	<b>in %</b>	<b>-7.5%</b>	<b>-5.4%</b>	<b>-8.5%</b>	<b>-4.1%</b>	<b>9.8%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (60.41 €2009) is +9.8% higher than planned in the PP (55.00 €2009). This results from the combination of higher than planned TSUs (+9.9%) and much higher than planned en-route costs in real terms (+20.7%). According to the NSA monitoring report 2019, most of the factors influencing the costs increase are "either outside the influence of the ANSPs (one-off costs, pension costs) or explicitly supported by the State and NSA (MUAC capacity measures, LVNL project portfolio). Therefore, no corrective measures were taken."						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+9.9%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (LVNL) retaining an amount of +5.2 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are +19.7% (+39.1 M€) higher than planned. However, since the actual inflation index is lower than planned (-0.9 p.p.), actual en-route costs are +20.7% (+35.0 M€2009) above plans when expressed in real terms.						
The higher than planned en-route costs in real terms are driven by LVNL (+25.8%, or +30.6 M€2009), MUAC (+7.3%, or +2.1 M€2009), the MET provider (+33.8%, or +2.0 M€2009) and the NSA/EUROCONTROL (+1.7%, or +0.3 M€2009). A detailed analysis is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +7.0 M€2009 comprising +5.9 M€2009 for pensions, +0.2 M€2009 for unforeseen changes in national taxation law and +0.9 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible to be charged to airspace users in the following reference period(s), if deemed allowed by the EC.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +9.5% higher than planned, while actual costs in real terms are also +6.1% higher than the determined costs (some +50.8 M€2009). As a result, the weighted average actual unit cost over RP2 (55.31 €2009) is -3.1% lower than planned in the NPP (57.10 €2009).						



NETHERLANDS: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019





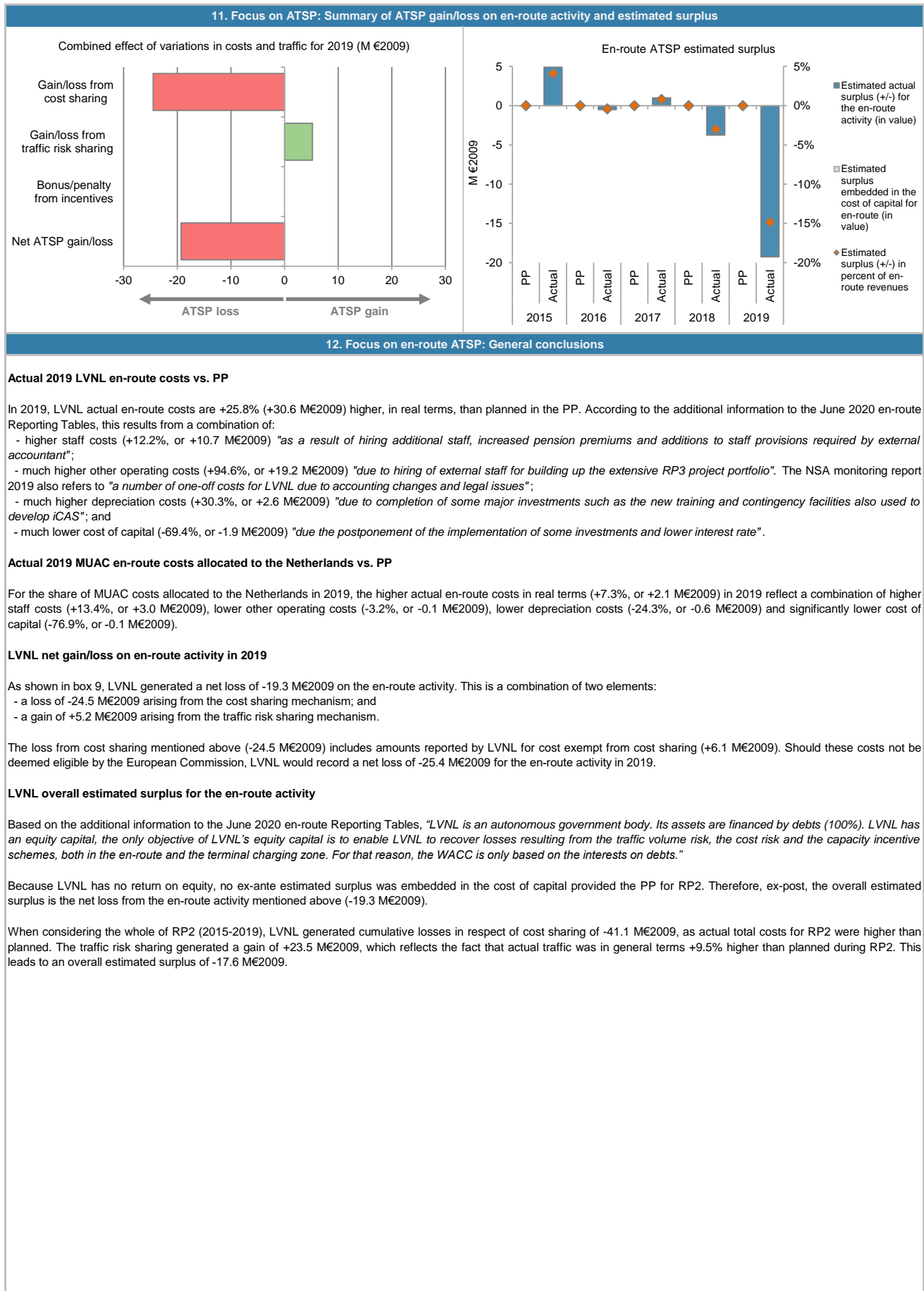
## NETHERLANDS: En-route ATSP (LVNL)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	117 998	114 946	115 043	117 843	118 556
Actual costs for the ATSP	114 137	121 235	120 868	128 904	149 117
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	3 862	-6 289	-5 825	-11 061	-30 561
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-1 733	745	1 644	2 024	6 071
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>2 129</b>	<b>-5 544</b>	<b>-4 181</b>	<b>-9 037</b>	<b>-24 490</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	3.1%	9.7%	13.3%	11.4%	9.9%
Determined costs for the ATSP (PP) - based on actual inflation	118 940	117 184	117 444	120 172	119 499
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>2 765</b>	<b>5 051</b>	<b>5 168</b>	<b>5 288</b>	<b>5 210</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>4 893</b>	<b>-493</b>	<b>987</b>	<b>-3 749</b>	<b>-19 279</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	83 092	83 822	86 100	94 793	87 082
Estimated proportion of financing through equity (in %)	-	-	-	-	-
Estimated proportion of financing through equity (in value)	0	0	0	0	0
Estimated proportion of financing through debt (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through debt (in value)	83 092	83 822	86 100	94 793	87 082
Cost of capital pre-tax (in value)	3 033	2 799	2 657	2 750	2 757
Average interest on debt (in %)	3.6%	3.3%	3.1%	2.9%	3.2%
Interest on debt (in value)	3 033	2 799	2 657	2 750	2 757
Determined RoE pre-tax rate (in %)	-	-	-	-	-
Estimated surplus embedded in the cost of capital for en-route (in value)	0	0	0	0	0
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Revenue/costs for the en-route activity</b>	<b>117 998</b>	<b>114 946</b>	<b>115 043</b>	<b>117 843</b>	<b>118 556</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	70 805	86 289	97 057	134 658	164 067
Estimated proportion of financing through equity (in %)	-	-	-	-	-
Estimated proportion of financing through equity (in value)	0	0	0	0	0
Estimated proportion of financing through debt (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through debt (in value)	70 805	86 289	97 057	134 658	164 067
Cost of capital pre-tax (in value)	1 228	812	715	628	844
Average interest on debt (in %)	1.7%	0.9%	0.7%	0.5%	0.5%
Interest on debt (in value)	1 228	812	715	628	844
Determined RoE pre-tax rate (in %)	-	-	-	-	-
Estimated surplus embedded in the cost of capital for en-route (in value)	0	0	0	0	0
Net ATSP gain(+)/loss(-) on en-route activity	4 893	-493	987	-3 749	-19 279
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>4 893</b>	<b>-493</b>	<b>987</b>	<b>-3 749</b>	<b>-19 279</b>
<b>Revenue/costs for the en-route activity</b>	<b>119 030</b>	<b>120 742</b>	<b>121 855</b>	<b>125 155</b>	<b>129 838</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>4.1%</b>	<b>-0.4%</b>	<b>0.8%</b>	<b>-3.0%</b>	<b>-14.8%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**NETHERLANDS: En-route ATSP (LVNL)**

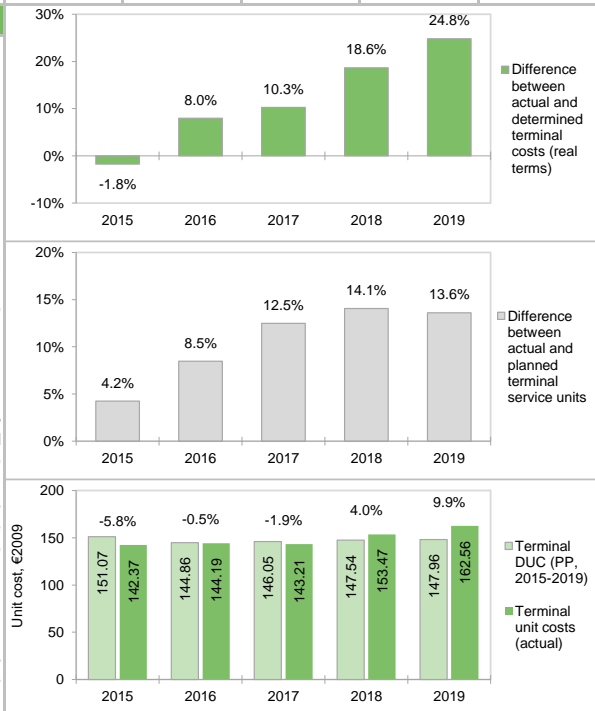
**Monitoring of en-route COST-EFFICIENCY for 2019**



## NETHERLANDS: Terminal charging zone

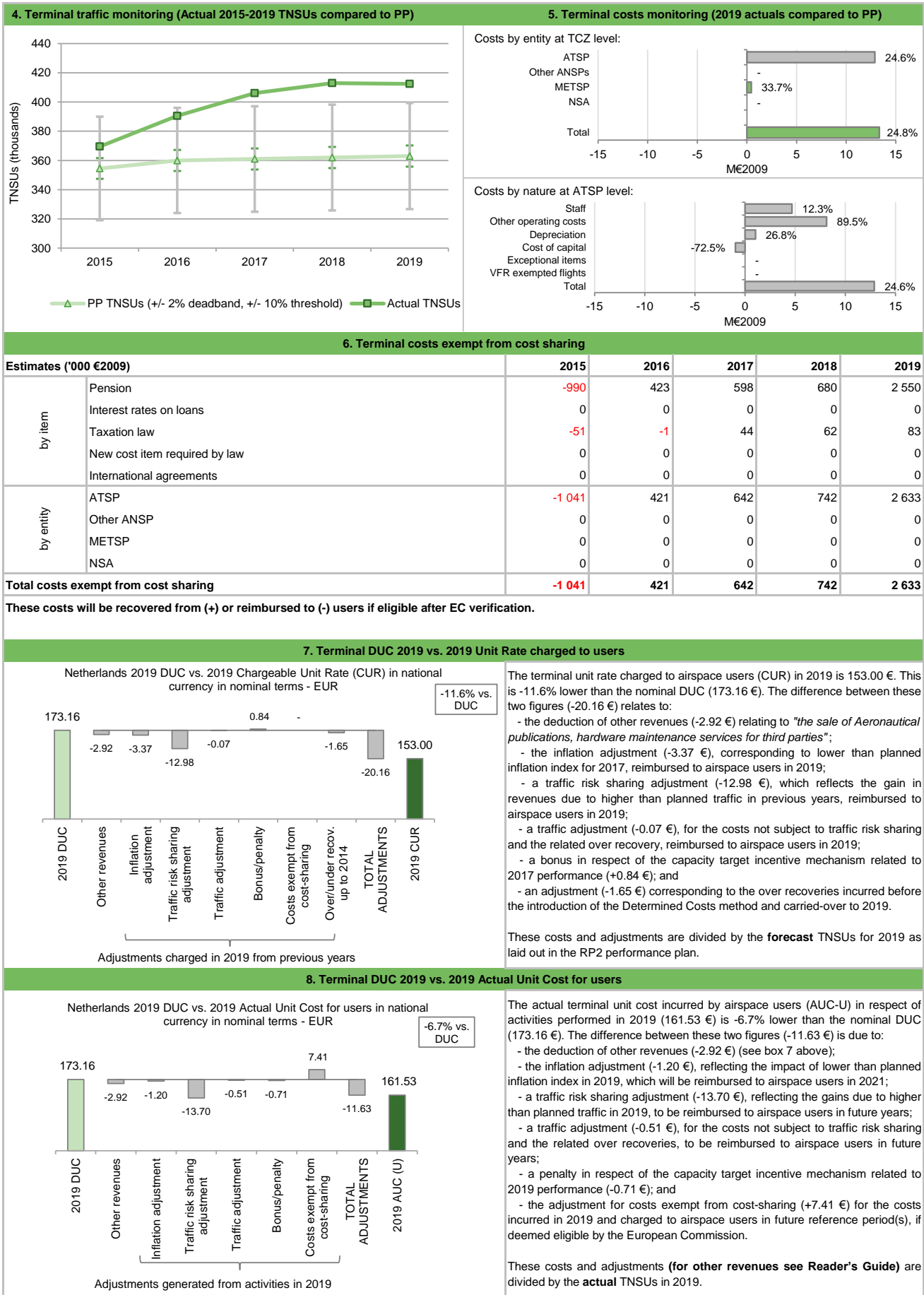
## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
· Netherlands TCZ represents 5.0% of the SES terminal ANS determined costs in 2019			· Is this TCZ applying traffic risk sharing?		Yes
· ATSP: LVNL			· Airports with fewer than 70,000 IFRs ATMs:		3
· National currency: EUR			· Airports with between 70,000 and 225,000 IFRs ATMs:		0
· Number of airports in charging zone in 2019: 4, of which:			· Airports with more than 225,000 IFRs ATMs:		1
2. Terminal DUC monitoring at Charging Zone level					
Netherlands: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	59 241 306	58 399 022	59 894 041	61 576 384	62 857 351
Inflation %	1.0%	1.2%	1.4%	1.5%	1.5%
Inflation index (100 in 2009)	110.6	112.0	113.6	115.3	117.0
Real terminal costs (EUR2009)	53 557 045	52 148 932	52 724 712	53 409 871	53 709 931
Total terminal Service Units	354 510	360 000	361 000	362 000	363 000
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>151.07</b>	<b>144.86</b>	<b>146.05</b>	<b>147.54</b>	<b>147.96</b>
Netherlands: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	57 733 000	61 845 000	64 709 486	71 641 000	77 845 000
Inflation %	0.2%	0.1%	1.3%	1.6%	2.7%
Inflation index (100 in 2009)	109.7	109.8	111.3	113.1	116.1
Real terminal costs (EUR2009)	52 610 176	56 301 005	58 152 723	63 368 005	67 045 353
Total terminal Service Units	369 519	390 467	406 060	412 909	412 433
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>142.37</b>	<b>144.19</b>	<b>143.21</b>	<b>153.47</b>	<b>162.56</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-1 508 306	3 445 978	4 815 445	10 064 616	14 987 649
	in value				
	in %				
Inflation %	-0.8 p.p.	-1.1 p.p.	-0.1 p.p.	0.1 p.p.	1.2 p.p.
	in p.p.				
Inflation index (100 in 2009)	-0.9 p.p.	-2.1 p.p.	-2.3 p.p.	-2.2 p.p.	-0.9 p.p.
	in p.p.				
Real terminal costs (EUR2009)	-946 868	4 152 073	5 428 011	9 958 134	13 335 422
	in value				
	in %				
Total terminal Service Units	15 009	30 467	45 060	50 909	49 433
	in value				
	in %				
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-8.70</b>	<b>-0.67</b>	<b>-2.84</b>	<b>5.93</b>	<b>14.60</b>
	in value				
	in %				
	<b>-5.8%</b>	<b>-0.5%</b>	<b>-1.9%</b>	<b>4.0%</b>	<b>9.9%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Netherlands Terminal Charging Zone (TCZ) comprising 4 airports.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (162.56 €2009) is +9.9% higher than planned in the PP (147.96 €2009). This results from the combination of much higher than planned TNSUs (+13.6%) and much higher than planned terminal costs in real terms (+24.8%). According to the NSA monitoring report 2019, most of the factors driving the cost increase are "either outside the influence of LVNL (...) or explicitly supported by the State and NSA (project portfolio). Therefore, no corrective measures were taken." See box 12 for more details.					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Netherlands TCZ. The difference between actual and planned TNSUs (+13.6%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (LVNL) retaining an amount of +2.3 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +23.8% (+15.0 M€) higher than planned. However, since the actual inflation index is lower than planned (-0.9 p.p.), actual terminal costs are +24.8% (+13.3 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by LVNL (+24.6%, or +12.9 M€2009) and the MET service provider (+33.7%, or +0.4 M€2009). A detailed analysis at ATSP level is provided in box 12. Costs exempt from cost-sharing are reported for a total amount of +2.6 M€2009 comprising +2.6 M€2009 for pensions and +0.1 M€2009 for unforeseen changes in national taxation law. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual TNSUs are +10.6% higher than planned, while actual costs in real terms are also +12.0% higher than the determined costs (some +31.9 M€2009). As a result, the weighted average actual unit cost over RP2 (149.38 €2009) is +1.3% higher than planned in the NPP (147.49 €2009).					



NETHERLANDS: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019



## NETHERLANDS: Terminal ATSP (LVNL)

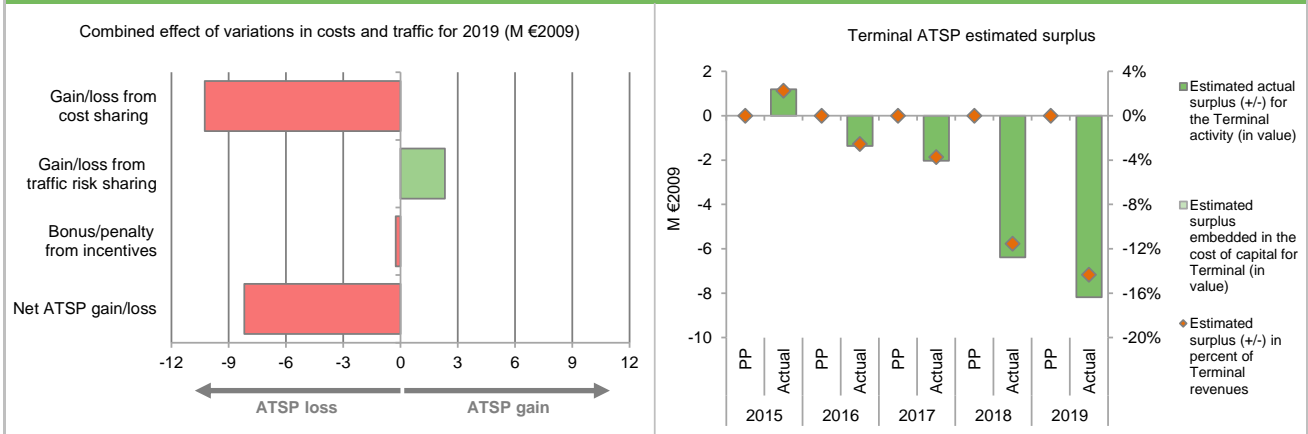
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	52 080	50 708	51 324	52 047	52 385
Actual costs for the ATSP	51 251	54 792	56 573	61 781	65 275
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	828	-4 083	-5 249	-9 734	-12 889
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-1 041	421	642	742	2 633
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-213</b>	<b>-3 662</b>	<b>-4 607</b>	<b>-8 992</b>	<b>-10 256</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	4.2%	8.5%	12.5%	14.1%	13.6%
Determined costs for the ATSP (PP) - based on actual inflation	52 496	51 695	52 395	53 076	52 802
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>1 402</b>	<b>2 036</b>	<b>2 305</b>	<b>2 335</b>	<b>2 323</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>267</b>	<b>274</b>	<b>269</b>	<b>-251</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>1 189</b>	<b>-1 359</b>	<b>-2 027</b>	<b>-6 388</b>	<b>-8 183</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	36 299	36 619	37 614	41 412	38 043
Estimated proportion of financing through equity (in %)	-	-	-	-	-
Estimated proportion of financing through equity (in value)	0	0	0	0	0
Estimated proportion of financing through debt (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through debt (in value)	36 299	36 619	37 614	41 412	38 043
Cost of capital pre-tax (in value)	1 320	1 220	1 264	1 339	1 338
Average interest on debt (in %)	3.6%	3.3%	3.4%	3.2%	3.5%
Interest on debt (in value)	1 320	1 220	1 264	1 339	1 338
Determined RoE pre-tax rate (in %)	-	-	-	-	-
Estimated surplus embedded in the cost of capital for terminal (in value)	0	0	0	0	0
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Revenue/costs for the terminal activity</b>	<b>52 080</b>	<b>50 708</b>	<b>51 324</b>	<b>52 047</b>	<b>52 385</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	31 705	33 894	30 253	33 563	38 345
Estimated proportion of financing through equity (in %)	-	-	-	-	0.0%
Estimated proportion of financing through equity (in value)	0	0	0	0	5
Estimated proportion of financing through debt (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through debt (in value)	31 705	33 894	30 253	33 563	38 340
Cost of capital pre-tax (in value)	549	369	333	301	368
Average interest on debt (in %)	1.7%	1.1%	1.1%	0.9%	1.0%
Interest on debt (in value)	549	369	333	301	368
Determined RoE pre-tax rate (in %)	-	-	-	-	-
Estimated surplus embedded in the cost of capital for terminal (in value)	0	0	0	0	0
Net ATSP gain(+)/loss(-) on terminal activity	1 189	-1 359	-2 027	-6 388	-8 183
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 189</b>	<b>-1 359</b>	<b>-2 027</b>	<b>-6 388</b>	<b>-8 183</b>
<b>Revenue/costs for the terminal activity</b>	<b>52 440</b>	<b>53 433</b>	<b>54 545</b>	<b>55 393</b>	<b>57 091</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.3%</b>	<b>-2.5%</b>	<b>-3.7%</b>	<b>-11.5%</b>	<b>-14.3%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**NETHERLANDS: Terminal ATSP (LVNL)**

**Monitoring of terminal COST-EFFICIENCY for 2019**

**11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 LVNL terminal costs vs. PP**

In 2019, LVNL actual terminal costs are +24.6% (+12.9 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- higher staff costs (+12.3%, or +4.7 M€2009) "as a result of hiring additional staff, increased pension premiums and additions to staff provisions required by external accountant";
- much higher other operating costs (+89.5%, or +8.1 M€2009) "due to hiring of external staff for building up the extensive RP3 project portfolio". The NSA monitoring report 2019 also refers to "a number of one-off costs for LVNL due to accounting changes and legal issues";
- much higher depreciation costs (+26.8%, or +1.0 M€2009) "due to the completion of some major investments such as the restructuring of the OPS room at Schiphol tower and the introduction of electronic flight strips"; and
- much lower cost of capital (-72.5%, or -1.0 M€2009) "due to the postponement of the implementation of some investments and lower interest rate".

**LVNL net gain/loss on terminal activity in 2019**

As shown in box 9, LVNL generated a net loss of -8.2 M€2009 on the terminal activity. This is a combination of three elements:

- a loss of -10.3 M€2009 arising from the cost sharing mechanism;
- a gain of +2.3 M€2009 arising from the traffic risk sharing mechanism; and
- a loss of -0.3 M€2009 (or -0.29 M€ in nominal terms), corresponding to a penalty as part of the terminal capacity target incentive mechanism. This amount corresponds to 0.5% of LVNL terminal ANS revenues related to Schiphol Airport (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs). The inclusion of this penalty in the chargeable cost base will be examined by the European Commission.

The loss from cost sharing mentioned above (-10.3 M€2009) includes amounts reported by LVNL for cost exempt from cost sharing (+2.6 M€2009). Should these costs not be deemed eligible by the European Commission, LVNL would record a net loss of -10.8 M€2009 for the terminal activity in 2019.

**LVNL overall estimated surplus for the terminal activity**

Based on the additional information to the June 2020 terminal Reporting Tables, "LVNL is an autonomous government body. Its assets are financed by debts (100%). LVNL has an equity capital, the only objective of LVNL's equity capital is to enable LVNL to recover losses resulting from the traffic volume risk, the cost risk and the capacity incentive schemes, both in the en-route and the terminal charging zone. For that reason, the WACC is only based on the interests on debts."

Because LVNL has no return on equity, no ex-ante estimated surplus was embedded in the cost of capital provided the PP for RP2. Therefore, ex-post, the overall estimated surplus is the net loss from the terminal activity mentioned above (-8.18 M€2009).

When considering the whole of RP2 (2015-2019), LVNL generated cumulative losses in respect of cost sharing of -27.7 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +10.4 M€2009, which reflects the fact that actual traffic was in general terms +10.6% higher than planned during RP2. Adding the gain of +0.6 M€2009 to be retained by the ATSP in respect of incentives leads to an overall estimated surplus of -16.8 M€2009.

## NETHERLANDS: Gate-to-gate

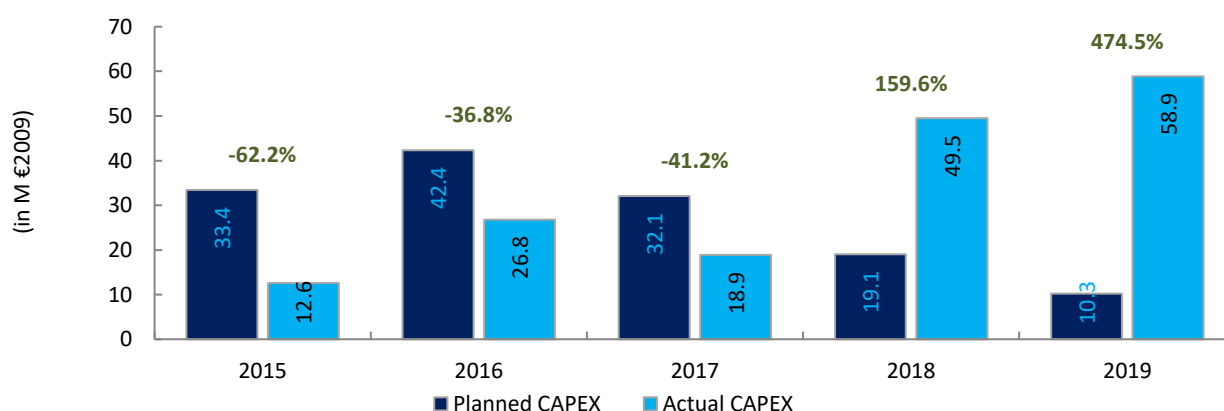
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Netherlands: Data from RP2 Performance Plan</b>																																												
	<b>2015D</b>	<b>2016D</b>	<b>2017D</b>	<b>2018D</b>	<b>2019D</b>																																							
Real en-route costs (EUR2009)	167 178 324	164 400 112	164 697 149	168 065 588	169 244 781																																							
Real terminal costs (EUR2009)	53 557 045	52 148 932	52 724 712	53 409 871	53 709 931																																							
Real gate-to-gate costs (EUR2009)	220 735 369	216 549 044	217 421 862	221 475 459	222 954 712																																							
En-route share (%)	75.7%	75.9%	75.8%	75.9%	75.9%																																							
<b>Netherlands: Actual data from Reporting Tables</b>																																												
	<b>2015A</b>	<b>2016A</b>	<b>2017A</b>	<b>2018A</b>	<b>2019A</b>																																							
Real en-route costs (EUR2009)	159 378 607	170 593 253	170 687 405	179 494 225	204 239 196																																							
Real terminal costs (EUR2009)	52 610 176	56 301 005	58 152 723	63 368 005	67 045 353																																							
Real gate-to-gate costs (EUR2009)	211 988 783	226 894 258	228 840 129	242 862 231	271 284 549																																							
En-route share (%)	75.2%	75.2%	74.6%	73.9%	75.3%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>																																							
Real gate-to-gate costs (EUR2009)																																												
in value	-8 746 586	10 345 214	11 418 267	21 386 772	48 329 836																																							
in %	-4.0%	4.8%	5.3%	9.7%	21.7%																																							
En-route share																																												
in p.p.	-0.6 p.p.	-0.7 p.p.	-1.2 p.p.	-2.0 p.p.	-0.6 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +21.7% (+48.3 M€2009) higher than planned due to higher than planned en-route costs (+20.7%, or +35.0 M€2009) and terminal costs (+24.8%, or +13.3 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (75.3%) is slightly lower than planned in the PP for 2019 (75.9%).</p> <p>For LVNL, the estimated gate-to-gate economic surplus in 2019 amounts to -27.5 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 14.7% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>75.7%</td> <td>24.3%</td> </tr> <tr> <td>Actual</td> <td>75.2%</td> <td>24.8%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>75.9%</td> <td>24.1%</td> </tr> <tr> <td>Actual</td> <td>75.2%</td> <td>24.8%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>75.8%</td> <td>24.2%</td> </tr> <tr> <td>Actual</td> <td>74.6%</td> <td>25.4%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>75.9%</td> <td>24.1%</td> </tr> <tr> <td>Actual</td> <td>73.9%</td> <td>26.1%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>75.9%</td> <td>24.1%</td> </tr> <tr> <td>Actual</td> <td>75.3%</td> <td>24.7%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	75.7%	24.3%	Actual	75.2%	24.8%	2016	Determined	75.9%	24.1%	Actual	75.2%	24.8%	2017	Determined	75.8%	24.2%	Actual	74.6%	25.4%	2018	Determined	75.9%	24.1%	Actual	73.9%	26.1%	2019	Determined	75.9%	24.1%	Actual	75.3%	24.7%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	75.7%	24.3%																																									
	Actual	75.2%	24.8%																																									
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2019	Determined	75.9%	24.1%																																									
	Actual	75.3%	24.7%																																									
<b>3. Technical notes on en-route and terminal information reported by Netherlands</b>																																												

## NETHERLANDS

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: LVNL						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	37.0	47.4	36.4	22.0	12.0	154.8
Main CAPEX (in nominal M)	30.1	45.1	35.3	21.3	3.5	135.4
Inflation %	1.0%	1.2%	1.4%	1.5%	1.5%	
Inflation index (100 in 2009)	110.6	112.0	113.6	115.3	117.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>33.4</b>	<b>42.4</b>	<b>32.1</b>	<b>19.1</b>	<b>10.3</b>	<b>137.2</b>
Main CAPEX (in M €2009)	27.2	40.2	31.1	18.5	3.0	120.1
% Main of Total CAPEX	81.5%	95.0%	97.0%	97.1%	29.4%	87.6%
Real gate-to-gate ANSP costs (in M €2009)	170.1	165.7	166.4	169.9	170.9	842.9
Total CAPEX as % of Real gate-to-gate ANSP costs	19.7%	25.6%	19.3%	11.2%	6.0%	16.3%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	13.8	29.4	21.0	55.9	68.4	188.6
Main CAPEX (in nominal M)	7.7	22.4	11.8	31.0	47.9	120.8
Inflation %	0.2%	0.1%	1.3%	1.6%	2.7%	
Inflation index (100 in 2009)	109.7	109.8	111.3	113.1	116.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>12.6</b>	<b>26.8</b>	<b>18.9</b>	<b>49.5</b>	<b>58.9</b>	<b>166.7</b>
Main CAPEX (in M €2009)	7.0	20.4	10.6	27.4	41.3	106.7
% Main of Total CAPEX	55.6%	76.2%	56.1%	55.4%	70.1%	64.0%
Real gate-to-gate ANSP costs (in M €2009)	165.4	176.0	177.4	190.7	214.4	923.9
Total CAPEX as % of Real gate-to-gate ANSP costs	7.6%	15.2%	10.6%	25.9%	27.5%	18.0%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-23.1	-18.0	-15.4	34.0	56.4	33.8
Total CAPEX (in M €2009)	-20.8	-15.6	-13.2	30.4	48.7	29.5
<b>Total CAPEX (in %, M €2009)</b>	<b>-62.2%</b>	<b>-36.8%</b>	<b>-41.2%</b>	<b>159.6%</b>	<b>474.5%</b>	<b>21.5%</b>

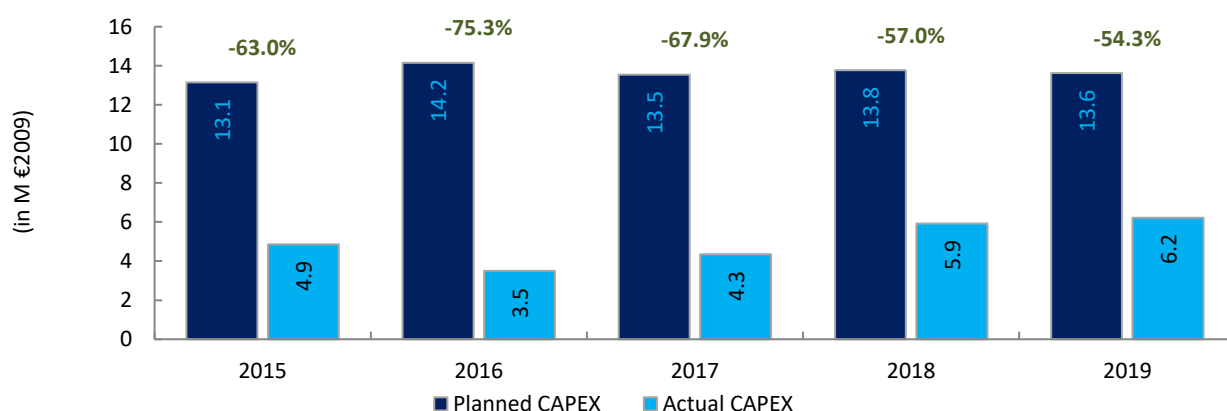




## MUAC

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: MUAC						
FAB: FABEC						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	14.5	15.8	15.4	15.9	15.9	77.6
Main CAPEX (in nominal M)	12.7	14.7	14.7	15.2	15.3	72.5
Inflation %	1.0%	1.2%	1.4%	1.5%	1.5%	
Inflation index (100 in 2009)	110.6	112.0	113.6	115.3	117.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>13.1</b>	<b>14.2</b>	<b>13.5</b>	<b>13.8</b>	<b>13.6</b>	<b>68.2</b>
Main CAPEX (in M €2009)	11.5	13.1	12.9	13.2	13.1	63.7
% Main of Total CAPEX	87.3%	92.7%	95.5%	95.7%	95.8%	93.4%
Real gate-to-gate ANSP costs (in M €2009)	133.8	133.5	135.9	138.1	139.8	681.2
Total CAPEX as % of Real gate-to-gate ANSP costs	9.8%	10.6%	10.0%	10.0%	9.7%	10.0%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	5.3	3.8	4.8	6.7	7.2	27.9
Main CAPEX (in nominal M)	5.1	3.5	4.2	6.7	7.2	26.6
Inflation %	0.2%	0.1%	1.3%	1.6%	2.7%	
Inflation index (100 in 2009)	109.7	109.8	111.3	113.1	116.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>4.9</b>	<b>3.5</b>	<b>4.3</b>	<b>5.9</b>	<b>6.2</b>	<b>24.8</b>
Main CAPEX (in M €2009)	4.6	3.2	3.7	5.9	6.2	23.7
% Main of Total CAPEX	94.9%	92.3%	86.3%	99.6%	99.4%	95.3%
Real gate-to-gate ANSP costs (in M €2009)	123.6	131.9	135.7	139.2	149.7	679.9
Total CAPEX as % of Real gate-to-gate ANSP costs	3.9%	2.7%	3.2%	4.3%	4.2%	3.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-9.2	-12.0	-10.5	-9.2	-8.7	-49.6
Total CAPEX (in M €2009)	-8.3	-10.7	-9.2	-7.8	-7.4	-43.4
<b>Total CAPEX (in %, M €2009)</b>	<b>-63.0%</b>	<b>-75.3%</b>	<b>-67.9%</b>	<b>-57.0%</b>	<b>-54.3%</b>	<b>-63.6%</b>



Note: Planned and actual inflation indices used to calculate CAPEX in real terms above, are based on the inflation indices for the Netherlands. This is different from the calculation of gate-to-gate ANSP costs in real terms, since for MUAC, this is based on the MUAC States' inflation indices.

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# Annual Monitoring Report 2019

## Local level view

### Switzerland

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## SWITZERLAND

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	77	C	C	C	D	C
SKYGUIDE	95	D	D	D	D	E
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	FOCA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	9	0				
Legal/Judiciary	6	1				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>17</b>	<b>1</b>				
SKYGUIDE	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>23</b>	<b>1</b>				
Observations						
All safety targets have been met.						

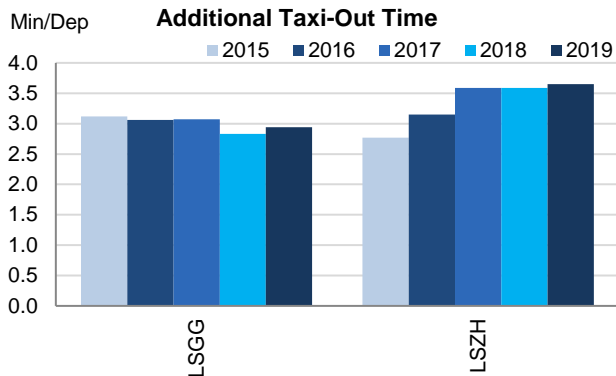
## SWITZERLAND

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

Switzerland identifies its two main airports Zurich (LSZH) and Geneva (LSGG) as subject to RP2 monitoring. Both airports have a fully implemented data flow that allows the proper monitoring of environmental indicators. In general the environmental performance of Swiss airports, where traffic has decreased by 1% in 2019, is commensurate with their levels of traffic.

## 2. Additional Taxi-Out Time

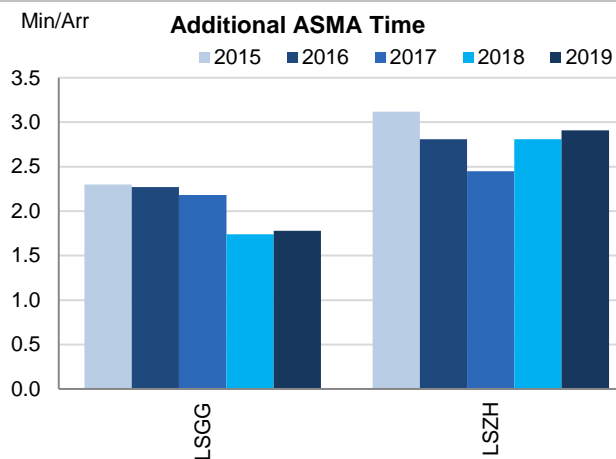


Performance in terms of taxi-out times at Geneva and Zurich in 2019 has not changed much with respect to 2018. The additional times in Geneva average 2.94 min/dep, below the SES average of 3.56 min/dep. Zurich shows higher values (LSZH: 3.65 min/dep.), slightly above that SES average.

Taxi-out times at Geneva, although longer in winter months, do not seem as impacted by winter operations as in Zurich, where the additional TXOT in January can double those from other months.

Both Geneva and Zurich are A-CDM airports.

## 3. Additional ASMA Time



Additional ASMA times at Geneva, after the reduction observed in 2018, have remained at those levels in 2019 (LSGG; 2018: 1.74 min/arr.; 2019: 1.78 min/arr.) with the same pattern along the year: longer ASMA times in winter months and significantly shorter in the rest of the year.

At Zurich there is a slight increase (LSZH; 2018: 2.81 min/arr.; 2019: 2.91 min/arr.) that brings the additional times closer to those in the beginning of the reference period, with no apparent seasonal effect.

While performance at Geneva sits once more next to the SES average (1.82 min/dep), Zurich shows the 4th highest additional ASMA times in the SES airports subject to monitoring.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Genève	LSGG	3.12	3.06	3.07	2.83	2.94	2.30	2.27	2.18	1.74	1.78
Zürich	LSZH	2.77	3.15	3.59	3.59	3.65	3.12	2.81	2.45	2.81	2.91

**SWITZERLAND**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
<b>National Capacity target</b>	0.22	0.22	0.22	0.23	0.23	Exclusive use of CRSTMP codes means that the PRB is unable to independently validate the results for incentive purposes. Actual performance reported here is for all causes of delay and includes NM post operations adjustment.
<b>Deadband +/-</b>	N/A	N/A	N/A	N/A	N/A	
<b>Actual performance</b>	0.10	0.10	0.20	0.31	0.15	

**National capacity incentive scheme**

Incentive scheme targets:

The capacity delay target at FAB level was set at an average of 0.34 min/flight for CRSTMP causes ATFM delays. (See FABEC graphic regarding incentives in FABEC section of monitoring report.)

skyguide's broken down target was set at 0.18 min/flight.

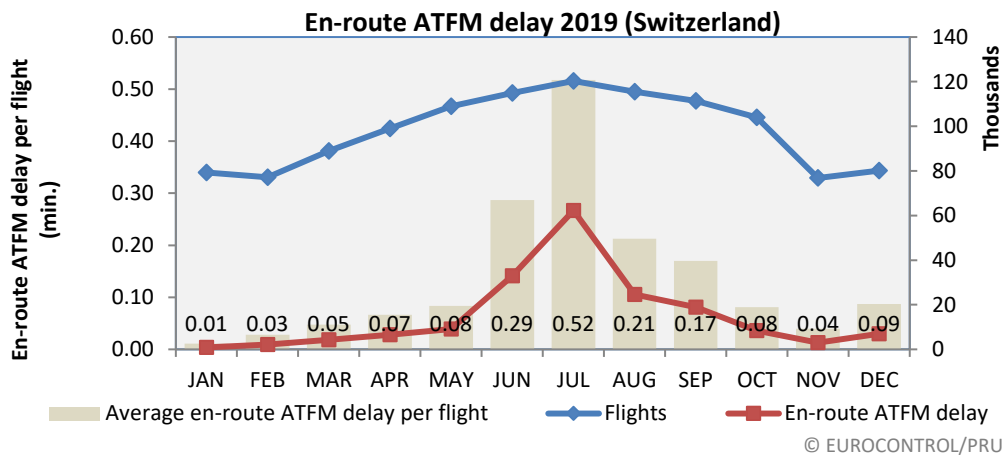
2019 achievement (As reported by FABEC)

- FABEC: 1.22min/flight for CRSTMP ATFM delays
- skyguide: 0.09min/flight for CRSTMP delays

BONUS / MALUS

skyguide as an ANSP not contributing to the FAB under-performance, is not subject to a malus

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.76	0.51	0.48	0.21	0.15	0.14	0.10	0.10	0.10	0.20	0.31	0.15

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	1 048		1 083		1 129		1 164		1 199		1 228	
<b>Base</b>	1 034	<b>1 033</b>	1 060	<b>1 046</b>	1 088	<b>1 069</b>	1 110	<b>1 110</b>	1 134	<b>1 167</b>	1 160	<b>1 177</b>
<b>Low</b>	1 019		1 033		1 039		1 046		1 056		1 066	

Traffic increased marginally (<1%) in 2019 over 2018 levels, to approximately 1% above the baseline forecast, but below the high forecast, provided by STATFOR in February 2014, when the performance targets were determined and associated capacity plans were being developed.

En route delay performance improved significantly from 2018 with delay per flight falling from 0.35 minutes to 0.26 minutes in 2019 - including delays subsequently reattributed from Switzerland to other ANSPs (DFS, DSNA, MUAC) through the post-ops performance adjustment process due to 4ACC measures in 2018 (41k minutes) and eNM/S19 measures in 2019 (114k minutes).

Of the en route ATFM delays originating in Switzerland, 46% were attributed to ATC capacity, 38% were attributed to adverse weather and 12% were attributed to ATC staffing.

The actual delay performance was significantly less than what was predicted for Switzerland in the NOP 2019- 2024.

Delay forecast - Skyguide						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.26	0.35	0.47	0.64	N/A	N/A
<b>NOP 2019 - 2024</b>	0.32	0.32	0.31 - 0.46			

### Planning and Effective Use of CDRs

Switzerland reports: The data above are under the remit of the NM and can't be provided by States and/or FABs.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
58%	73%	70%	71%	76%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
7%	5%	7%	7%	8%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	100%	100%	100%	100%

1. The aggregated values for SUA booking/usage are not relevant for FUA analysis and evaluation. The only relevant information remains per area. The data are available and can be delivered on request.
2. Airspace is very often released at tactical level (ASM level 3), however tactical releases are yet not always recorded in ASM systems and also not always notified to the NM.
3. AUPs are made up of airspace allocations for civil and military missions and also for ASM/ATC purposes. Civil missions represented 8% of all the missions contained in the AUPs.
4. Rolling UUP and Proc 3 have been introduced by 01.01.2016.

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.



## SWITZERLAND

## Monitoring of Airports Contribution to CAPACITY for 2019

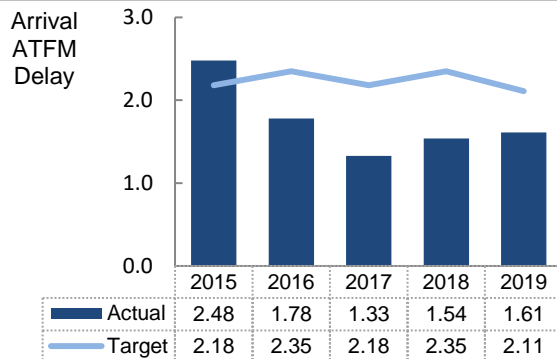
## 1. Overview

In Switzerland, ANS at Zurich (LSZH) and Geneva (LSGG) are subject to RP2 monitoring. Traffic levels at these airports have only slightly increased during RP2 (+2.0% with respect to 2015), and while arrival ATFM delays decreased in the first two years, 2018 and 2019 have observed slight increases. Overall however delays are 35% lower than in 2015. The established national target on arrival ATFM delay for 2019 was fully met.

ATFM slot adherence has progressively improved during RP2 (2015: 91.8%; 2019: 94.7%) and are now close to the best-in-class performance threshold of 95%.

In terms of ATC pre-departure delay, values in 2019 have significantly risen for Zurich and slightly improved for Geneva.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Switzerland have slightly increased with respect to the previous year (2018: 1.54 min/arr, 2019: 1.61 min/arr)

58% of these delays at the Swiss airports are associated with weather and 26% with aerodrome capacity limitations. These share is observed as well for both airports at local level.

In Zurich, environmental issues that force a non optimal runway configuration are also responsible for 13% of the arrival delays.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

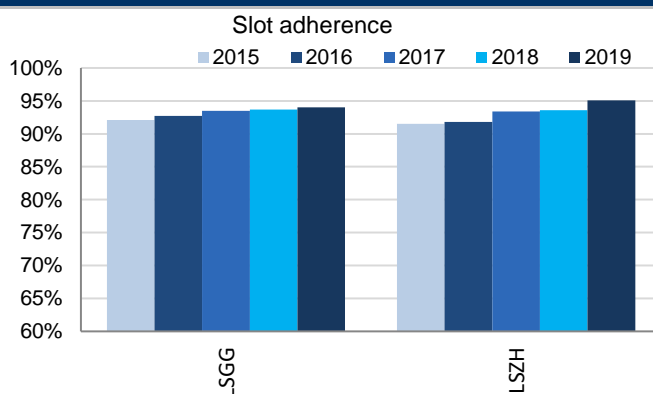
The FABEC performance plan establishes a traffic-dependent national target on arrival ATFM delay (CRSTMP delay causes).

As traffic decreased by 0.8% in 2019, the national target needs to be adjusted for 2019: 2.11 min for all regulation causes and 0.42 min for CRSTMP.

The Swiss ANSP did achieve the target for all regulation causes since the actual airport ATFM arrival delay per flight was 1.61 min/arr and achieved the target for the CRSTMP part since actual Airport CRSTMP ATFM arrival delay per flight reached 0.10 min/arr in 2019.

Switzerland has established a respective incentive scheme. As the target for all causes was met, the ANSP qualified for bonus. Given that  $0.42 - 50\% * 0.42 = 0.21$  and  $0.10 < 0.21$ , the maximum of bonus is reached, i.e., 0.5% of the revenues in the CH Terminal part.

## 4. ATFM Slot Adherence



Adherence to ATFM slots improved again slightly at both airports, and Zurich (LSZH) reaches the best-in-class performance threshold of 95%.

## 5. ATC Pre-departure Delay

ATC pre-departure delays at Zurich (LSZH), after the notable improvement showed in 2017, now have increased again and reach 1.63 min/dep., the third highest ATC pre-departure delay measured in the SES area. Performance at Geneva (LSGG) has improved in 2019 and shows similar values to other airports with that level of traffic.

## 6. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Genève	LSGG	1.85	1.11	0.88	1.14	1.04	92.1%	92.7%	93.5%	93.7%	94.0%	0.25	0.35	0.34	0.40	0.36
Zürich	LSZH	2.92	2.25	1.65	1.80	1.99	91.5%	91.8%	93.4%	93.6%	95.1%	1.93	1.12	0.95	1.09	1.63

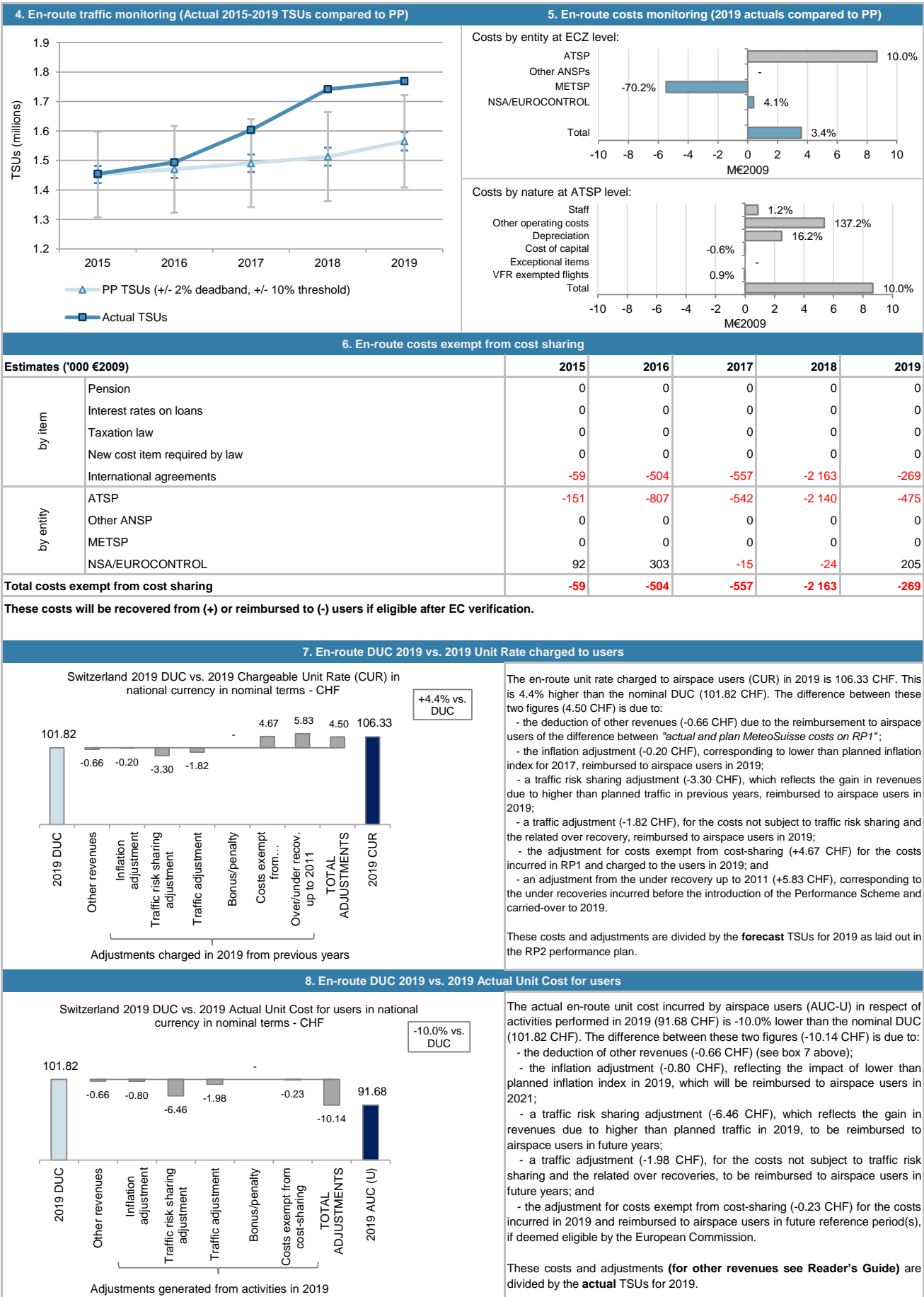
**SWITZERLAND: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**

1. Contextual economic information: en-route air navigation services					
· Switzerland ECZ represents 1.7% of the SES en-route ANS determined costs in 2019 · ATSP: Skyguide · FAB: FABEC · National currency: CHF Exchange rate 2009: 1 EUR = 1.50898 CHF					
2. En-route DUC monitoring at Charging Zone level					
Switzerland: Data from RP2 Performance Plan (EC Decision 2017/553 of 22 March 2017)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal CHF)	158 188 309	156 222 383	157 901 505	157 939 446	159 353 943
Inflation %	-1.0%	0.0%	0.5%	1.0%	1.0%
Inflation index (100 in 2009)	99.1	99.1	99.6	100.6	101.6
Real en-route costs (CHF2009)	159 633 416	157 649 529	158 551 235	157 019 140	156 856 827
Total en-route Service Units	1 452 683	1 470 066	1 490 591	1 512 889	1 565 000
<b>Real en-route unit cost per Service Unit (CHF2009)</b>	<b>109.89</b>	<b>107.24</b>	<b>106.37</b>	<b>103.79</b>	<b>100.23</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>72.82</b>	<b>71.07</b>	<b>70.49</b>	<b>68.78</b>	<b>66.42</b>
Switzerland: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal CHF)	155 396 234	143 427 824	173 557 574	167 074 878	163 374 995
Inflation %	-0.8%	-0.5%	0.6%	0.9%	0.4%
Inflation index (100 in 2009)	99.3	98.8	99.4	100.3	100.7
Real en-route costs (CHF2009)	156 499 672	145 172 138	174 620 590	166 598 800	162 260 418
Total en-route Service Units	1 454 786	1 493 182	1 603 674	1 741 384	1 768 952
<b>Real en-route unit cost per Service Unit (CHF2009)</b>	<b>107.58</b>	<b>97.22</b>	<b>108.89</b>	<b>95.67</b>	<b>91.73</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>71.29</b>	<b>64.43</b>	<b>72.16</b>	<b>63.40</b>	<b>60.79</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
En-route costs (nominal CHF)					
in value	-2 792 076	-12 794 559	15 656 068	9 135 432	4 021 052
in %	-1.8%	-8.2%	9.9%	5.8%	2.5%
Inflation %	0.2 p.p.	-0.5 p.p.	0.1 p.p.	-0.1 p.p.	-0.6 p.p.
Inflation index (100 in 2009)	0.2 p.p.	-0.3 p.p.	-0.2 p.p.	-0.3 p.p.	-0.9 p.p.
Real en-route costs (CHF2009)					
in value	-3 133 743	-12 477 391	16 069 355	9 579 660	5 403 591
in %	-2.0%	-7.9%	10.1%	6.1%	3.4%
Total en-route Service Units					
in value	2 103	23 116	113 083	228 495	203 952
in %	0.1%	1.6%	7.6%	15.1%	13.0%
<b>Real en-route unit cost per Service Unit (CHF2009)</b>					
in value	<b>-2.31</b>	<b>-10.02</b>	<b>2.52</b>	<b>-8.12</b>	<b>-8.50</b>
in %	<b>-2.1%</b>	<b>-9.3%</b>	<b>2.4%</b>	<b>-7.8%</b>	<b>-8.5%</b>
<b>Real en-route unit cost per Service Unit (EUR2009)</b>					
in value	<b>-1.53</b>	<b>-6.64</b>	<b>1.67</b>	<b>-5.38</b>	<b>-5.63</b>
in %	<b>-2.1%</b>	<b>-9.3%</b>	<b>2.4%</b>	<b>-7.8%</b>	<b>-8.5%</b>
3. Focus on en-route at State/Charging Zone level					
<p><b>En-route unit cost</b>                      In 2019, the actual en-route unit cost in real terms (91.73 CHF2009 or 60.79 €2009) is -8.5% lower than planned in the PP (100.23 CHF2009 or 66.42 €2009). This results from the combination of much higher than planned TSUs (+13.0%) and higher than planned en-route costs in real terms (+3.4%, or +3.6 M€2009).</p> <p><b>En-route service units</b>                      The difference between actual and planned TSUs (+13.0%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Skyguide) retaining an amount of +3.8 M€2009.</p> <p><b>En-route costs</b>                      In nominal terms, actual en-route costs are +2.5% (+4.0 MCHF) higher than planned. However, since the actual inflation index is lower than planned (-0.9 p.p.), actual en-route costs are +3.4% (+3.6 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by Skyguide (+10.0%, or +8.7 M€2009) and the NSA/EUROCONTROL (+4.1%, or +0.4 M€2009), while the costs for the MET service provider (-70.2%, or -5.5 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.</p> <p>Costs exempt from cost-sharing are reported for a total amount of -0.3 M€2009 comprising +0.2 M€2009 for the variation in EUROCONTROL costs and -0.5 M€2009 for other international agreements. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.</p> <p><b>RP2 summary</b>                      When considering the whole of RP2 (2015-2019), actual en-route TSUs are +7.6% higher than planned, while actual costs in real terms are also +2.0% higher than the determined costs (some +10.2 M€2009). As a result, the weighted average actual unit cost over RP2 (99.87 CHF2009 or 66.18 €2009) is -5.3% lower than planned in the NPP (105.42 CHF2009 or 69.86 €2009).</p>					

SWITZERLAND: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



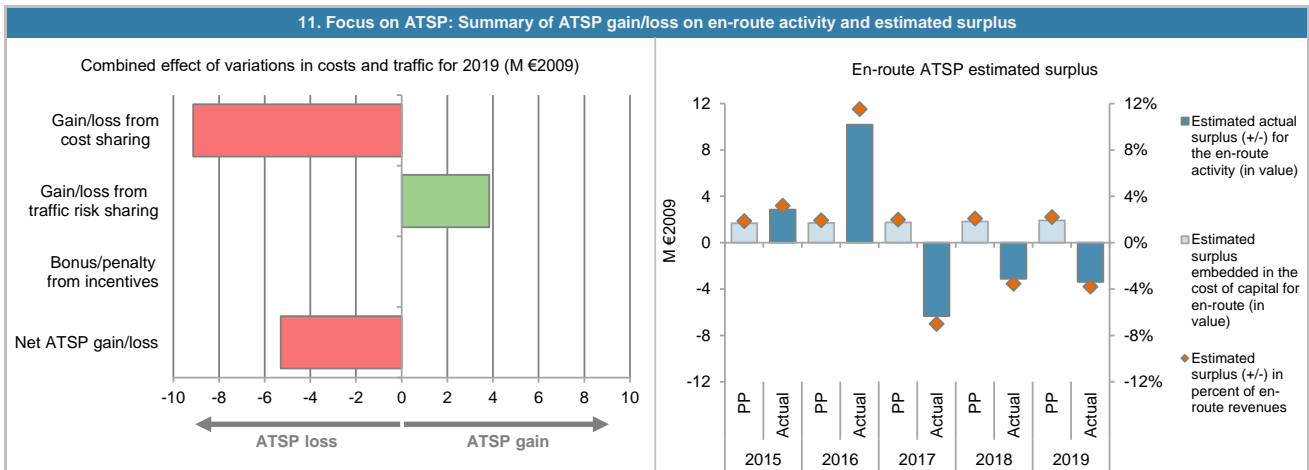
## SWITZERLAND: En-route ATSP (Skyguide)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	89 375	87 620	87 911	86 693	86 375
Actual costs for the ATSP	88 001	79 469	98 658	93 311	95 034
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 374	8 151	-10 747	-6 618	-8 658
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-151	-807	-542	-2 140	-475
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 223</b>	<b>7 344</b>	<b>-11 289</b>	<b>-8 758</b>	<b>-9 133</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	0.1%	1.6%	7.6%	15.1%	13.0%
Determined costs for the ATSP (PP) - based on actual inflation	89 195	87 883	88 087	86 953	87 152
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>129</b>	<b>1 382</b>	<b>3 238</b>	<b>3 826</b>	<b>3 835</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>1 352</b>	<b>8 726</b>	<b>-8 051</b>	<b>-4 932</b>	<b>-5 298</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	96 080	96 991	99 196	102 582	107 482
Estimated proportion of financing through equity (in %)	65.5%	66.4%	66.9%	67.3%	67.7%
Estimated proportion of financing through equity (in value)	62 949	64 444	66 404	69 003	72 810
Estimated proportion of financing through debt (in %)	34.5%	33.6%	33.1%	32.7%	32.3%
Estimated proportion of financing through debt (in value)	33 131	32 547	32 792	33 578	34 672
Cost of capital pre-tax (in value)	2 402	2 425	2 480	2 565	2 687
Average interest on debt (in %)	2.2%	2.2%	2.2%	2.2%	2.2%
Interest on debt (in value)	739	726	732	749	774
Determined RoE pre-tax rate (in %)	2.6%	2.6%	2.6%	2.6%	2.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 663	1 699	1 748	1 815	1 913
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 663</b>	<b>1 699</b>	<b>1 748</b>	<b>1 815</b>	<b>1 913</b>
<b>Revenue/costs for the en-route activity</b>	<b>89 375</b>	<b>87 620</b>	<b>87 911</b>	<b>86 693</b>	<b>86 375</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>1.9%</b>	<b>1.9%</b>	<b>2.0%</b>	<b>2.1%</b>	<b>2.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>2.6%</b>	<b>2.6%</b>	<b>2.6%</b>	<b>2.6%</b>	<b>2.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	86 563	82 616	96 595	102 586	106 785
Estimated proportion of financing through equity (in %)	65.5%	66.4%	66.9%	67.3%	67.7%
Estimated proportion of financing through equity (in value)	56 714	54 892	64 663	69 006	72 338
Estimated proportion of financing through debt (in %)	34.5%	33.6%	33.1%	32.7%	32.3%
Estimated proportion of financing through debt (in value)	29 849	27 723	31 932	33 580	34 447
Cost of capital pre-tax (in value)	2 164	2 065	2 415	2 565	2 670
Average interest on debt (in %)	2.2%	2.2%	2.2%	2.2%	2.2%
Interest on debt (in value)	666	619	712	749	769
Determined RoE pre-tax rate (in %)	2.6%	2.6%	2.6%	2.6%	2.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 498	1 447	1 702	1 815	1 901
Net ATSP gain(+)/loss(-) on en-route activity	1 352	8 726	-8 051	-4 932	-5 298
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>2 850</b>	<b>10 173</b>	<b>-6 348</b>	<b>-3 116</b>	<b>-3 397</b>
<b>Revenue/costs for the en-route activity</b>	<b>89 353</b>	<b>88 195</b>	<b>90 607</b>	<b>88 379</b>	<b>89 735</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.2%</b>	<b>11.5%</b>	<b>-7.0%</b>	<b>-3.5%</b>	<b>-3.8%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>5.0%</b>	<b>18.5%</b>	<b>-9.8%</b>	<b>-4.5%</b>	<b>-4.7%</b>

**SWITZERLAND: En-route ATSP (Skyguide)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 Skyguide en-route costs vs. PP**

In 2019, Skyguide actual en-route costs are +10.0% (+8.7 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- slightly higher staff costs (+1.2%, or +0.9 M€2009). "The effect on staff costs linked to the decrease in financing on delegated airspaces (explained below) has been almost compensated mainly by less ATCO's and more sickness leave (higher insurance compensation)";
- much higher other operating costs (+137.2%, or +5.4 M€2009) due to "More purchase of services. This is aligned with the strategy "buy instead of make" applied by skyguide since a few years" and "Increase in allowance for bad debt";
- much higher depreciation costs (+16.2%, or +2.5 M€2009) reflecting "RP2 Actual CAPEX are above performance plan level"; and
- slightly lower cost of capital (-0.6%, or -0.02 M€2009).

According to the additional information to the June 2020 en-route Reporting Tables "The higher costs in 2019 are explained by a decrease in financing on delegated airspaces. Skyguide could not compensate this decrease in revenue with cost savings. It is to be noted that these revenues are deducted from the determined costs (...) to match with the Swiss FIR, as requested by the PRU."

**Skyguide net gain/loss on en-route activity in 2019**

As shown in box 9, Skyguide generated a net loss of -5.3 M€2009 on the en-route activity. This is a combination of two elements:

- a loss of -9.1 M€2009 arising from the cost sharing mechanism; and
- a gain of +3.8 M€2009 arising from the traffic risk sharing mechanism.

The loss from cost sharing mentioned above (-9.1 M€2009) includes amounts reported by Skyguide for cost exempt from cost sharing (-0.5 M€2009). Should these costs not be deemed eligible by the European Commission, Skyguide would record a net loss of -4.8 M€2009 for the en-route activity in 2019.

**Skyguide overall estimated surplus for the en-route activity**

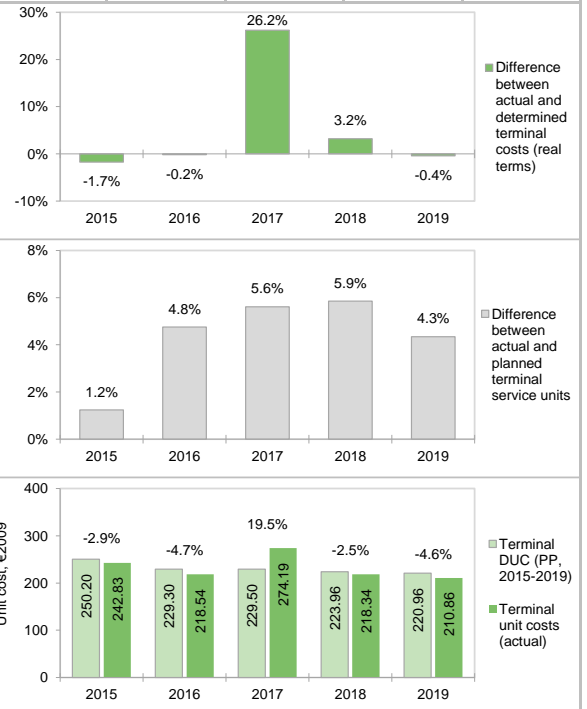
Ex-post, the overall estimated surplus taking into account the net loss from the en-route activity mentioned above (-5.3 M€2009) and the surplus embedded in the actual cost of capital (+1.9 M€2009) amounts to -3.4 M€2009 (3.8% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is -4.7%, which indicates that the surplus embedded in the cost of capital (2.6%) was not sufficient to compensate for the loss related to the en-route activity.

When considering the whole of RP2 (2015-2019), Skyguide generated cumulative losses in respect of cost sharing of -20.6 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +12.4 M€2009, which reflects the fact that actual traffic was in general terms +7.6% higher than planned during RP2. Adding the estimated surplus embedded in the en-route cost of capital (+8.4 M€2009 over RP2) leads to an overall estimated surplus of +0.2 M€2009, which corresponds to an average ex-post return on equity of 0.1% (compared to 2.6% as initially planned in the NPP).

**SWITZERLAND: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services					
Switzerland TCZ represents 5.8% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes	
ATSP:	Skyguide	Airports with fewer than 70,000 IFRs ATMs:		0	
National currency:	CHF	Airports with between 70,000 and 225,000 IFRs ATMs:		1	
Number of airports in charging zone in 2019:	2,	of which:		Airports with more than 225,000 IFRs ATMs: 1	
2. Terminal DUC monitoring at Charging Zone level					
Switzerland: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal CHF)	98 654 883	91 827 842	93 196 484	93 781 285	95 413 139
Inflation %	-1.0%	0.0%	0.5%	1.0%	1.0%
Inflation index (100 in 2009)	99.1	99.1	99.6	100.6	101.6
Real terminal costs (CHF2009)	99 556 131	92 666 721	93 579 967	93 234 826	93 917 991
Total terminal Service Units	263 690	267 811	270 219	275 889	281 677
<b>Real terminal unit cost per Service Unit (CHF2009)</b>	<b>377.55</b>	<b>346.01</b>	<b>346.31</b>	<b>337.94</b>	<b>333.42</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>250.20</b>	<b>229.30</b>	<b>229.50</b>	<b>223.96</b>	<b>220.96</b>
Switzerland: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal CHF)	97 128 233	91 402 849	117 353 678	96 490 195	94 165 236
Inflation %	-0.8%	-0.5%	0.6%	0.9%	0.4%
Inflation index (100 in 2009)	99.3	98.8	99.4	100.3	100.7
Real terminal costs (CHF2009)	97 817 921	92 514 455	118 072 454	96 215 247	93 522 822
Total terminal Service Units	266 955	280 536	285 378	292 032	293 928
<b>Real terminal unit cost per Service Unit (CHF2009)</b>	<b>366.42</b>	<b>329.78</b>	<b>413.74</b>	<b>329.47</b>	<b>318.18</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>242.83</b>	<b>218.54</b>	<b>274.19</b>	<b>218.34</b>	<b>210.86</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal CHF)	-1 526 651	-424 993	24 157 194	2 708 910	-1 247 902
	in value				
	in %				
Inflation %	0.2 p.p.	-0.5 p.p.	0.1 p.p.	-0.1 p.p.	-0.6 p.p.
	in p.p.				
Inflation index (100 in 2009)	0.2 p.p.	-0.3 p.p.	-0.2 p.p.	-0.3 p.p.	-0.9 p.p.
	in p.p.				
Real terminal costs (CHF2009)	-1 738 209	-152 266	24 492 486	2 980 421	-395 169
	in value				
	in %				
Total terminal Service Units	3 265	12 724	15 158	16 144	12 251
	in value				
	in %				
<b>Real terminal unit cost per Service Unit (CHF2009)</b>	<b>-11.13</b>	<b>-16.24</b>	<b>67.43</b>	<b>-8.48</b>	<b>-15.24</b>
	in value				
	in %				
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-7.37</b>	<b>-10.76</b>	<b>44.69</b>	<b>-5.62</b>	<b>-10.10</b>
	in value				
	in %				
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Switzerland Terminal Charging Zone (TCZ) comprising Geneva and Zürich airports.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (318.18 CHF2009 or 210.86 €2009) is -4.6% lower than planned in the PP (333.42 CHF2009 or 220.96 €2009). This results from the combination of higher than planned TNSUs (+4.3%) and terminal costs staying practically as planned in real terms (-0.4%).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Switzerland TCZ. The difference between actual and planned TNSUs (+4.3%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Skyguide) retaining an amount of +1.6 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -1.3% (-1.25 MCHF) lower than planned. However, since the actual inflation index is also lower than planned (-0.9 p.p.), actual terminal costs are -0.4% (-0.3 M€2009) below plans when expressed in real terms. The slightly lower than planned terminal costs in real terms are driven by the MET provider (-70.2%, or -1.4 M€2009) and the NSA (-4.8%, or -0.01 M€2009), while the costs for Skyguide (+1.9%, or +1.2 M€2009) are higher than planned. A detailed analysis is provided in box 12. There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual TNSUs are +4.4% higher than planned, while actual costs in real terms are also +5.3% higher than the determined costs (some +25.2 MCHF2009 or +16.7 M€2009). As a result, the weighted average actual unit cost over RP2 (351.09 CHF2009 or 232.67 €2009) is +0.9% higher than planned in the NPP (347.94 CHF2009 or 230.58 €2009).					



**SWITZERLAND: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	1.9%
Other ANSPs	-
METSP	-70.2%
NSA	-4.8%
Total	-0.4%

Costs by nature at ATSP level:

Staff	-2.2%
Other operating costs	6.5%
Depreciation	23.5%
Cost of capital	-7.8%
Exceptional items	-
VFR exempted flights	-
Total	1.9%

**6. Terminal costs exempt from cost sharing**

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

**7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users**

Switzerland 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - CHF

The terminal unit rate charged to airspace users (CUR) in 2019 is 320.79 CHF. This is -5.3% lower than the nominal DUC (338.73 CHF). The difference between these two figures (-17.94 CHF) relates to:

- the inflation adjustment (-0.66 CHF), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (-8.04 CHF), which reflects the gain in revenues due to higher than planned traffic in previous years, reimbursed to airspace users in 2019;
- a traffic adjustment (-0.13 CHF), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019;
- a bonus in respect of the capacity target incentive mechanism related to 2017 performance (+1.63 CHF); and
- an adjustment (-10.73 CHF) corresponding to the over recoveries incurred before the introduction of the Determined Costs method and carried-over to 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

**8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users**

Switzerland 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - CHF

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (331.72 CHF) is -2.1% lower than the nominal DUC (338.73 CHF). The difference between these two figures (-7.01 CHF) is due to:

- the inflation adjustment (-2.89 CHF), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic risk sharing adjustment (-5.14 CHF), which reflects the gain in revenues due to higher than planned traffic in 2019, to be reimbursed to airspace users in future years;
- a traffic adjustment (-0.53 CHF), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years; and
- a bonus in respect of the capacity target incentive mechanism related to 2019 performance (+1.54 CHF).

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## SWITZERLAND: Terminal ATSP (Skyguide)

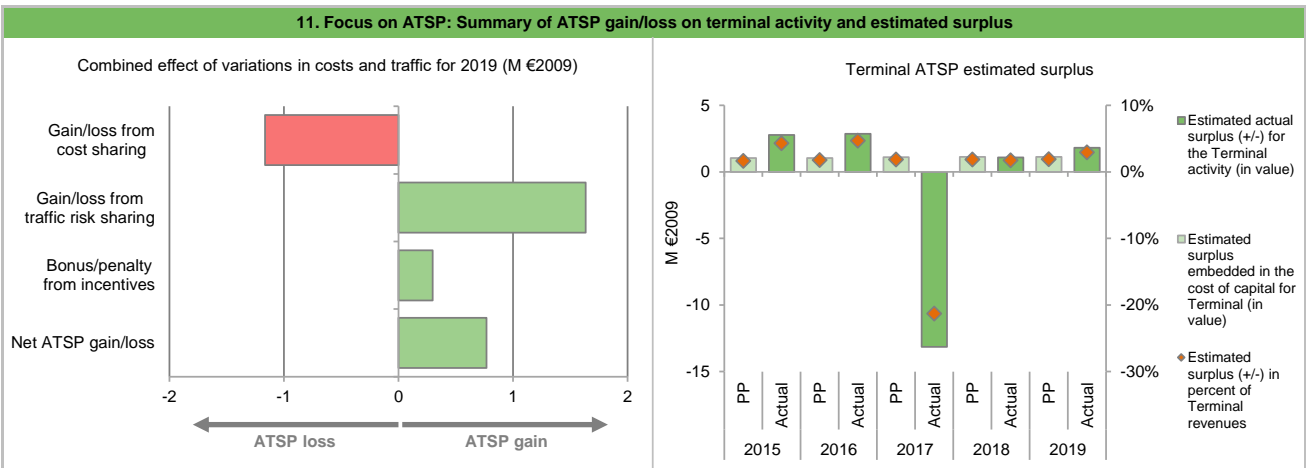
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	63 597	59 031	59 648	59 443	59 919
Actual costs for the ATSP	62 542	59 059	76 063	61 565	61 084
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 055	-28	-16 415	-2 122	-1 165
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 055</b>	<b>-28</b>	<b>-16 415</b>	<b>-2 122</b>	<b>-1 165</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.2%	4.8%	5.6%	5.9%	4.3%
Determined costs for the ATSP (PP) - based on actual inflation	63 469	59 208	59 768	59 621	60 457
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>786</b>	<b>1 673</b>	<b>1 843</b>	<b>1 881</b>	<b>1 635</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>317</b>	<b>306</b>	<b>302</b>	<b>299</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>1 841</b>	<b>1 962</b>	<b>-14 267</b>	<b>61</b>	<b>769</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	60 828	59 901	63 720	63 501	64 009
Estimated proportion of financing through equity (in %)	65.2%	65.8%	66.4%	66.9%	67.5%
Estimated proportion of financing through equity (in value)	39 670	39 422	42 302	42 509	43 193
Estimated proportion of financing through debt (in %)	34.8%	34.2%	33.6%	33.1%	32.5%
Estimated proportion of financing through debt (in value)	21 157	20 479	21 419	20 992	20 816
Cost of capital pre-tax (in value)	1 521	1 498	1 593	1 588	1 600
Average interest on debt (in %)	2.2%	2.2%	2.2%	2.2%	2.2%
Interest on debt (in value)	472	457	478	468	464
Determined RoE pre-tax rate (in %)	2.6%	2.6%	2.6%	2.6%	2.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	1 049	1 041	1 115	1 119	1 136
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 049</b>	<b>1 041</b>	<b>1 115</b>	<b>1 119</b>	<b>1 136</b>
<b>Revenue/costs for the terminal activity</b>	<b>63 597</b>	<b>59 031</b>	<b>59 648</b>	<b>59 443</b>	<b>59 919</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>1.6%</b>	<b>1.8%</b>	<b>1.9%</b>	<b>1.9%</b>	<b>1.9%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>2.6%</b>	<b>2.6%</b>	<b>2.6%</b>	<b>2.6%</b>	<b>2.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	54 399	51 828	64 068	58 011	58 992
Estimated proportion of financing through equity (in %)	65.2%	65.8%	66.4%	66.9%	67.5%
Estimated proportion of financing through equity (in value)	35 477	34 109	42 532	38 834	39 808
Estimated proportion of financing through debt (in %)	34.8%	34.2%	33.6%	33.1%	32.5%
Estimated proportion of financing through debt (in value)	18 921	17 719	21 535	19 177	19 184
Cost of capital pre-tax (in value)	1 360	1 296	1 602	1 450	1 475
Average interest on debt (in %)	2.2%	2.2%	2.2%	2.2%	2.2%
Interest on debt (in value)	422	395	480	428	428
Determined RoE pre-tax rate (in %)	2.6%	2.6%	2.6%	2.6%	2.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	938	900	1 121	1 022	1 047
Net ATSP gain(+)/loss(-) on terminal activity	1 841	1 962	-14 267	61	769
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>2 779</b>	<b>2 863</b>	<b>-13 146</b>	<b>1 084</b>	<b>1 816</b>
<b>Revenue/costs for the terminal activity</b>	<b>64 383</b>	<b>61 021</b>	<b>61 796</b>	<b>61 627</b>	<b>61 853</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>4.3%</b>	<b>4.7%</b>	<b>-21.3%</b>	<b>1.8%</b>	<b>2.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>7.8%</b>	<b>8.4%</b>	<b>-30.9%</b>	<b>2.8%</b>	<b>4.6%</b>



**SWITZERLAND: Terminal ATSP (Skyguide)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 Skyguide terminal costs vs. PP**

In 2019, Skyguide actual terminal costs are +1.9% (+1.2 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- slightly lower staff costs (-2.2%, or -1.0 M€2009) "mainly explained by slightly less ATCO's and more sickness leave (higher insurance compensation)";
- higher other operating costs (+6.5%, or +0.4 M€2009);
- much higher depreciation costs (+23.5%, or +1.8 M€2009) "mainly explained by higher investments than planned in the performance plan. 2 projects mainly explain this increase: the new Flight Plan system installed at Zurich airport and Virtual Center"; and
- lower cost of capital (-7.8%, or -0.1 M€2009).

**Skyguide net gain/loss on terminal activity in 2019**

As shown in box 9, Skyguide generated a net gain of +0.8 M€2009 on the terminal activity. This is a combination of three elements:

- a loss of -1.2 M€2009 arising from the cost sharing mechanism;
- a gain of +1.6 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +0.3 M€2009 (or +0.45 MCHF in nominal terms), corresponding to a bonus as part of the terminal capacity target incentive mechanism. This amount corresponds to 0.5% of Skyguide terminal revenues (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

**Skyguide overall estimated surplus for the terminal activity**

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+0.8 M€2009) and the surplus embedded in the actual cost of capital (+1.0 M€2009) amounts to +1.8 M€2009 (2.9% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 4.6%, which is higher than the 2.6% planned in the PP.

When considering the whole of RP2 (2015-2019), Skyguide generated cumulative losses in respect of cost sharing of -18.7 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +7.8 M€2009, which reflects the fact that actual traffic was in general terms +4.4% higher than planned during RP2. Adding the gain of +1.2 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+5.0 M€2009 over RP2) leads to an overall estimated surplus of -4.6 M€2009, which corresponds to an average ex-post return on equity of -2.4% (compared to 2.6% as initially planned in the NPP).

## SWITZERLAND: Gate-to-gate

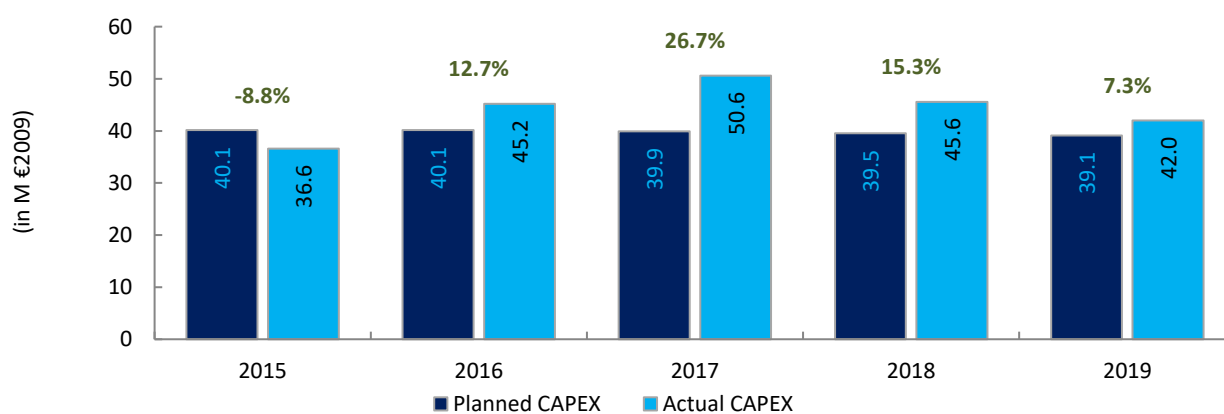
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Switzerland: Data from RP2 Performance Plan</b>																																												
	<b>2015D</b>	<b>2016D</b>	<b>2017D</b>	<b>2018D</b>	<b>2019D</b>																																							
Real en-route costs (EUR2009)	105 788 954	104 474 234	105 071 794	104 056 476	103 948 911																																							
Real terminal costs (EUR2009)	65 975 779	61 410 172	62 015 379	61 786 655	62 239 388																																							
Real gate-to-gate costs (EUR2009)	171 764 733	165 884 406	167 087 173	165 843 130	166 188 298																																							
En-route share (%)	61.6%	63.0%	62.9%	62.7%	62.5%																																							
<b>Switzerland: Actual data from Reporting Tables</b>																																												
	<b>2015A</b>	<b>2016A</b>	<b>2017A</b>	<b>2018A</b>	<b>2019A</b>																																							
Real en-route costs (EUR2009)	103 712 224	96 205 475	115 720 944	110 404 909	107 529 867																																							
Real terminal costs (EUR2009)	64 823 869	61 309 265	78 246 533	63 761 778	61 977 510																																							
Real gate-to-gate costs (EUR2009)	168 536 093	157 514 741	193 967 477	174 166 687	169 507 376																																							
En-route share (%)	61.5%	61.1%	59.7%	63.4%	63.4%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>																																							
Real gate-to-gate costs (EUR2009)																																												
in value	-3 228 639	-8 369 665	26 880 304	8 323 557	3 319 078																																							
in %	-1.9%	-5.0%	16.1%	5.0%	2.0%																																							
En-route share																																												
in p.p.	-0.1 p.p.	-1.9 p.p.	-3.2 p.p.	0.6 p.p.	0.9 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +2.0% (+3.3 M€2009) higher than planned due to higher than planned en-route costs (+3.4%, or +3.6 M€2009) while terminal costs are lower than planned (-0.4%, or -0.3 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (63.4%) is slightly higher than planned in the PP for 2019 (62.5%).</p> <p>For Skyguide, the estimated gate-to-gate economic surplus in 2019 amounts to -1.6 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 1.0% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>61.6%</td> <td>38.4%</td> </tr> <tr> <td>Actual</td> <td>61.5%</td> <td>38.5%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>63.0%</td> <td>37.0%</td> </tr> <tr> <td>Actual</td> <td>61.1%</td> <td>38.9%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>62.9%</td> <td>37.1%</td> </tr> <tr> <td>Actual</td> <td>59.7%</td> <td>40.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>62.7%</td> <td>37.3%</td> </tr> <tr> <td>Actual</td> <td>63.4%</td> <td>36.6%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>62.5%</td> <td>37.5%</td> </tr> <tr> <td>Actual</td> <td>63.4%</td> <td>36.6%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	61.6%	38.4%	Actual	61.5%	38.5%	2016	Determined	63.0%	37.0%	Actual	61.1%	38.9%	2017	Determined	62.9%	37.1%	Actual	59.7%	40.3%	2018	Determined	62.7%	37.3%	Actual	63.4%	36.6%	2019	Determined	62.5%	37.5%	Actual	63.4%	36.6%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	61.6%	38.4%																																									
	Actual	61.5%	38.5%																																									
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	Actual	63.4%	36.6%																																									
2019	Determined	62.5%	37.5%																																									
	Actual	63.4%	36.6%																																									
<b>3. Technical notes on en-route and terminal information reported by Switzerland</b>																																												

## SWITZERLAND

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: Skyguide						
FAB: FABEC						
Currency: CHF						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	60.0	60.0	60.0	60.0	60.0	300.0
Main CAPEX (in nominal M)	23.4	23.3	16.9	12.5	11.8	87.9
Inflation %	-1.0%	0.0%	0.5%	1.0%	1.0%	
Inflation index (100 in 2009)	99.1	99.1	99.6	100.6	101.6	
Exchange rate 2009 (1 EUR =)	1.50898	1.50898	1.50898	1.50898	1.50898	
<b>Total CAPEX (in M €2009)</b>	<b>40.1</b>	<b>40.1</b>	<b>39.9</b>	<b>39.5</b>	<b>39.1</b>	<b>198.8</b>
Main CAPEX (in M €2009)	15.7	15.6	11.2	8.2	7.7	58.4
% Main of Total CAPEX	39.0%	38.8%	28.1%	20.8%	19.7%	29.4%
Real gate-to-gate ANSP costs (in M €2009)	153.0	146.7	147.6	146.1	146.3	739.6
Total CAPEX as % of Real gate-to-gate ANSP costs	26.2%	27.4%	27.1%	27.1%	26.8%	26.9%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	54.8	67.4	75.8	69.0	63.8	330.8
Main CAPEX (in nominal M)	18.8	20.3	13.1	11.0	7.9	71.1
Inflation %	-0.8%	-0.5%	0.6%	0.9%	0.4%	
Inflation index (100 in 2009)	99.3	98.8	99.4	100.3	100.7	
Exchange rate 2009 (1 EUR =)	1.50898	1.50898	1.50898	1.50898	1.50898	
<b>Total CAPEX (in M €2009)</b>	<b>36.6</b>	<b>45.2</b>	<b>50.6</b>	<b>45.6</b>	<b>42.0</b>	<b>219.9</b>
Main CAPEX (in M €2009)	12.5	13.6	8.7	7.3	5.2	47.3
% Main of Total CAPEX	34.3%	30.1%	17.3%	15.9%	12.4%	21.5%
Real gate-to-gate ANSP costs (in M €2009)	150.5	138.5	174.7	154.9	156.1	774.8
Total CAPEX as % of Real gate-to-gate ANSP costs	24.3%	32.6%	28.9%	29.4%	26.9%	28.4%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-5.2	7.4	15.8	9.0	3.8	30.8
Total CAPEX (in M €2009)	-3.5	5.1	10.6	6.0	2.9	21.1
<b>Total CAPEX (in %, M €2009)</b>	<b>-8.8%</b>	<b>12.7%</b>	<b>26.7%</b>	<b>15.3%</b>	<b>7.3%</b>	<b>10.6%</b>



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# Annual Monitoring Report 2019

Local level view  
NE FAB

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## NEFAB

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management			2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs					C
	at ANSP level	For Safety Culture MO					C
		For all other MOs					D
FAB level	States / Regulatory authorities	For all MOs	B	B	B	B	B
	ANSPs	For Safety Culture MO	C	C	C	D	C
	ANSPs	For all other MOs	A	C	C	C	C
Application of the severity classification of the Risk Analysis Tool (RAT)			2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Ground Score							
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%		100%
	Runway Incursions (RIs)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	98%	96%	97%	98%
	Runway Incursions (RIs)		97%	94%	72%	90%	96%
Overall Score							
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	99%	100%	100%	99%
	Runway Incursions (RIs)		97%	95%	78%	99%	97%
	ATM Specific occurrences (ATM-S)		100%	97%	91%	80%	98%

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

#### Observations

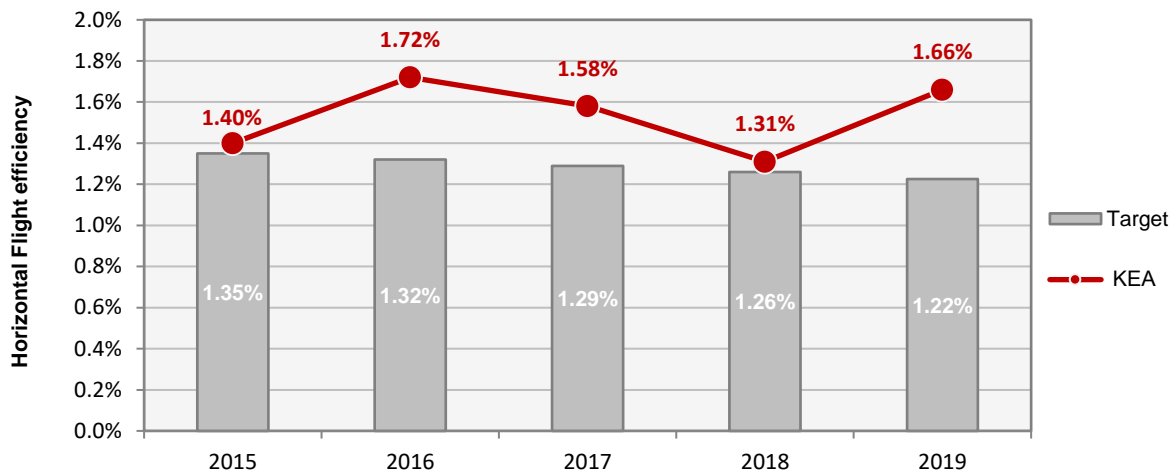
The lowest level in all EoSM Component/area of the States is Level "B", achieved in Safety Culture, which is below the 2019 EoSM target level. All other components are already at or above the 2019 EoSM target level. Note that this component is not verified by EASA.

With regards the ANSP EoSM level, the minimum level is Level "C" for the group of "All other component than Safety Culture", which does not meet the target. Safety Culture met the 2019 EoSM target level.

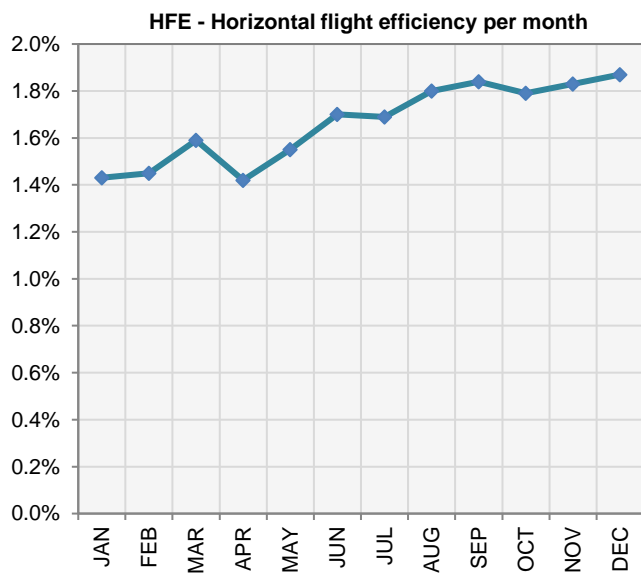
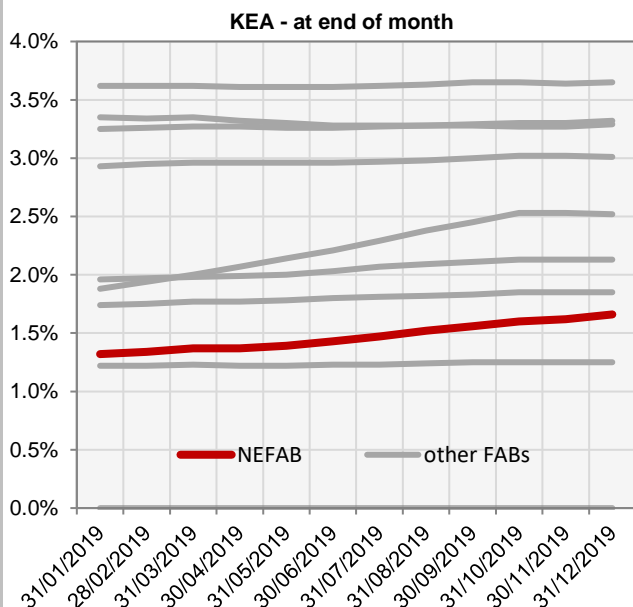
NEFAB

Monitoring of ENVIRONMENT for 2019

KEA					
	2015	2016	2017	2018	2019
FAB Target	1.35%	1.32%	1.29%	1.26%	1.22%
KEA Value	1.40%	1.72%	1.58%	1.31%	1.66%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KEA (at end of month)	1.32%	1.34%	1.37%	1.37%	1.39%	1.43%	1.47%	1.52%	1.56%	1.60%	1.62%	1.66%
HFE	1.43%	1.45%	1.59%	1.42%	1.55%	1.70%	1.69%	1.80%	1.84%	1.79%	1.83%	1.87%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.



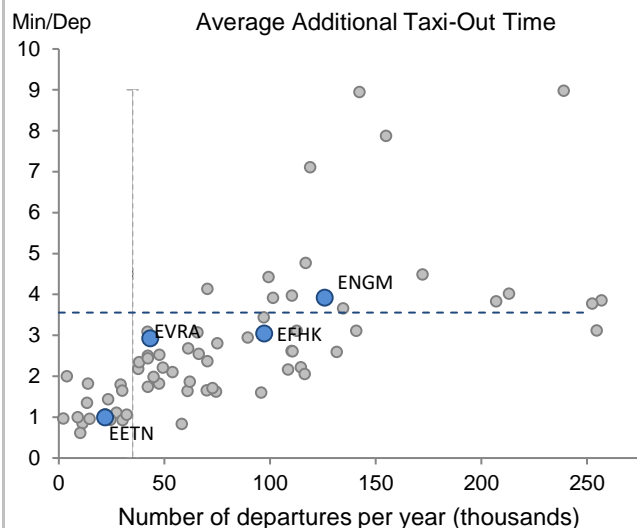
**NEFAB**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

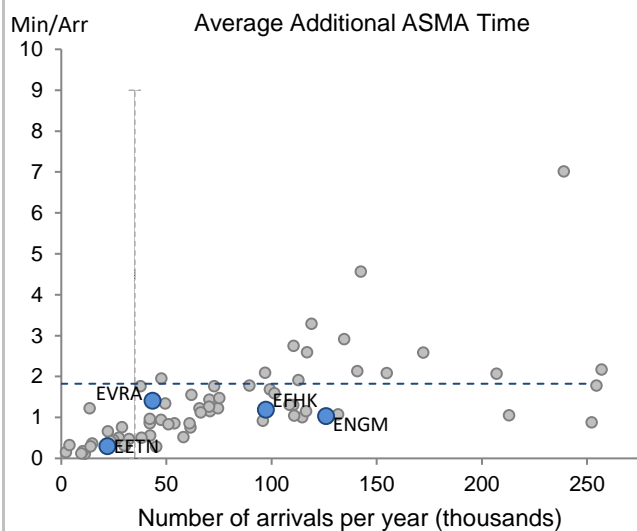
NEFAB includes 10 airports subject to RP2 monitoring, from which only 4 have established a complete and correct airport data flow, allowing the calculation of both environment indicators. Member States shall empower the respective airport reporting entity to establish the airport operator data flow and/or address the remaining data issues. The performance shown by those airports that can be analysed within NEFAB is commensurate with the traffic levels in general terms.

**2. Additional Taxi-Out Time**



Additional taxi-out times at three airports in NEFAB where the calculation of the indicator is possible are below the European average (3.56 min/dep., while Oslo, the busiest airport in the FAB, sits above that SES average. The performance in Riga (EVRA) shows higher additional times than other airports with similar number of movements.

**3. Additional ASMA Time**



Regarding additional times in the terminal area for all airports in NEFAB, and although still below the RP2 average (1.82 min/arr.) for all four of them, have worsened for Riga, Tallin and Helsinki. The performance shown by Oslo is among the best with similar number of movements, while for Riga is worse than for most airports under 100000 movements per year.

## NEFAB

## Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
FAB Reference Value	0.12	0.12	0.13	0.13	0.13	
FAB Target	0.12	0.12	0.13	0.13	0.13	
Actual performance	0.04	0.07	0.02	0.03	0.00	

## NEFAB assessment of capacity performance

The cost optimum capacity for en route delay per flight for NEFAB (ANSPs) is 0,13, but for the airspace users it would be unacceptable. This is based on the fact that a large portion of the overall traffic is transition flights with little leeway in terms of delays. In addition three of four NEFAB member states have set significant lower target values than the FAB reference value in RP2. Implementation of free route airspace (FRA) in cooperation with the Danish-Swedish FAB also contributed to better performance from 2017 .

The actual en route atfm delay per flight of 0,00 min./flt. at NEFFAB level was significant below the target set to 0,13 min./flt.

Three member states hereof Finland (ANS Finland) and Norway (Avinor ANS) and Estonia (EANS) achieved zero delays measured in min./flt. in 2019. Latvia (LGS) achieved a delay of 0,01 min./flt., all significant below the FAB target.

## Monitoring process for capacity performance

Monthly at a national level.

## Application of Corrective Measures for Capacity

No corrective measures applied in 2019.

## Capacity Planning

According to SLA with the airspace users.

## Assessment of capacity performance

For the fifth year running in RP2, by exceeding the FAB target for en route capacity, NEFAB has provided a positive contribution to the union-wide target in 2019. The evolution of traffic in NEFAB is shown below and it is noticeable that traffic levels continue to remain below the baseline scenario as calculated by STATFOR and available when the FAB performance plans and associated capacity plans were being determined.

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	1 047		1 078		1 121		1 159		1 198		1 240	
Base	1 036	1 030	1 059	1 015	1 084	1 006	1 104	1 031	1 124	1 077	1 147	1 082
Low	1 026		1 036		1 037		1 041		1 045		1 050	

## Delay forecast

	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.02	0.03	0.02	0.02	N/A	N/A
NOP 2019 - 2024	0.02	0.02	0.02 – 0.04			

## En route Capacity Incentive Scheme

Although NEFAB did not apply a FAB-wide en route capacity incentive scheme, the PRB has been advised by the NEFAB NSA committee that the overall FAB performance is a condition of determining whether or not a national bonus or penalty is due. Each member State proposed separate national incentive schemes in the NEFAB performance plan submitted in June 2014. The review of the individual incentive schemes will be made in the national reports following this FAB analysis.

### Result of FAB Capacity Incentive Scheme

The results of the national incentive schemes are presented in the national sections following.

### Update on Military dimension of the plan

There is a plan to start monitoring the military dimension of the plan as soon as the LARA tool is fully implemented and working as planned. There will also be continued focus on the effectiveness of the booking procedures. After the implementation of the NEFRA there have been clear indications that the NM IFPS system has some limitations on offering alternative routings and the fact that information from UUP is not feed into the system. This shows that there is a need for the NM to be more future oriented regarding system support for more advanced FRA implementation.

### Observations on Military dimension of the plan

The PRB notes the updated information.

### Application of FUA

Civil-military cooperation is well established at national level within the Contracting States. In addition to service provision to civilian air traffic, all NEFAB ANSPs provide en-route services to military traffic. Military traffic operates either within segregated military training or exercise areas (OAT) or as regular traffic in the same airspace as civilian traffic (GAT).

In Norway we are planning a revision of the AMC agreement which will establish new and larger areas in our southern airspace. The Civil/military airspace committee focus on the improvement of the booking procedures and the intention to improve the ratio between booked versus used reserved airspace. The LARA implementation will contribute to more efficient booking procedures.

#### NEFAB:

The application of FUA is explained in the annual SES/EASA BR implementation questionnaire, which is submitted to EASA annually in Spring.

### Observations of the Application of FUA

The PRB notes that the EASA questionnaire is not available to the public.

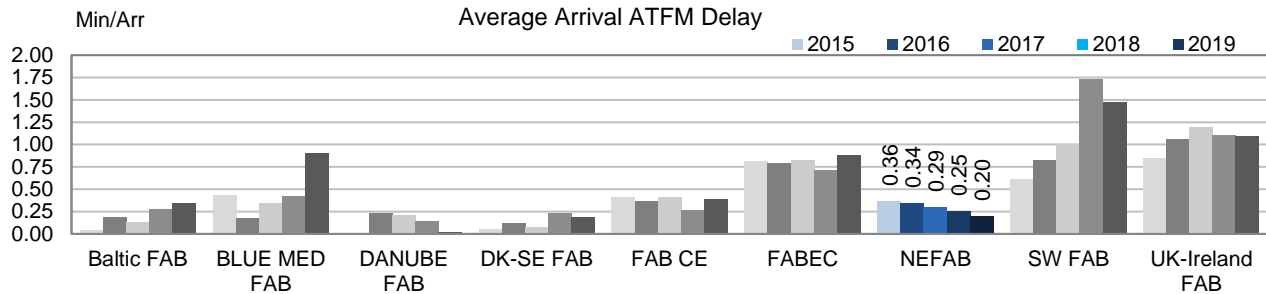
**NEFAB**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

NEFAB contributes adequately to the airport-related ANS capacity performance in Europe. The aggregated average of arrival ATFM delay has further decreased in 2019 and continues to range well below the European average (i.e. NEFAB: 0.20 min/arr. vs SES: 0.88 min/arr.) In terms of adherence to ATFM slots, the ANS performance at most NEFAB airports ranges amongst the best-in-class in Europe.

**2. Arrival ATFM Delay**

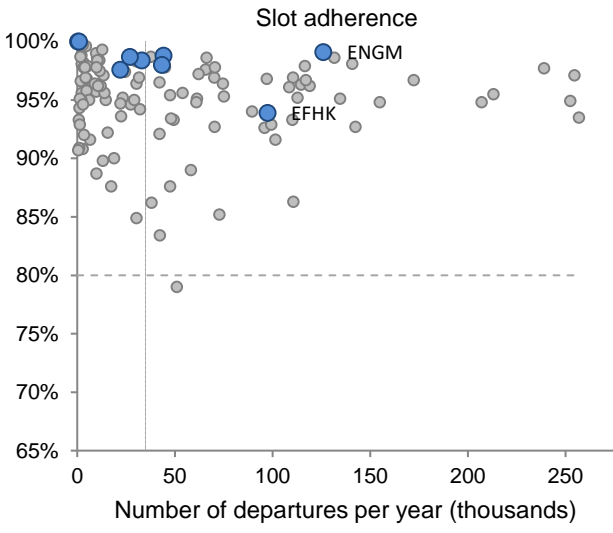


The ANS performance at NEFAB airports shows no specific capacity constraint. While Latvian and Estonian airports do not show any discernible arrival ATFM delay, Oslo Gardermoen and Helsinki show levels still below other airports in the SES area managing similar number of movements.

**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

NEFAB performance plan sets a national target on arrival ATFM delay for all 4 states with a breakdown for each of the airports in the FAB under RP2 monitoring, except the Norwegian airports. The plan also presents an incentive scheme for the national target on arrival ATFM delay for each of its Member States. Finland misses the national target and will apply a penalty, while Norway and Latvia will retrieve a bonus.

**4. ATFM Slot Adherence**



Airports in the NEFAB show excellent performance regarding the adherence to ATFM slots, with values well above 95% in most cases, and close to 95% for Helsinki

**5. ATC Pre-departure Delay**

The airport operator specification has been implemented at all main airports subject to RP2 monitoring within NEFAB. ATC pre-departure delay at NEFAB airports monitored is either negligible, very low (EGNM), or commensurate with the level of traffic (EFHK).

# Annual Monitoring Report 2019

## Local level view

### Estonia

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## ESTONIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	73	C	C	C	D	C
EANS	88	D	D	D	D	E
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	83%	92%				
Runway Incursions (RIs)	50%	0%				
ATM Specific Occurrences (ATM-S)		62%				
Source of RAT data:	ANSP					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	7	2				
Legal/Judiciary	4	3				
Occurrence reporting and Investigation	1	1				
<b>TOTAL</b>	<b>12</b>	<b>6</b>				
EANS	Number of questions answered					
	YES	NO				
Policy and its implementation	12	1				
Legal/Judiciary	3	0				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
Targets on both State and ANSP EoSM were met.						
With regards application of RAT, data received from the AST mechanism show performance below targets in the application of RAT to all type of occurrences but RI overall.						

## ESTONIA

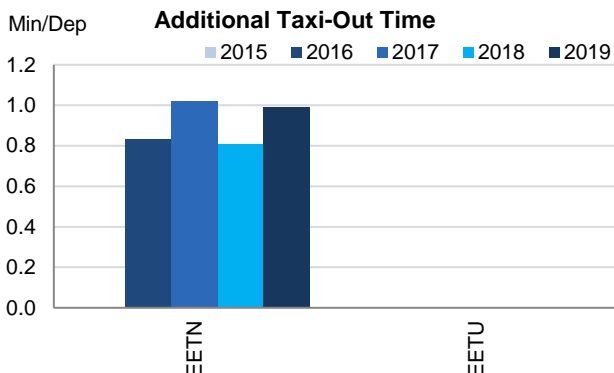
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

Estonia identified two airports, Tallinn and Tartu, as subject to RP2 monitoring. The Airport Operator Data Flow is established at Tallinn since 2016 allowing for the calculation of both environment indicators.

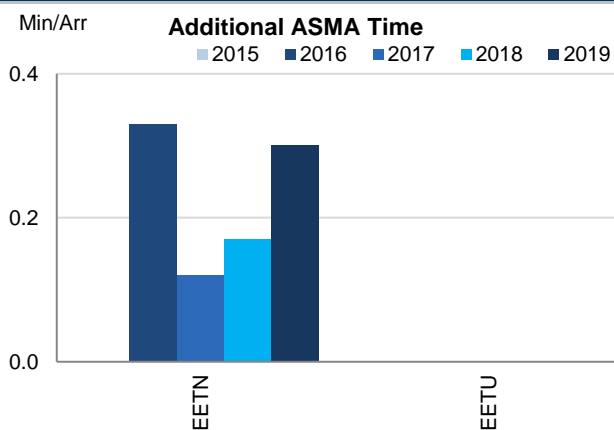
After a traffic increase of 18% along RP2 (2019 vs 2015), environmental indicators at Tallin (EETN) show a good performance with additional times below other airports with similar traffic levels.

## 2. Additional Taxi-Out Time



Despite a traffic reduction in the last year of 2%, additional taxi-out times at Tallin observe a slight increase in 2019, but remain just under the minute per departure (EETN; 2018:0.81 min/dep.; 2019: 0.99 min/dep.)

## 3. Additional ASMA Time



Although the additional time in terminal airspace remains very low, it has almost doubled in 2019 (EETN; 2018: 0.17 min/arr.; 2019: 0.30 min/arr.). This increase is mainly concentrated in the first three months of the year.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Tallinn	EETN	n/a	0.83	1.02	0.81	0.99	n/a	0.33	0.12	0.17	0.30
Tartu	EETU	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a



**ESTONIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.12	0.12	0.12	0.12	0.12	
Deadband +/-	0.05 - 0.13		0.05 - 0.14			
Actual performance	0.01	0.02	0.02	0.10	0.00	

**National capacity incentive scheme**

Estonia applied a national incentive scheme based on the following criteria for the period 2017 – 2019:

En route ATFM delay 2017-2019:

2017-2019 Dead band: 0,05min/flt - 0,14min/flt

0,02min / flt or better: Bonus: 1 % of the revenues from air navigation services in year n

0,03min / flt: Bonus: 0,5 % of the revenues from air navigation services in year n

0,04min / flt: Bonus: 0,2% of the revenues from air navigation services in year n

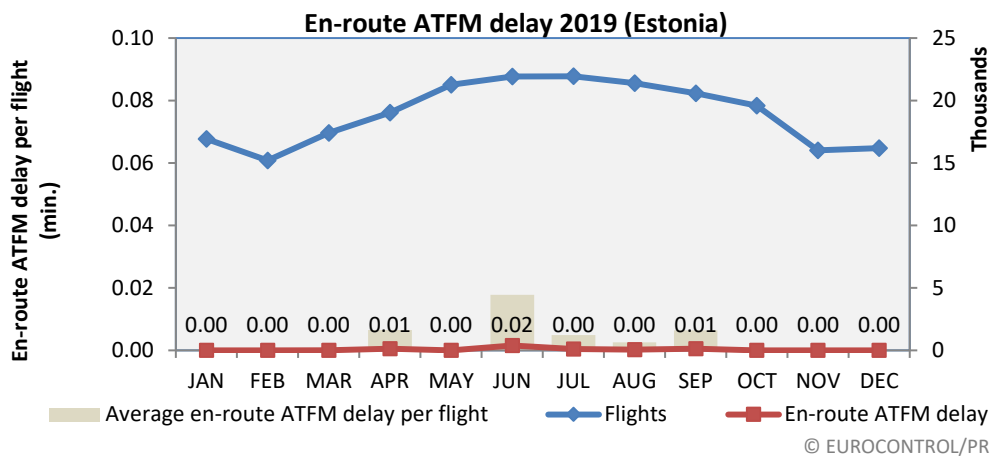
0,15min / flt: Penalty: 0,2 % of the revenues from air navigation services in year n

0,16min / flt: Penalty: 0,5 % of the revenues from air navigation services in year n

0,17min / flt or worse: Penalty: Penalty: 1% of the revenues from air navigation services in year n

With an actual en route capacity performance of 0.00 minutes per flight in 2019, the ANSP EANS will receive a bonus of €208 695

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.02	0.00	0.03	0.02	0.11	0.02	0.03	0.01	0.02	0.02	0.10	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	189		197		210		221		233		246	
Base	185	191	192	194	199	200	205	215	212	232	220	229
Low	182		186		188		191		194		197	

Traffic levels in Estonia decreased by 1% on 2018 levels. Estonia provided excellent capacity performance with negligible delays to airspace users and greatly improved from the previous year.

Delay forecast - EANS						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.02	0.03	0.02	0.02	N/A	N/A
<b>NOP 2019 - 2024</b>	0.02	0.02	0.02			

### Planning and Effective Use of CDRs

Free route airspace has been implemented in Estonia in 2015.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

Estonia did not provide any information.

## ESTONIA

## Monitoring of Airports Contribution to CAPACITY for 2019

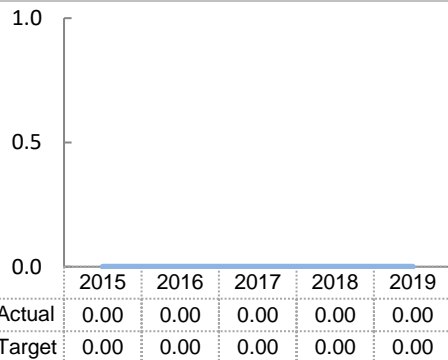
## 1. Overview

ANS at 2 airports in Estonia are subject to RP2 monitoring: Tallinn (EETN) and Tartu (EETU). Despite the fact that traffic levels at these 2 airports have considerably increased during RP2 (+18.3% with respect to 2015), Estonia continues with past years' performance, with no accrued arrival ATFM delay in 2019 and meeting the national target of zero every year of RP2.

At the same time ATFM slot adherence has improved during RP2 by 5 points reaching 97.6% adherence and the ATC pre-departure delay remains negligible.

## 2. Arrival ATFM Delay

Arrival ATFM Delay



No arrival ATFM delay was observed at the Estonian airports (Tallinn and Tartu) during RP2. The achieved performance suggests no major capacity constraints in Estonia.

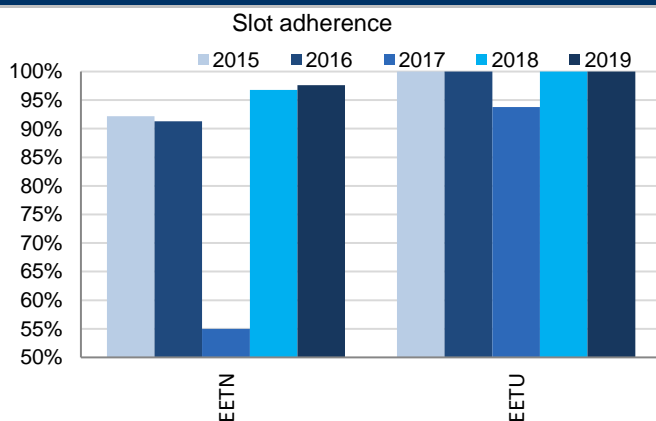
The achieved performance in 2019 meets the established national target.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

Estonia has established a national target on arrival ATFM delay and associated incentive scheme. The achieved performance ranges within the established deadband and results in no financial incentive.

In fact this incentive scheme does not consider any bonuses.

## 4. ATFM Slot Adherence



The ATFM slot adherence at Tallinn had dropped drastically in 2017 due to large scale of construction work at Tallinn airport. In 2019 the adherence at Tallinn sits well above the 95%.

The slot compliance in Tartu in 2018 is a 100% with only 5 regulated departures in the year.

## 5. ATC Pre-departure Delay

The level of pre-departure delay at Tallinn in 2018 remains negligible and the quality of the reporting allows for the calculation of the indicator with a share of unreported delay below 40%.

To improve the level of operational monitoring for Tartu (EETU), Estonia may consider the establishment of the airport operator flow at this airport.

## 6. Appendix

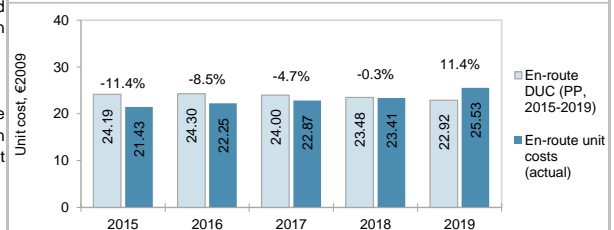
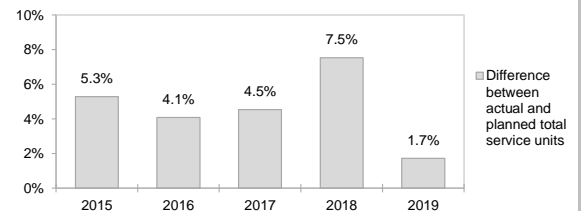
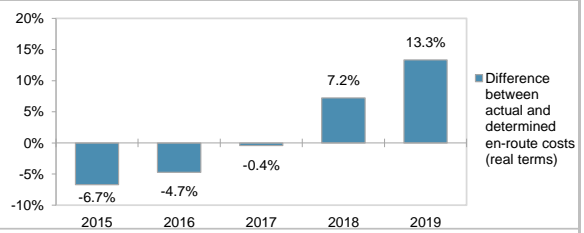
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Tallinn	EETN	0.00	0.00	0.00	0.00	0.00	92.2%	91.3%	55.0%	96.8%	97.6%	0.01	0.04	0.02	0.02	0.04
Tartu	EETU	0.00	0.00	0.00	0.00	0.00	100.0%	100.0%	93.8%	100.0%	100.0%	n/a	n/a	n/a	n/a	n/a

## ESTONIA: En-route charging zone

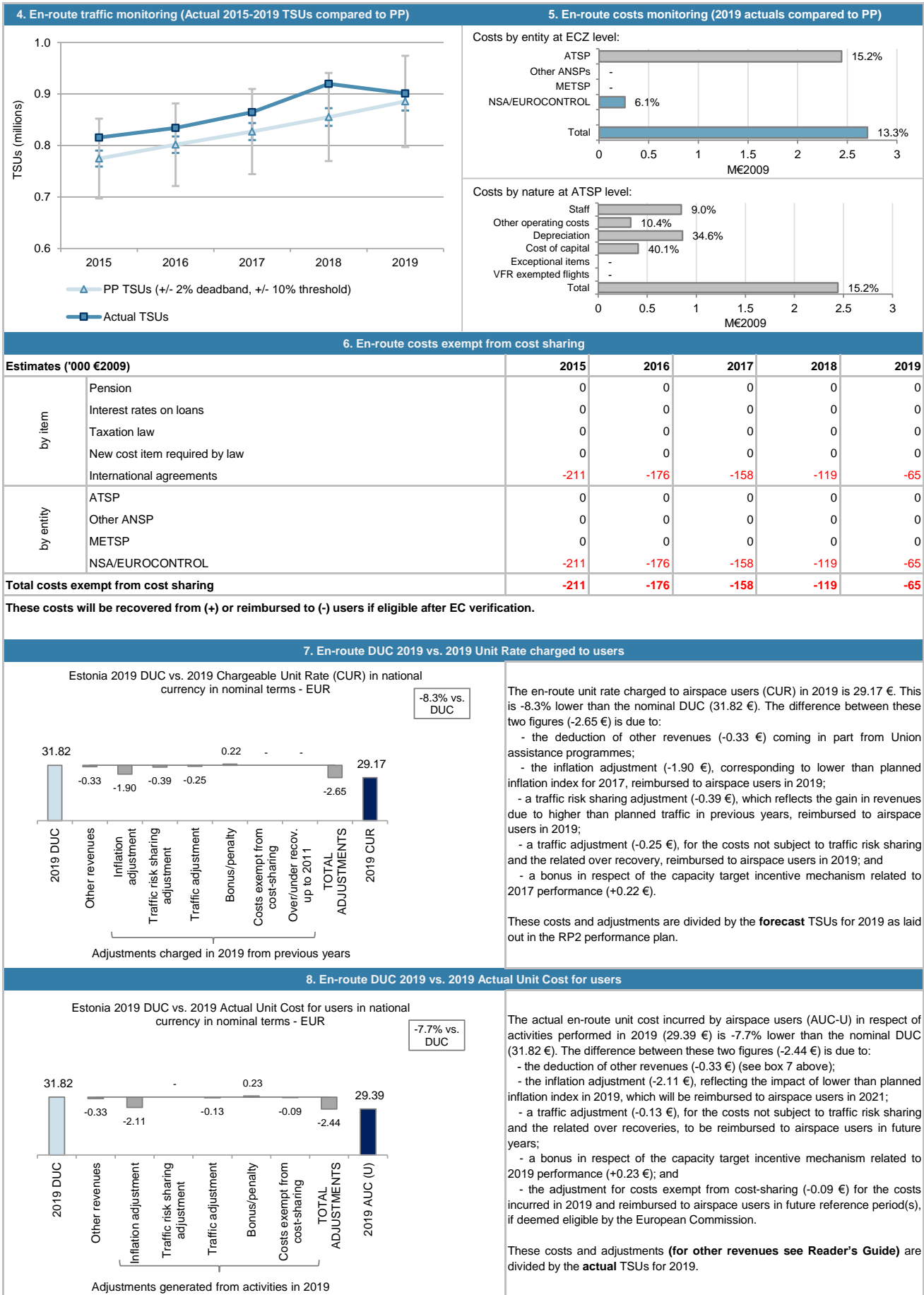
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· Estonia ECZ represents 0.3% of the SES en-route ANS determined costs in 2019						
· ATSP: EANS						
· FAB: NEFAB						
· National currency: EUR						
2. En-route DUC monitoring at Charging Zone level						
Estonia: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)		2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)		23 098 175	24 757 151	25 985 553	27 073 003	28 182 980
Inflation %		3.0%	3.1%	3.0%	3.0%	3.0%
Inflation index (100 in 2009)		123.3	127.1	130.9	134.8	138.9
Real en-route costs (EUR2009)		18 739 585	19 481 586	19 852 645	20 081 013	20 295 459
Total en-route Service Units		774 641	801 575	827 117	855 350	885 643
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>24.19</b>	<b>24.30</b>	<b>24.00</b>	<b>23.48</b>	<b>22.92</b>
Estonia: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)		20 468 440	21 909 000	24 199 188	27 253 085	29 778 642
Inflation %		0.1%	0.8%	3.7%	3.4%	2.3%
Inflation index (100 in 2009)		117.1	118.0	122.4	126.6	129.5
Real en-route costs (EUR2009)		17 478 222	18 559 853	19 768 513	21 531 206	22 997 569
Total en-route Service Units		815 544	834 320	864 575	919 795	900 911
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>21.43</b>	<b>22.25</b>	<b>22.87</b>	<b>23.41</b>	<b>25.53</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
En-route costs (nominal EUR)	in value	-2 629 734	-2 848 151	-1 786 365	180 082	1 595 662
	in %	-11.4%	-11.5%	-6.9%	0.7%	5.7%
Inflation %	in p.p.	-2.9 p.p.	-2.3 p.p.	0.7 p.p.	0.4 p.p.	-0.7 p.p.
	in p.p.	-6.2 p.p.	-9.0 p.p.	-8.5 p.p.	-8.2 p.p.	-9.4 p.p.
Real en-route costs (EUR2009)	in value	-1 261 363	-921 733	-84 132	1 450 192	2 702 110
	in %	-6.7%	-4.7%	-0.4%	7.2%	13.3%
Total en-route Service Units	in value	40 903	32 745	37 458	64 445	15 268
	in %	5.3%	4.1%	4.5%	7.5%	1.7%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	in value	<b>-2.76</b>	<b>-2.06</b>	<b>-1.14</b>	<b>-0.07</b>	<b>2.61</b>
	in %	<b>-11.4%</b>	<b>-8.5%</b>	<b>-4.7%</b>	<b>-0.3%</b>	<b>11.4%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (25.53 €2009) is +11.4% higher than planned in the PP (22.92 €2009). This results from the combination of slightly higher than planned TSUs (+1.7%) and much higher than planned en-route costs in real terms (+13.3%, or +2.7 M€2009). No corrective measures are specified in the NSA monitoring report 2019.						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+1.7%) falls inside the ±2% dead band foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues (+0.3 M€2009) is therefore fully retained by the main ATSP (EANS).						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are +5.7% (+1.6 M€) higher than planned. However, since the actual inflation index is lower than planned (-9.4 p.p.), actual en-route costs are +13.3% (+2.7 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by EANS (+15.2%, or +2.4 M€2009) and the NSA/EUROCONTROL (+6.1%, or +0.3 M€2009). A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of -0.07 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Estonia charging zone, actual en-route TSUs are +4.6% higher than planned, while actual costs in real terms are also +1.9% higher than the determined costs (some +1.9 M€2009). As a result, the weighted average actual unit cost over RP2 (23.14 €2009) is -2.6% lower than planned in the NPP (23.76 €2009).						



**ESTONIA: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



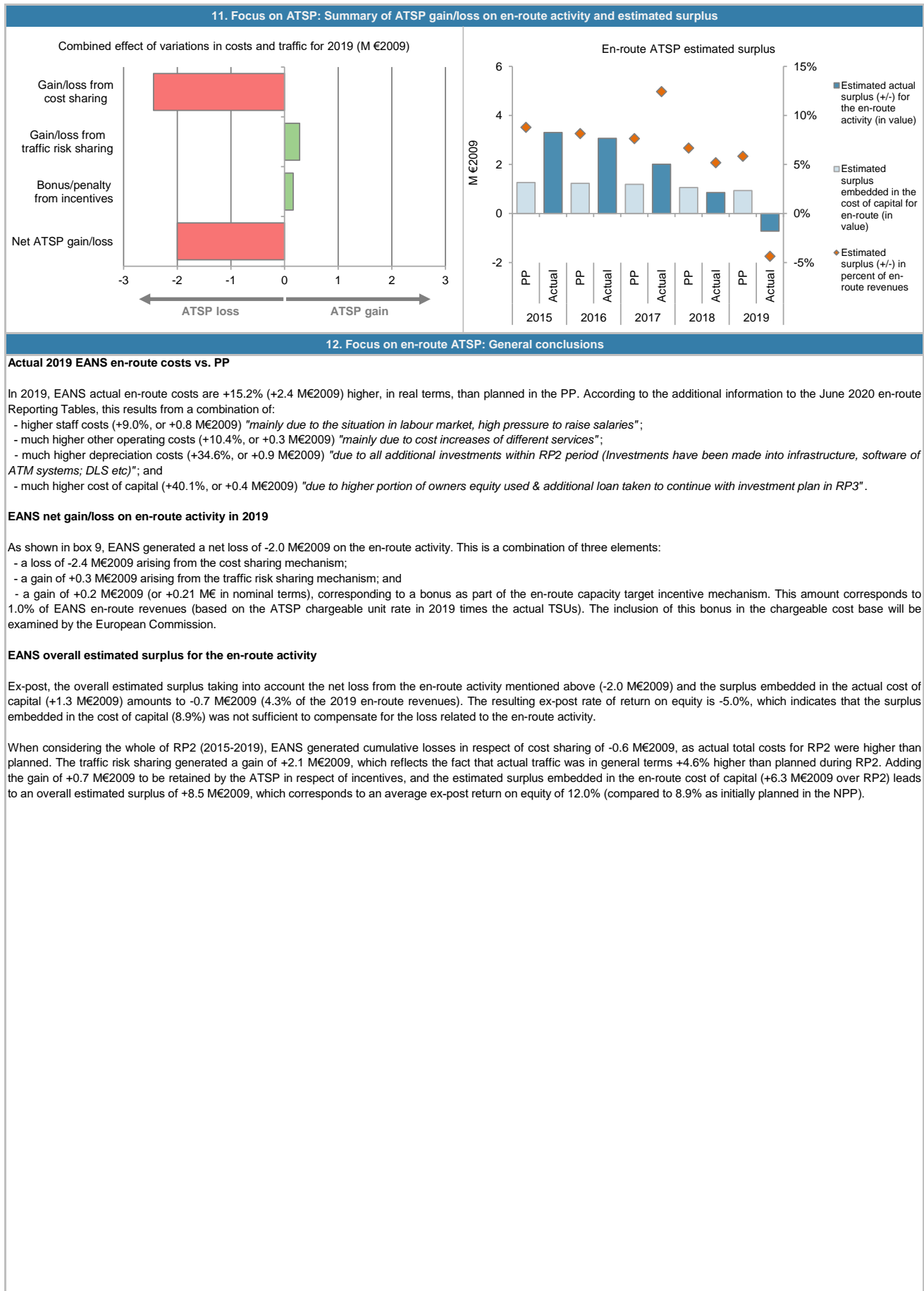
## ESTONIA: En-route ATSP (EANS)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	14 379	15 125	15 563	15 829	16 037
Actual costs for the ATSP	13 019	14 002	15 211	16 867	18 480
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 360	1 122	353	-1 037	-2 442
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 360</b>	<b>1 122</b>	<b>353</b>	<b>-1 037</b>	<b>-2 442</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	5.3%	4.1%	4.5%	7.5%	1.7%
Determined costs for the ATSP (PP) - based on actual inflation	14 387	15 478	15 820	16 028	16 350
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>429</b>	<b>406</b>	<b>436</b>	<b>587</b>	<b>282</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>217</b>	<b>166</b>	<b>158</b>	<b>0</b>	<b>161</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>2 006</b>	<b>1 695</b>	<b>947</b>	<b>-451</b>	<b>-1 999</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	16 933	17 088	15 586	14 129	12 757
Estimated proportion of financing through equity (in %)	83.8%	81.2%	85.9%	84.1%	82.6%
Estimated proportion of financing through equity (in value)	14 195	13 875	13 388	11 887	10 536
Estimated proportion of financing through debt (in %)	16.2%	18.8%	14.1%	15.9%	17.4%
Estimated proportion of financing through debt (in value)	2 738	3 213	2 197	2 241	2 221
Cost of capital pre-tax (in value)	1 363	1 352	1 272	1 140	1 019
Average interest on debt (in %)	3.7%	3.7%	3.7%	3.7%	3.7%
Interest on debt (in value)	100	117	80	82	81
Determined RoE pre-tax rate (in %)	8.9%	8.9%	8.9%	8.9%	8.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 263	1 235	1 192	1 058	938
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 263</b>	<b>1 235</b>	<b>1 192</b>	<b>1 058</b>	<b>938</b>
<b>Revenue/costs for the en-route activity</b>	<b>14 379</b>	<b>15 125</b>	<b>15 563</b>	<b>15 829</b>	<b>16 037</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>8.8%</b>	<b>8.2%</b>	<b>7.7%</b>	<b>6.7%</b>	<b>5.8%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	19 134	19 969	19 937	21 848	24 591
Estimated proportion of financing through equity (in %)	76.4%	77.0%	59.8%	67.1%	58.6%
Estimated proportion of financing through equity (in value)	14 623	15 371	11 926	14 652	14 421
Estimated proportion of financing through debt (in %)	23.6%	23.0%	40.2%	32.9%	41.4%
Estimated proportion of financing through debt (in value)	4 511	4 599	8 011	7 196	10 170
Cost of capital pre-tax (in value)	1 466	1 520	1 181	1 419	1 427
Average interest on debt (in %)	3.7%	3.3%	1.5%	1.6%	1.4%
Interest on debt (in value)	165	152	119	115	143
Determined RoE pre-tax rate (in %)	8.9%	8.9%	8.9%	8.9%	8.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 301	1 368	1 061	1 304	1 284
Net ATSP gain(+)/loss(-) on en-route activity	2 006	1 695	947	-451	-1 999
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>3 307</b>	<b>3 063</b>	<b>2 009</b>	<b>853</b>	<b>-716</b>
<b>Revenue/costs for the en-route activity</b>	<b>15 025</b>	<b>15 697</b>	<b>16 158</b>	<b>16 416</b>	<b>16 481</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>22.0%</b>	<b>19.5%</b>	<b>12.4%</b>	<b>5.2%</b>	<b>-4.3%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>22.6%</b>	<b>19.9%</b>	<b>16.8%</b>	<b>5.8%</b>	<b>-5.0%</b>

**ESTONIA: En-route ATSP (EANS)**

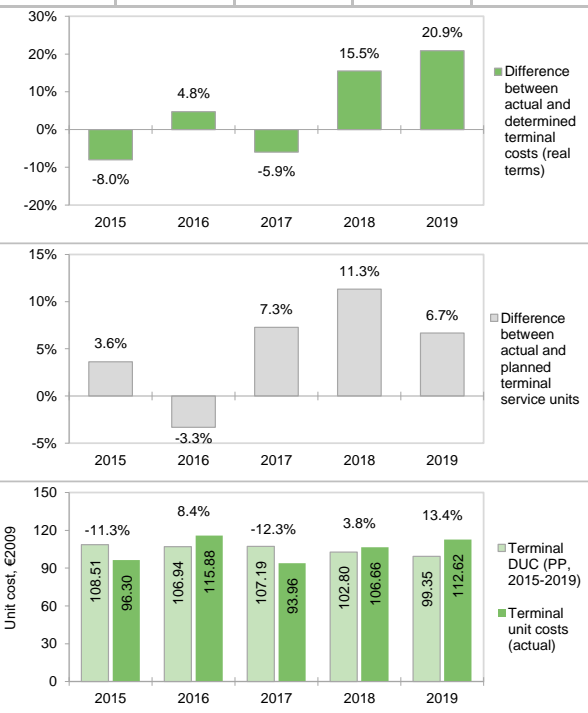
**Monitoring of en-route COST-EFFICIENCY for 2019**



## ESTONIA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

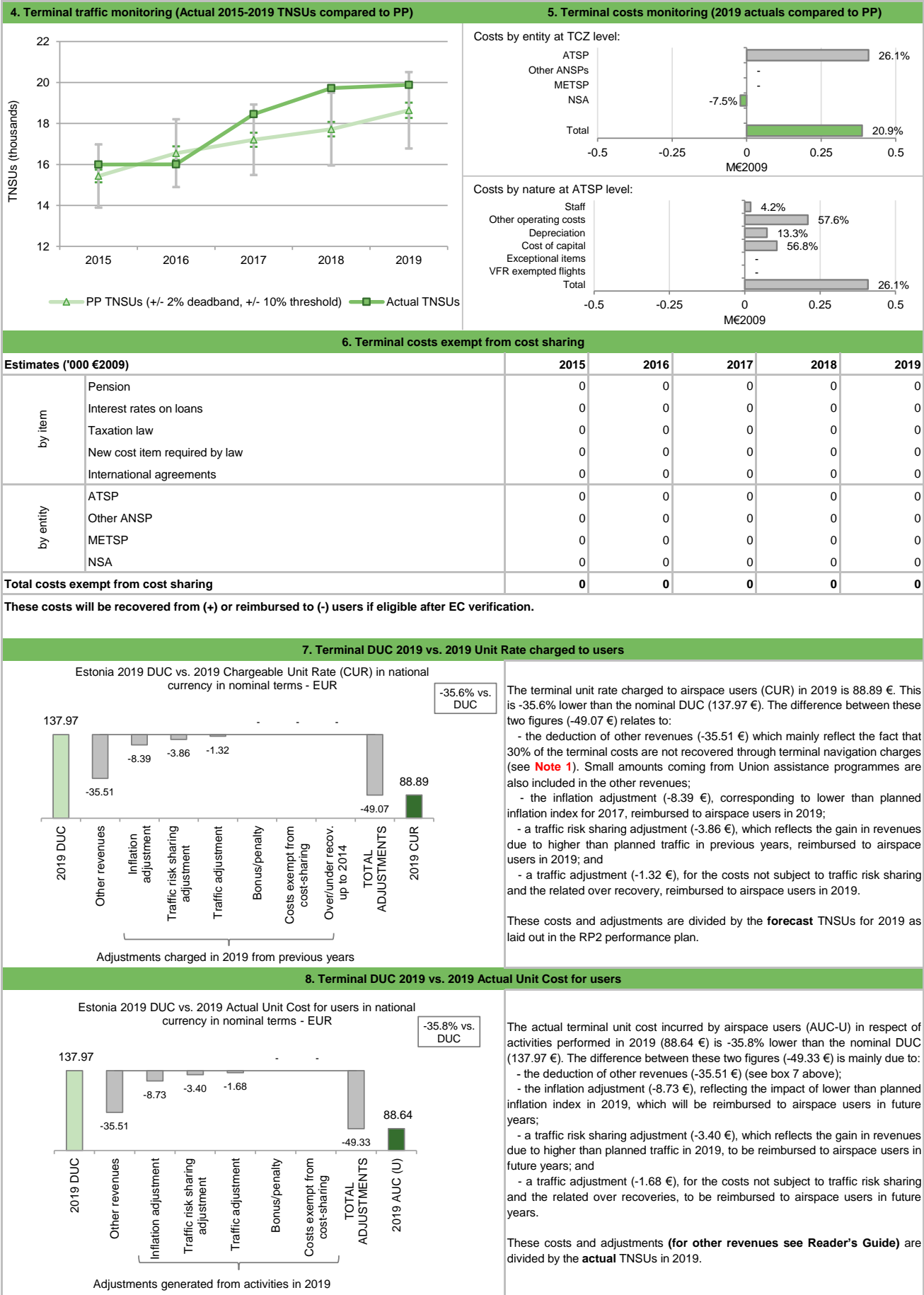
1. Contextual economic information: terminal air navigation services					
· Estonia TCZ represents 0.2% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP:	EANS	· Airports with fewer than 70,000 IFRs ATMs:		2	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019:	2,	of which:		· Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Estonia: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	2 064 521	2 249 331	2 413 934	2 456 109	2 571 978
Inflation %	3.0%	3.1%	3.0%	3.0%	3.0%
Inflation index (100 in 2009)	123.3	127.1	130.9	134.8	138.9
Real terminal costs (EUR2009)	1 674 949	1 770 015	1 844 216	1 821 784	1 852 163
Total terminal Service Units	15 436	16 551	17 205	17 722	18 642
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>108.51</b>	<b>106.94</b>	<b>107.19</b>	<b>102.80</b>	<b>99.35</b>
Estonia: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	1 803 641	2 189 000	2 123 232	2 663 481	2 899 704
Inflation %	0.1%	0.8%	3.7%	3.4%	2.3%
Inflation index (100 in 2009)	117.1	118.0	122.4	126.6	129.5
Real terminal costs (EUR2009)	1 540 149	1 854 376	1 734 485	2 104 274	2 239 395
Total terminal Service Units	15 994	16 003	18 460	19 728	19 884
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>96.30</b>	<b>115.88</b>	<b>93.96</b>	<b>106.66</b>	<b>112.62</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value -260 880	in value -60 331	in value -290 702	in value 207 372	in value 327 726
	in % -12.6%	in % -2.7%	in % -12.0%	in % 8.4%	in % 12.7%
Inflation %	in p.p. -2.9 p.p.	in p.p. -2.3 p.p.	in p.p. 0.7 p.p.	in p.p. 0.4 p.p.	in p.p. -0.7 p.p.
Inflation index (100 in 2009)	in p.p. -6.2 p.p.	in p.p. -9.0 p.p.	in p.p. -8.5 p.p.	in p.p. -8.2 p.p.	in p.p. -9.4 p.p.
Real terminal costs (EUR2009)	in value -134 801	in value 84 360	in value -109 731	in value 282 490	in value 387 232
	in % -8.0%	in % 4.8%	in % -5.9%	in % 15.5%	in % 20.9%
Total terminal Service Units	in value 558	in value -548	in value 1 255	in value 2 006	in value 1 242
	in % 3.6%	in % -3.3%	in % 7.3%	in % 11.3%	in % 6.7%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -12.21</b>	<b>in value 8.93</b>	<b>in value -13.23</b>	<b>in value 3.87</b>	<b>in value 13.27</b>
	<b>in % -11.3%</b>	<b>in % 8.4%</b>	<b>in % -12.3%</b>	<b>in % 3.8%</b>	<b>in % 13.4%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Estonia Terminal Charging Zone (TCZ) comprising Lennart Meri Tallinn (EETN) and Tartu (EETU) airports.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (112.62 €2009) is +13.4% higher than planned in the PP (99.35 €2009). This results from the combination of higher than planned TNSUs (+6.7%) and much higher than planned terminal costs in real terms (+20.9%, or +0.4 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Estonia TCZ. The difference between actual and planned TNSUs (+6.7%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (EANS) retaining an amount of +0.05 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +12.7% (+0.3 M€) higher than planned. However, since the actual inflation index is lower than planned (-9.4 p.p.), actual terminal costs are +20.9% (+0.4 M€2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by EANS (+26.1%, or +0.4 M€2009), while the costs for the NSA (-7.5%, or -0.02 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Estonia TCZ, actual TNSUs are +5.3% higher than planned, while actual costs in real terms are also +5.7% higher than the determined costs (some +0.5 M€2009). As a result, the weighted average actual unit cost over RP2 (105.17 €2009) is +0.4% higher than planned in the NPP (104.76 €2009).					





**ESTONIA: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**



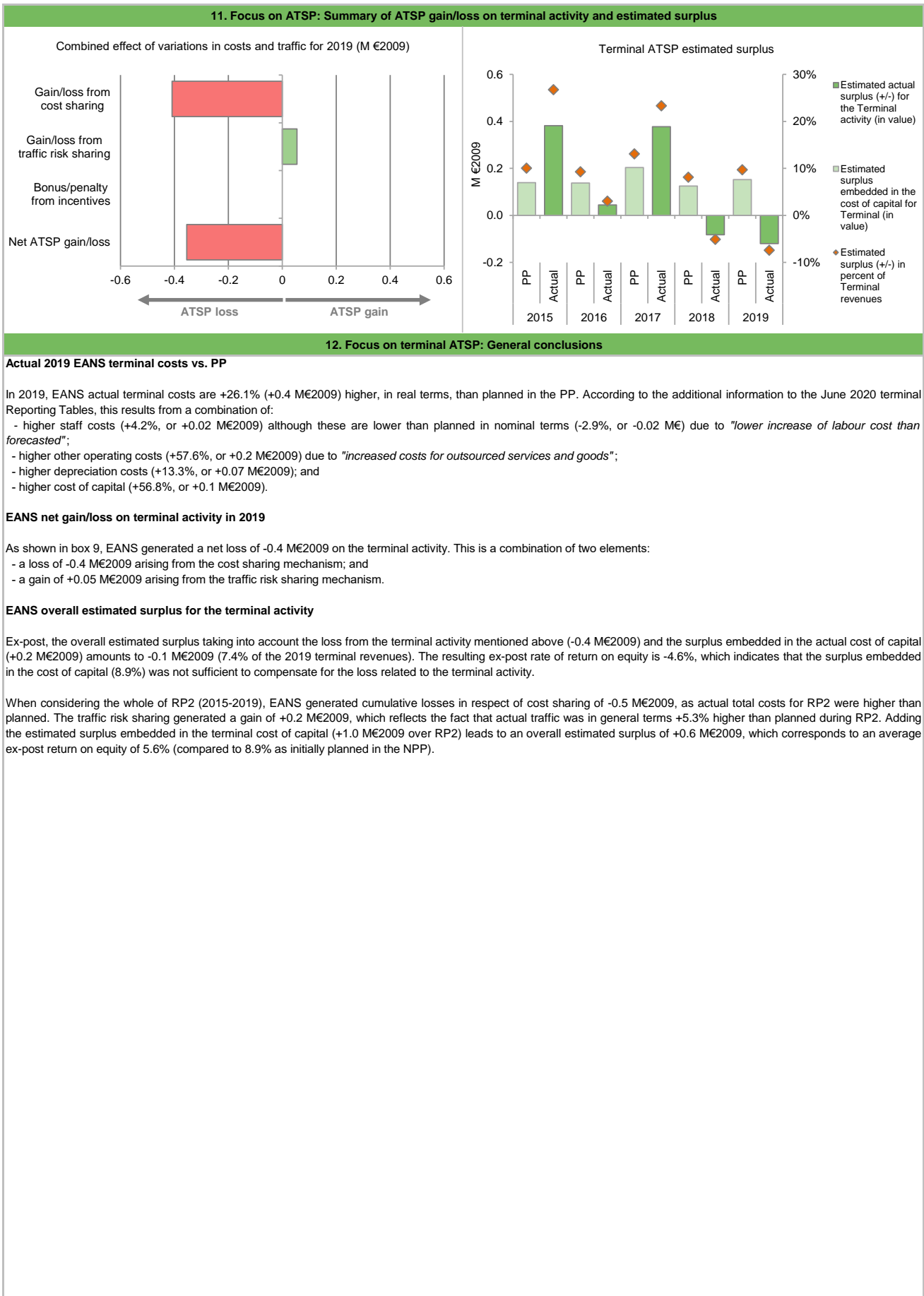
## ESTONIA: Terminal ATSP (EANS)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	1 390	1 485	1 560	1 537	1 568
Actual costs for the ATSP	1 244	1 553	1 471	1 833	1 976
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	147	-67	89	-296	-409
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>147</b>	<b>-67</b>	<b>89</b>	<b>-296</b>	<b>-409</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	3.6%	-3.3%	7.3%	11.3%	6.7%
Determined costs for the ATSP (PP) - based on actual inflation	1 391	1 520	1 585	1 556	1 598
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>35</b>	<b>-36</b>	<b>57</b>	<b>68</b>	<b>54</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>181</b>	<b>-104</b>	<b>146</b>	<b>-228</b>	<b>-354</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	3 732	3 734	3 373	3 010	2 667
Estimated proportion of financing through equity (in %)	42.0%	41.5%	68.0%	46.6%	64.1%
Estimated proportion of financing through equity (in value)	1 569	1 549	2 292	1 403	1 710
Estimated proportion of financing through debt (in %)	58.0%	58.5%	32.0%	53.4%	35.9%
Estimated proportion of financing through debt (in value)	2 163	2 185	1 081	1 607	957
Cost of capital pre-tax (in value)	219	218	243	184	187
Average interest on debt (in %)	3.7%	3.7%	3.7%	3.7%	3.7%
Interest on debt (in value)	79	80	39	59	35
Determined RoE pre-tax rate (in %)	8.9%	8.9%	8.9%	8.9%	8.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	140	138	204	125	152
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>140</b>	<b>138</b>	<b>204</b>	<b>125</b>	<b>152</b>
<b>Revenue/costs for the terminal activity</b>	<b>1 390</b>	<b>1 485</b>	<b>1 560</b>	<b>1 537</b>	<b>1 568</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>10.0%</b>	<b>9.3%</b>	<b>13.1%</b>	<b>8.1%</b>	<b>9.7%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>8.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	4 248	5 572	5 563	6 095	6 860
Estimated proportion of financing through equity (in %)	53.0%	29.9%	46.7%	26.8%	38.4%
Estimated proportion of financing through equity (in value)	2 251	1 663	2 600	1 635	2 632
Estimated proportion of financing through debt (in %)	47.0%	70.1%	53.3%	73.2%	61.6%
Estimated proportion of financing through debt (in value)	1 997	3 908	2 963	4 460	4 228
Cost of capital pre-tax (in value)	273	277	276	216	293
Average interest on debt (in %)	3.7%	3.3%	1.5%	1.6%	1.4%
Interest on debt (in value)	73	129	44	71	59
Determined RoE pre-tax rate (in %)	8.9%	8.9%	8.9%	8.9%	8.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	200	148	231	146	234
Net ATSP gain(+)/loss(-) on terminal activity	181	-104	146	-228	-354
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>381</b>	<b>44</b>	<b>377</b>	<b>-82</b>	<b>-120</b>
<b>Revenue/costs for the terminal activity</b>	<b>1 425</b>	<b>1 449</b>	<b>1 616</b>	<b>1 606</b>	<b>1 622</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>26.8%</b>	<b>3.1%</b>	<b>23.3%</b>	<b>-5.1%</b>	<b>-7.4%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>16.9%</b>	<b>2.7%</b>	<b>14.5%</b>	<b>-5.0%</b>	<b>-4.6%</b>

**ESTONIA: Terminal ATSP (EANS)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## ESTONIA: Gate-to-gate

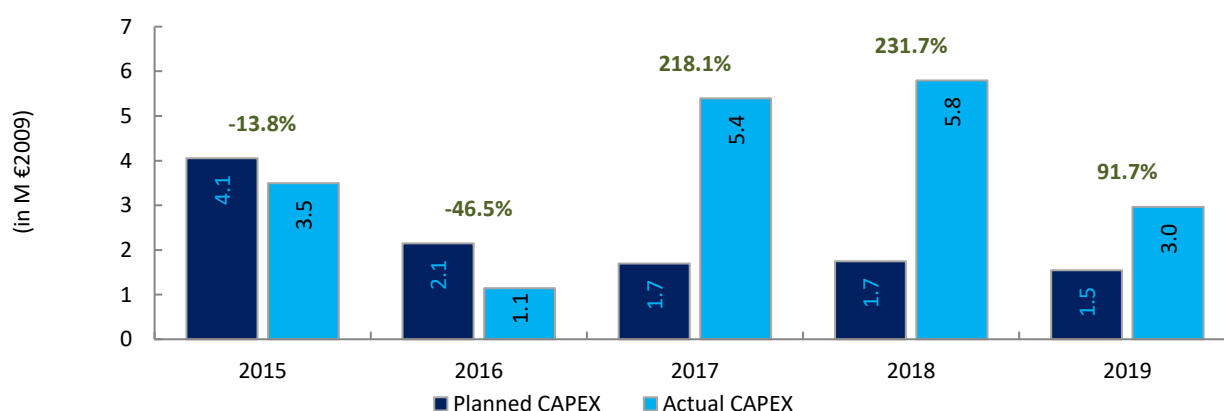
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Estonia: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	18 739 585	19 481 586	19 852 645	20 081 013	20 295 459																																							
Real terminal costs (EUR2009)	1 674 949	1 770 015	1 844 216	1 821 784	1 852 163																																							
Real gate-to-gate costs (EUR2009)	20 414 534	21 251 601	21 696 861	21 902 797	22 147 622																																							
En-route share (%)	91.8%	91.7%	91.5%	91.7%	91.6%																																							
<b>Estonia: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	17 478 222	18 559 853	19 768 513	21 531 206	22 997 569																																							
Real terminal costs (EUR2009)	1 540 149	1 854 376	1 734 485	2 104 274	2 239 395																																							
Real gate-to-gate costs (EUR2009)	19 018 371	20 414 229	21 502 998	23 635 480	25 236 964																																							
En-route share (%)	91.9%	90.9%	91.9%	91.1%	91.1%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	-1 396 163	-837 373	-193 863	1 732 683	3 089 342																																							
in %	-6.8%	-3.9%	-0.9%	7.9%	13.9%																																							
En-route share in p.p.	0.1 p.p.	-0.8 p.p.	0.4 p.p.	-0.6 p.p.	-0.5 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +13.9% (+3.1 M€2009) higher than planned due to higher than planned en-route costs (+13.3%, or +2.7 M€2009) and terminal costs (+20.9%, or +0.4 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (91.1%) is slightly lower than planned in the PP for 2019 (91.6%).</p> <p>For EANS, the estimated gate-to-gate economic surplus in 2019 amounts to -0.8 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 4.6% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>91.8%</td> <td>8.2%</td> </tr> <tr> <td>Actual</td> <td>91.9%</td> <td>8.1%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>91.7%</td> <td>8.3%</td> </tr> <tr> <td>Actual</td> <td>90.9%</td> <td>9.1%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>91.5%</td> <td>8.5%</td> </tr> <tr> <td>Actual</td> <td>91.9%</td> <td>8.1%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>91.7%</td> <td>8.3%</td> </tr> <tr> <td>Actual</td> <td>91.1%</td> <td>8.9%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>91.6%</td> <td>8.4%</td> </tr> <tr> <td>Actual</td> <td>91.1%</td> <td>8.9%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	91.8%	8.2%	Actual	91.9%	8.1%	2016	Determined	91.7%	8.3%	Actual	90.9%	9.1%	2017	Determined	91.5%	8.5%	Actual	91.9%	8.1%	2018	Determined	91.7%	8.3%	Actual	91.1%	8.9%	2019	Determined	91.6%	8.4%	Actual	91.1%	8.9%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	91.8%	8.2%																																									
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	Actual	91.1%	8.9%																																									
<b>3. Technical notes on en-route and terminal information reported by Estonia</b>																																												
<b>Note 1: Recovery of terminal costs in Estonia in RP2</b>																																												
<p>For the whole RP2 period (2015-2019), Estonia does not fully recover the terminal costs through the terminal charges. In particular, according to the additional information to the terminal Reporting Tables, item 2d), "To promote Estonian tourism and air traffic only 70% of TNC costs have to be covered through charges. Additional 30% is calculated as "Other other revenues" while calculating unit rate."</p>																																												

## ESTONIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: EANS						
FAB: NEFAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	5.0	2.7	2.2	2.4	2.1	14.4
Main CAPEX (in nominal M)	5.0	2.7	2.2	2.4	2.1	14.4
Inflation %	3.0%	3.1%	3.0%	3.0%	3.0%	
Inflation index (100 in 2009)	123.3	127.1	130.9	134.8	138.9	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>4.1</b>	<b>2.1</b>	<b>1.7</b>	<b>1.7</b>	<b>1.5</b>	<b>11.2</b>
Main CAPEX (in M €2009)	4.1	2.1	1.7	1.7	1.5	11.2
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	15.8	16.6	17.1	17.4	17.6	84.5
Total CAPEX as % of Real gate-to-gate ANSP costs	25.7%	12.9%	9.9%	10.1%	8.8%	13.2%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	4.1	1.4	6.6	7.3	3.8	23.2
Main CAPEX (in nominal M)	4.1	1.4	6.6	7.3	3.8	23.2
Inflation %	0.1%	0.8%	3.7%	3.4%	2.3%	
Inflation index (100 in 2009)	117.1	118.0	122.4	126.6	129.5	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>3.5</b>	<b>1.1</b>	<b>5.4</b>	<b>5.8</b>	<b>3.0</b>	<b>18.8</b>
Main CAPEX (in M €2009)	3.5	1.1	5.4	5.8	3.0	18.8
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	14.3	15.6	16.7	18.7	20.5	85.7
Total CAPEX as % of Real gate-to-gate ANSP costs	24.5%	7.4%	32.4%	31.0%	14.5%	21.9%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-0.9	-1.4	4.4	5.0	1.7	8.8
Total CAPEX (in M €2009)	-0.6	-1.0	3.7	4.0	1.4	7.6
<b>Total CAPEX (in %, M €2009)</b>	<b>-13.8%</b>	<b>-46.5%</b>	<b>218.1%</b>	<b>231.7%</b>	<b>91.7%</b>	<b>68.0%</b>



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# Annual Monitoring Report 2019

## Local level view

### Finland

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## FINLAND

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	84	C	C	D	D	B
ANS Finland	86	D	D	D	D	E
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	FTSA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	6	1				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>16</b>	<b>2</b>				
ANS Finland	Number of questions answered					
	YES	NO				
Policy and its implementation	12	1				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	6	2				
<b>TOTAL</b>	<b>20</b>	<b>4</b>				
Observations						
<p>The State did not reach the RP2 target in 2019 by only one question in the EoS Component/area of Safety Culture, out of 36 questions. That question was self-assessed and not reviewed by EASA.</p> <p>All other safety targets have been met.</p>						

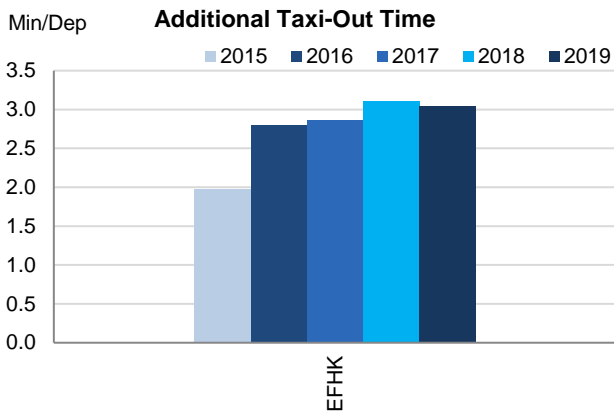
## FINLAND

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

Finland has only identified the main airport at Helsinki as subject to RP2 monitoring. The Airport Operator Data Flow is correctly established allowing for the calculation of environmental indicators. With only a 1% traffic increase in 2019, the additional times remain below the SES averages.

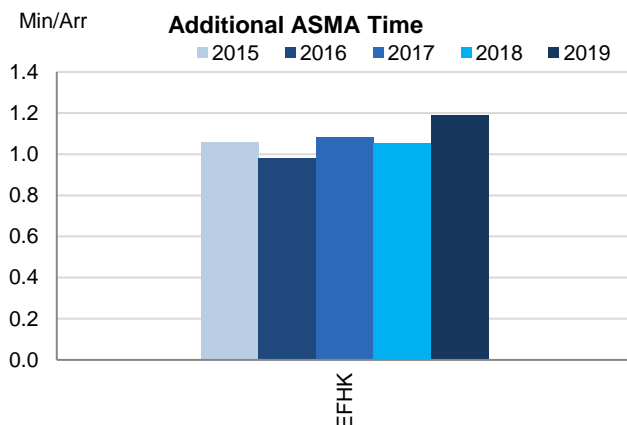
## 2. Additional Taxi-Out Time



In 2019 there is a marginal decrease in additional taxi-out time at Helsinki airport. From April to September the additional taxi-out times are below 2 minutes, but especially during winter months these times increase significantly (up to 8.07 minutes in January) due to winter maintenance and de-icing procedures.

According to NEFAB monitoring report: Renovations project started in March 2018 to improve aerodrome capacity (ACFT stands, taxiways, and de-icing renovations), so this might increase also the additional taxi-out times. However, according to the information recorded in the Airport Corner, these works finished in September 2018.

## 3. Additional ASMA Time



The additional time in terminal airspace has increased in 2019 and is now 1.19 min/arr.

As observed other years, these additional ASMA times are longer in Autumn and Winter.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Helsinki/ Vantaa	EFHK	1.97	2.80	2.86	3.10	3.04	1.06	0.98	1.08	1.05	1.19

**FINLAND**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.08	0.08	0.08	0.08	0.08	
Deadband +/-	0.05 - 0.08					
Actual performance	0.02	0.00	0.00	0.00	0.00	

**National capacity incentive scheme**

Finland applied a national incentive scheme based on the following criteria for the period 2015 – 2019:

En route ATFM delay 2015-2019:

0,02min / flt or better: Bonus: 1 % of the revenues from air navigation services in year n

0,03min / flt: Bonus: 0,5 % of the revenues from air navigation services in year n

0,04min / flt: Bonus: 0,2% of the revenues from air navigation services in year n

0,09min / flt: Penalty: 0,2 % of the revenues from air navigation services in year n

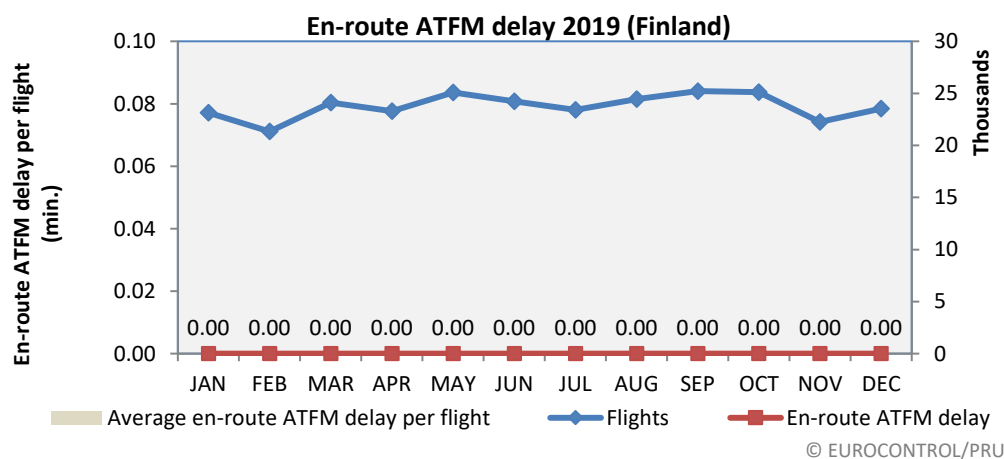
0,10min / flt: Penalty: 0,5 % of the revenues from air navigation services in year n

0,11min / flt or worse: Penalty: Penalty: 1% of the revenues from air navigation services in year n

With an actual en route capacity performance of 0.00 minutes per flight in 2019, the ANSP ANS Finland will receive a bonus of 1% of the revenues from air navigation services in year n.

Finland reports that this is equivalent to €439,670 for 2019.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.03	0.02	0.49	0.01	0.00	0.12	0.02	0.00	0.00	0.00	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	245		253		263		271		280		290	
Base	242	<b>248</b>	247	<b>248</b>	251	<b>247</b>	255	<b>263</b>	259	<b>283</b>	264	<b>285</b>
Low	239		240		240		240		240		241	

Traffic increased by approximately 1% from 2018 levels and the excellent en route capacity performance continued through 2019, with a positive contribution to the union-wide target.

Delay forecast - ANS Finland						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.01	0.01	0.01			

### Planning and Effective Use of CDRs

Free route airspace has been implemented in Finland in 2015.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
34%	33%	34%	28%	37%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
0%	0%	0%	0%	0%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## FINLAND

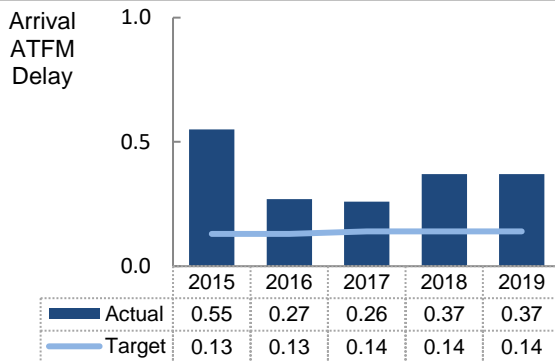
## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

Finland identifies its main airport Helsinki as subject to RP2 monitoring, where traffic levels at these airports have moderately increased during RP2 (+15% with respect to 2015). In terms of arrival ATFM delays, values are moderately lower than those in the beginning of the reference period (-33.2% in 2018 with respect to 2015) but nevertheless the target is missed for the 5th year in a row.

At the same time ATFM slot adherence has improved significantly (2015:89.0%; 2019:93.9%) while ATC pre-departure delay has worsen (2015:0.15 min/dep.; 2018:0.39 min/dep.)

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Finland have not changed with respect to 2018. Following exactly the same pattern as last year, delays are mostly attributed to weather (70%), but in August the main reason was limitations in the aerodrome capacity associated with works.

According to NEFAB monitoring report: *Traficom (Finnish NSA) has communicated with ANS Finland regarding the increased weather delays and solution to this, but it seems that the growth in traffic affects negatively to the delays when the traffic is regulated. The other cause for delays in 2019 was aerodrome capacity, due to renovation works at the aerodrome and 3-week closure of one runway due to renewal of ILS equipment and resurfacing of runway exits.*

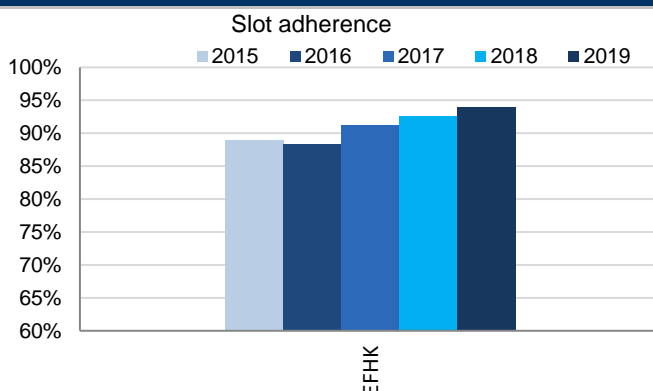
The achieved arrival ATFM delay (0.37 min/arr.) is more than double of the challenging target for 2019.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The NEFAB PP establishes a national target on arrival ATFM delay for Finland which corresponds with the breakdown for the only airport, EFHK. The challenging target is set at 50% of the observed average arrival ATFM delay over the last 5 years at the beginning of the reference period.

NEFAB presents an incentive scheme for the national targets on arrival ATFM delay for Finland. According to this incentive scheme and the achieved performance, a penalty will be applied (1% of revenues from EFHK TNC services).

## 4. ATFM Slot Adherence



Slot adherence at Helsinki has increased once again in 2019 reaching 93.9%. The worst results in terms of ATFM slot adherence are observed in January, which might be related to de-icing.

Finland reports that the ANSP has updated internal documentation (instructions) related to flow management in ATS units in December 2019.

## 5. ATC Pre-departure Delay

ATC pre-departure delay at Helsinki (EFHK) has increased every year in RP2 and now reaches 0.39 min/dep. but it is still commensurate with the level of traffic compared to other airports in RP2. Quality of the reporting, in terms of the amount of delay left unexplained has improved again in 2019.

## 6. Appendix

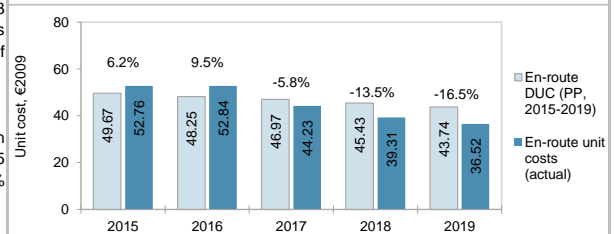
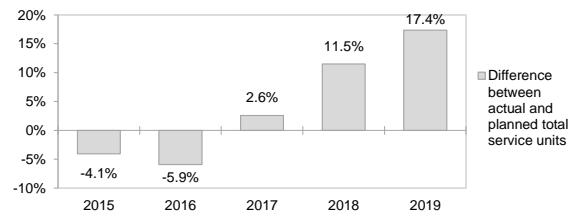
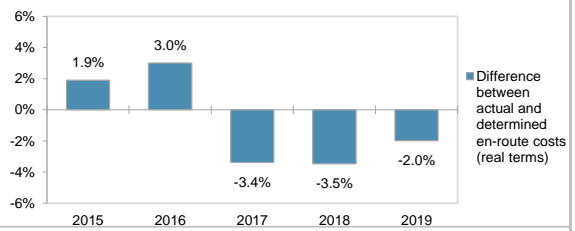
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Helsinki/ Vantaa	EFHK	0.55	0.27	0.26	0.37	0.37	89.0%	88.3%	91.2%	92.6%	93.9%	0.15	0.18	0.34	0.38	0.39

## FINLAND: En-route charging zone

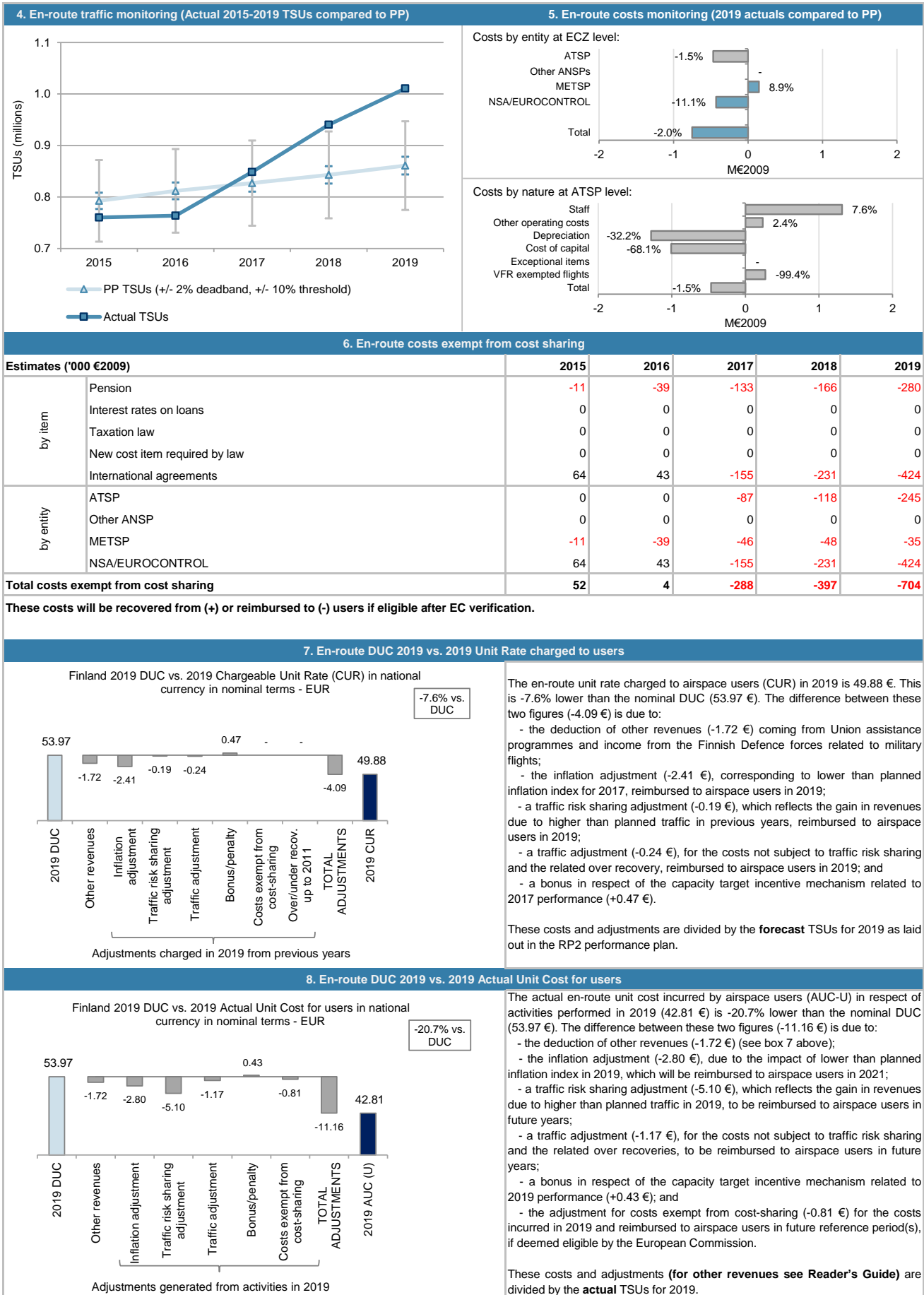
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Finland ECZ represents 0.6% of the SES en-route ANS determined costs in 2019					
· ATSP: ANS Finland					
· FAB: NEFAB					
· National currency: EUR					
2. En-route DUC monitoring at Charging Zone level					
Finland: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	45 050 000	45 596 000	46 064 000	46 321 000	46 468 000
Inflation %	1.5%	1.7%	1.9%	2.0%	2.0%
Inflation index (100 in 2009)	114.4	116.4	118.6	121.0	123.4
Real en-route costs (EUR2009)	39 368 663	39 179 750	38 843 860	38 294 684	37 662 953
Total en-route Service Units	792 600	812 000	827 000	843 000	861 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>49.67</b>	<b>48.25</b>	<b>46.97</b>	<b>45.43</b>	<b>43.74</b>
Finland: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	44 896 400	45 347 269	42 503 630	42 365 049	42 772 708
Inflation %	-0.2%	0.4%	0.8%	1.2%	1.1%
Inflation index (100 in 2009)	111.9	112.4	113.3	114.6	115.9
Real en-route costs (EUR2009)	40 118 861	40 360 311	37 529 161	36 963 240	36 912 878
Total en-route Service Units	760 383	763 829	848 430	940 208	1 010 679
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>52.76</b>	<b>52.84</b>	<b>44.23</b>	<b>39.31</b>	<b>36.52</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)					
in value	-153 600	-248 731	-3 560 370	-3 955 951	-3 695 292
in %	-0.3%	-0.5%	-7.7%	-8.5%	-8.0%
Inflation %					
in p.p.	-1.7 p.p.	-1.3 p.p.	-1.1 p.p.	-0.8 p.p.	-0.9 p.p.
Inflation index (100 in 2009)					
in p.p.	-2.5 p.p.	-4.0 p.p.	-5.3 p.p.	-6.3 p.p.	-7.5 p.p.
Real en-route costs (EUR2009)					
in value	750 198	1 180 561	-1 314 699	-1 331 444	-750 075
in %	1.9%	3.0%	-3.4%	-3.5%	-2.0%
Total en-route Service Units					
in value	-32 217	-48 171	21 430	97 208	149 679
in %	-4.1%	-5.9%	2.6%	11.5%	17.4%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>					
in value	<b>3.09</b>	<b>4.59</b>	<b>-2.74</b>	<b>-6.11</b>	<b>-7.22</b>
in %	<b>6.2%</b>	<b>9.5%</b>	<b>-5.8%</b>	<b>-13.5%</b>	<b>-16.5%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (36.52 €2009) is -16.5% lower than planned in the PP (43.74 €2009). This results from the combination of much higher than planned TSUs (+17.4%) and slightly lower than planned en-route costs in real terms (-2.0%, or -0.8 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+17.4%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (ANS Finland) retaining an amount of +1.5 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -8.0% (-3.7 M€) lower than planned. However, since the actual inflation index is also lower than planned (-7.5 p.p.), actual en-route costs are -2.0% (-0.8 M€2009) below plans when expressed in real terms.					
The slightly lower than planned en-route costs in real terms are driven by ANS Finland (-1.5%, or -0.5 M€2009) and the NSA/EUROCONTROL (-11.1%, or -0.4 M€2009), while the costs for the MET service provider (+8.9%, or +0.1 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12. See also <b>Note 1</b> at the end of the report.					
Costs exempt from cost-sharing are reported for a total amount of -0.7 M€2009 comprising -0.3 M€2009 for pensions and -0.4 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +4.5% higher than planned, while actual costs in real terms are -0.8% lower than the determined costs (some -1.5 M€2009). As a result, the weighted average actual unit cost over RP2 (44.38 €2009) is -5.1% lower than planned in the NPP (46.75 €2009).					



**FINLAND: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## FINLAND: En-route ATSP (ANS Finland)

## Monitoring of en-route COST-EFFICIENCY for 2019

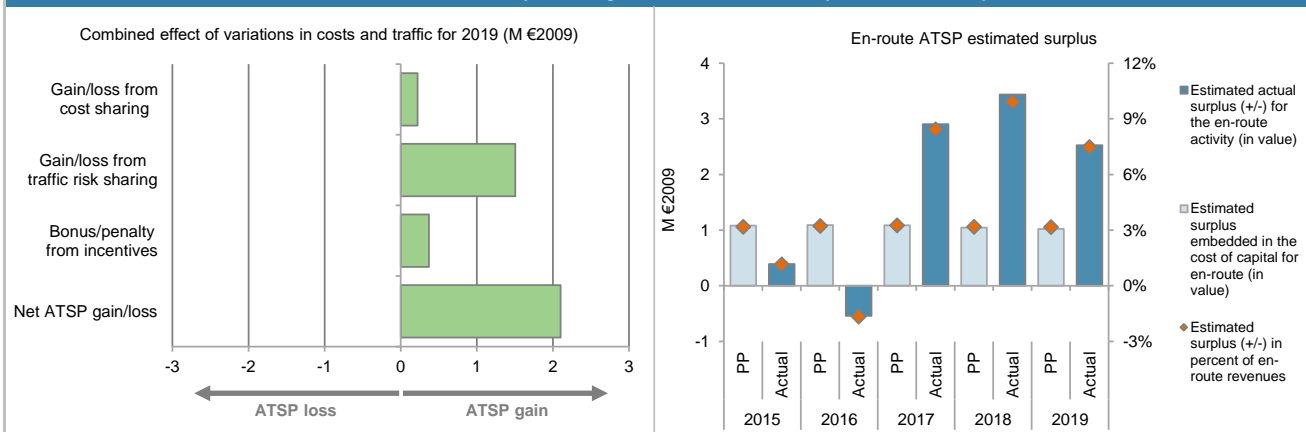
9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	33 991	33 734	33 367	32 806	32 163
Actual costs for the ATSP	34 635	34 918	32 057	31 723	31 695
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-645	-1 185	1 310	1 083	467
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	-87	-118	-245
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-645</b>	<b>-1 185</b>	<b>1 223</b>	<b>965</b>	<b>223</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-4.1%	-5.9%	2.6%	11.5%	17.4%
Determined costs for the ATSP (PP) - based on actual inflation	34 757	34 941	34 938	34 622	34 246
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-910</b>	<b>-1 111</b>	<b>761</b>	<b>1 523</b>	<b>1 507</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>332</b>	<b>318</b>	<b>355</b>	<b>383</b>	<b>372</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>-1 223</b>	<b>-1 977</b>	<b>2 338</b>	<b>2 872</b>	<b>2 101</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	31 430	31 626	31 525	30 253	29 561
Estimated proportion of financing through equity (in %)	40.0%	40.0%	40.0%	40.0%	40.0%
Estimated proportion of financing through equity (in value)	12 563	12 641	12 600	12 100	11 825
Estimated proportion of financing through debt (in %)	60.0%	60.0%	60.0%	60.0%	60.0%
Estimated proportion of financing through debt (in value)	18 866	18 985	18 925	18 152	17 736
Cost of capital pre-tax (in value)	1 575	1 585	1 579	1 516	1 482
Average interest on debt (in %)	2.6%	2.6%	2.6%	2.6%	2.6%
Interest on debt (in value)	491	494	492	472	461
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 084	1 091	1 087	1 044	1 020
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 084</b>	<b>1 091</b>	<b>1 087</b>	<b>1 044</b>	<b>1 020</b>
<b>Revenue/costs for the en-route activity</b>	<b>33 991</b>	<b>33 734</b>	<b>33 367</b>	<b>32 806</b>	<b>32 163</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.2%</b>	<b>3.2%</b>	<b>3.3%</b>	<b>3.2%</b>	<b>3.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	29 674	28 347	16 360	17 603	14 030
Estimated proportion of financing through equity (in %)	62.9%	58.6%	40.1%	37.1%	35.2%
Estimated proportion of financing through equity (in value)	18 668	16 625	6 556	6 531	4 944
Estimated proportion of financing through debt (in %)	37.1%	41.4%	59.9%	62.9%	64.8%
Estimated proportion of financing through debt (in value)	11 006	11 722	9 804	11 073	9 086
Cost of capital pre-tax (in value)	1 852	1 653	615	619	472
Average interest on debt (in %)	2.2%	1.9%	0.5%	0.5%	0.5%
Interest on debt (in value)	240	218	49	55	45
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	1 611	1 435	566	564	427
Net ATSP gain(+)/loss(-) on en-route activity	-1 223	-1 977	2 338	2 872	2 101
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>388</b>	<b>-543</b>	<b>2 904</b>	<b>3 435</b>	<b>2 528</b>
<b>Revenue/costs for the en-route activity</b>	<b>33 413</b>	<b>32 941</b>	<b>34 395</b>	<b>34 595</b>	<b>33 797</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>1.2%</b>	<b>-1.6%</b>	<b>8.4%</b>	<b>9.9%</b>	<b>7.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>2.1%</b>	<b>-3.3%</b>	<b>44.3%</b>	<b>52.6%</b>	<b>51.1%</b>



## FINLAND: En-route ATSP (ANS Finland)

## Monitoring of en-route COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on en-route activity and estimated surplus



## 12. Focus on en-route ATSP: General conclusions

## Actual 2019 ANS Finland en-route costs vs. PP

In 2019, ANS Finland actual en-route costs are -1.5% (-0.5 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- higher staff costs (+7.6%, or +1.3 M€2009) which is "mainly due to general increase in wages. ANS Finland's total FTE decreased by 3 FTE in 2019.";
- slightly higher other operating costs (+2.4%, or +0.2 M€2009) although these are lower than planned in nominal terms (-3.8%, or -0.5 M€). "The main reason to lower cost is that after 1.4.2017 the cost of Finavia's centralised services are not anymore allocated to enroute cost base. There was also savings in rents of premises and rents of telecommunication lines related to closing of Tampere ACC. From 2018 costs increased mainly due services bought from Traffic Management Finland.";
- much lower depreciation costs (-32.2%, or -1.3 M€2009). "Actual depreciations due not include depreciations of the fixed assets that were written of in 2016 by Finavia. Actual depreciations include only depreciations of the fixed assets, that are owned by ANS Finland. This is one reason why actual depreciations are lower than planned. Some of the investments have also been delayed.";
- much lower cost of capital (-68.1%, or -1.0 M€2009). "Asset base is much lower than planned due to following reasons: a) Lots of fixed assets were written off by Finavia in 2016 to prepare the separation of Finavia and ANS Finland in 2017. b) Tampere ACC buildings were included in the plan, but in 2019 ANS Finland operated in rented premises. c) Investments have been delayed in RP2. Actual WACC is lower than planned due to a) lower interest rate and b) share of debt is bigger than planned".

See **Note 1** at the end of the report.

## ANS Finland net gain/loss on en-route activity in 2019

As shown in box 9, ANS Finland generated a net gain of +2.1 M€2009 on the en-route activity. This is a combination of three elements:

- a gain of +0.2 M€2009 arising from the cost sharing mechanism;
- a gain of +1.5 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +0.4 M€2009 (or +0.43 M€ in nominal terms), corresponding to a bonus as part of the en-route capacity target incentive mechanism. This amount corresponds to 1.0% of ANS Finland en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

The gain from cost sharing mentioned above (+0.2 M€2009) includes amounts reported by ANS Finland for cost exempt from cost sharing (-0.2 M€2009). Should these costs not be deemed eligible by the European Commission, ANS Finland would record a net gain of +2.3 M€2009 for the en-route activity in 2019.

## ANS Finland overall estimated surplus for the en-route activity

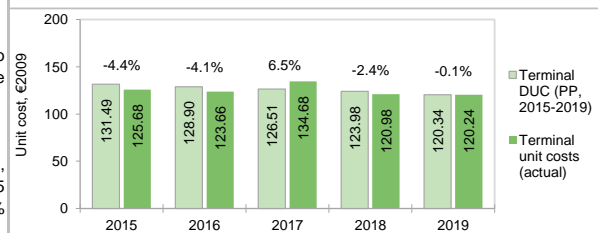
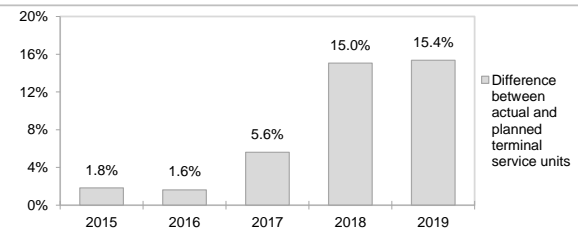
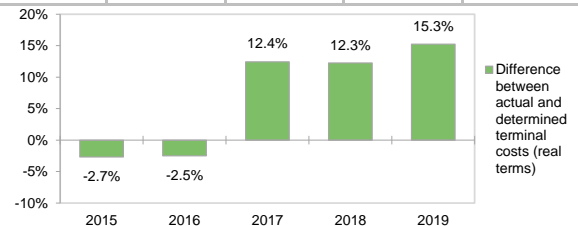
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+2.1 M€2009) and the surplus embedded in the actual cost of capital (+0.4 M€2009) amounts to +2.5 M€2009 (7.5% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 51.1%, which is much higher than the 8.6% planned in the PP. See also **Note 1** at the end of the report.

When considering the whole of RP2 (2015-2019), ANS Finland generated cumulative gains in respect of cost sharing of +0.6 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +1.8 M€2009, which reflects the fact that actual traffic was in general terms +4.5% higher than planned during RP2. Adding the gain of +1.8 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+4.6 M€2009 over RP2) leads to an overall estimated surplus of +8.7 M€2009, which corresponds to an average ex-post return on equity of 16.3% (compared to 8.6% as initially planned in the NPP).

## FINLAND: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Finland TCZ represents 1.2% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes	
ATSP:	ANS Finland	Airports with fewer than 70,000 IFRs ATMs:		0	
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		1	
Number of airports in charging zone in 2019:	1,	of which:		Airports with more than 225,000 IFRs ATMs: 0	
2. Terminal DUC monitoring at Charging Zone level					
Finland: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	14 850 590	15 150 612	15 452 687	15 761 914	16 079 096
Inflation %	1.5%	1.7%	1.9%	2.0%	2.0%
Inflation index (100 in 2009)	114.4	116.4	118.6	121.0	123.4
Real terminal costs (EUR2009)	12 977 755	13 018 624	13 030 610	13 030 753	13 032 329
Total terminal Service Units	98 700	101 000	103 000	105 100	108 300
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>131.49</b>	<b>128.90</b>	<b>126.51</b>	<b>123.98</b>	<b>120.34</b>
Finland: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	14 135 126	14 260 526	16 594 347	16 766 254	17 405 400
Inflation %	-0.2%	0.4%	0.8%	1.2%	1.1%
Inflation index (100 in 2009)	111.9	112.4	113.3	114.6	115.9
Real terminal costs (EUR2009)	12 630 972	12 692 259	14 652 206	14 628 452	15 020 873
Total terminal Service Units	100 500	102 636	108 789	120 914	124 927
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>125.68</b>	<b>123.66</b>	<b>134.68</b>	<b>120.98</b>	<b>120.24</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-715 464	-890 086	1 141 660	1 004 340	1 326 304
	in %	in %	in %	in %	in %
	-4.8%	-5.9%	7.4%	6.4%	8.2%
Inflation %	-1.7 p.p.	-1.3 p.p.	-1.1 p.p.	-0.8 p.p.	-0.9 p.p.
Inflation index (100 in 2009)	-2.5 p.p.	-4.0 p.p.	-5.3 p.p.	-6.3 p.p.	-7.5 p.p.
Real terminal costs (EUR2009)	-346 784	-326 366	1 621 596	1 597 699	1 988 544
	in %	in %	in %	in %	in %
	-2.7%	-2.5%	12.4%	12.3%	15.3%
Total terminal Service Units	1 800	1 636	5 789	15 814	16 627
	in %	in %	in %	in %	in %
	1.8%	1.6%	5.6%	15.0%	15.4%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>
	<b>-5.81</b>	<b>-5.23</b>	<b>8.17</b>	<b>-3.00</b>	<b>-0.10</b>
	<b>in %</b>	<b>in %</b>	<b>in %</b>	<b>in %</b>	<b>in %</b>
	<b>-4.4%</b>	<b>-4.1%</b>	<b>6.5%</b>	<b>-2.4%</b>	<b>-0.1%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Finland Terminal Charging Zone (TCZ) comprising only Helsinki-Vantaa airport (EFHK).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (120.24 €2009) is -0.1% lower than planned in the PP (120.34 €2009). This results from the combination of much higher than planned TNSUs (+15.4%) and much higher than planned terminal costs in real terms (+15.3%, or +2.0 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Finland TCZ. The difference between actual and planned TNSUs (+15.4%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (ANS Finland) retaining +0.6 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +8.2% (+1.3 M€) higher than planned. However, since the actual inflation index is lower than planned (-7.5 p.p.), actual terminal costs are +15.3% (+2.0 M€2009) above plans when expressed in real terms.					
The higher than planned terminal costs in real terms are driven by ANS Finland (+16.4%, or +2.0 M€2009), the MET service provider (+0.4%) and the NSA (+7.6%, or +0.01 M€2009). A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for an amount of -0.1 M€2009 corresponding to pensions. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual TNSUs are +8.1% higher than planned, while actual costs in real terms are also +7.0% higher than the determined costs (some +4.5 M€2009). As a result, the weighted average actual unit cost over RP2 (124.83 €2009) is -1.0% lower than planned in the NPP (126.12 €2009).					



**FINLAND: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	16.4%
Other ANSPs	0.4%
METSP	7.6%
NSA	15.3%
Total	15.3%

Costs by nature at ATSP level:

Staff	25.2%
Other operating costs	36.7%
Depreciation	-60.0%
Cost of capital	-75.0%
Exceptional items	-
VFR exempted flights	-17.8%
Total	16.4%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	-6	-19	-56	-69	-112
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	-32	-45	-94
	Other ANSP	0	0	0	0	0
	METSP	-6	-19	-23	-24	-18
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>-6</b>	<b>-19</b>	<b>-56</b>	<b>-69</b>	<b>-112</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Finland 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 139.73 €. This is -5.9% lower than the nominal DUC (148.47 €). The difference between these two figures (-8.74 €) relates to:

- the deduction of other revenues (+2.67 €) due to a correction of the amount reported in 2017. ANS Finland does not have commercial income in Helsinki-Vantaa since 1.4.2017;
- the inflation adjustment (-6.42 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (-3.34 €), which reflects the gain in revenues due to higher than planned traffic in previous years, reimbursed to airspace users in 2019;
- a traffic adjustment (-0.36 €), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019; and
- a penalty in respect of the capacity target incentive mechanism related to 2017 performance (-1.30 €).

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Finland 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (126.45 €) is -14.8% lower than the nominal DUC (148.47 €). The difference between these two figures (-22.02 €) is mainly due to:

- the deduction of other revenues (+2.67 €) (see box 7 above);
- the inflation adjustment (-7.83 €), due to the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021; and
- a traffic risk sharing adjustment (-13.01 €), which reflects the gain in revenues due to higher than planned traffic in 2019, to be reimbursed to airspace users in future years.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## FINLAND: Terminal ATSP (ANS Finland)

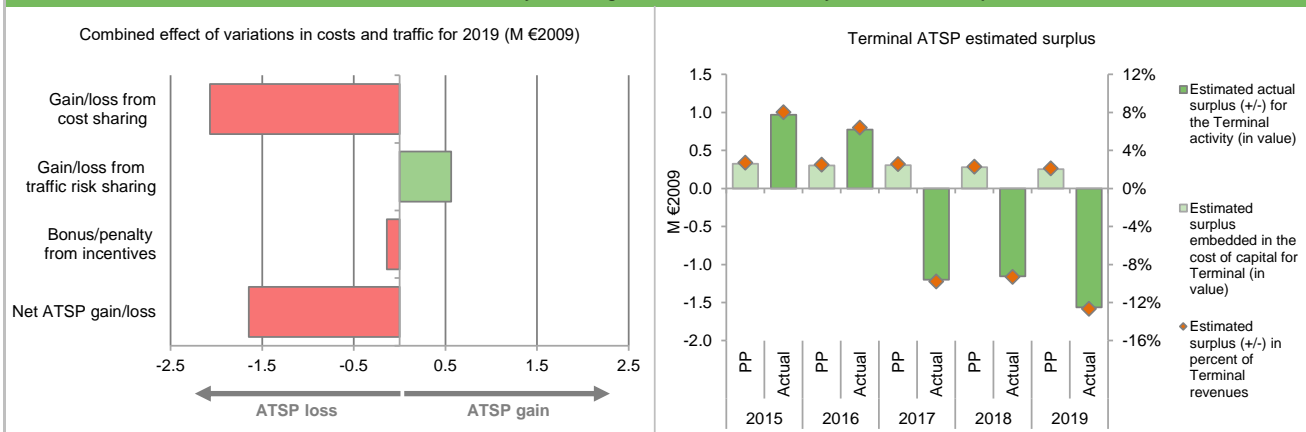
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	11 977	12 013	12 024	12 025	12 026
Actual costs for the ATSP	11 597	11 717	13 591	13 672	14 002
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	381	296	-1 566	-1 647	-1 976
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	-32	-45	-94
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>381</b>	<b>296</b>	<b>-1 599</b>	<b>-1 692</b>	<b>-2 070</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.8%	1.6%	5.6%	15.0%	15.4%
Determined costs for the ATSP (PP) - based on actual inflation	12 247	12 442	12 590	12 690	12 805
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>223</b>	<b>202</b>	<b>389</b>	<b>558</b>	<b>563</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>-122</b>	<b>-118</b>	<b>-124</b>	<b>-136</b>	<b>-139</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>482</b>	<b>379</b>	<b>-1 334</b>	<b>-1 270</b>	<b>-1 646</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	9 372	8 726	8 903	8 047	7 364
Estimated proportion of financing through equity (in %)	40.0%	40.0%	40.0%	40.0%	40.0%
Estimated proportion of financing through equity (in value)	3 749	3 490	3 560	3 218	2 945
Estimated proportion of financing through debt (in %)	60.0%	60.0%	60.0%	60.0%	60.0%
Estimated proportion of financing through debt (in value)	5 623	5 236	5 343	4 829	4 419
Cost of capital pre-tax (in value)	469	437	446	403	369
Average interest on debt (in %)	2.6%	2.6%	2.6%	2.6%	2.6%
Interest on debt (in value)	146	136	139	126	115
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	323	301	307	277	254
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>323</b>	<b>301</b>	<b>307</b>	<b>277</b>	<b>254</b>
<b>Revenue/costs for the terminal activity</b>	<b>11 977</b>	<b>12 013</b>	<b>12 024</b>	<b>12 025</b>	<b>12 026</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.7%</b>	<b>2.5%</b>	<b>2.6%</b>	<b>2.3%</b>	<b>2.1%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>	<b>8.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	8 947	7 765	3 905	3 619	2 756
Estimated proportion of financing through equity (in %)	63.0%	58.8%	40.1%	37.1%	35.1%
Estimated proportion of financing through equity (in value)	5 640	4 564	1 564	1 344	967
Estimated proportion of financing through debt (in %)	37.0%	41.2%	59.9%	62.9%	64.9%
Estimated proportion of financing through debt (in value)	3 307	3 200	2 340	2 275	1 789
Cost of capital pre-tax (in value)	558	453	147	127	92
Average interest on debt (in %)	2.2%	1.9%	0.5%	0.5%	0.5%
Interest on debt (in value)	72	60	12	11	9
Determined RoE pre-tax rate (in %)	8.6%	8.6%	8.6%	8.6%	8.6%
Estimated surplus embedded in the cost of capital for terminal (in value)	486	394	135	116	83
Net ATSP gain(+)/loss(-) on terminal activity	482	379	-1 334	-1 270	-1 646
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>968</b>	<b>772</b>	<b>-1 199</b>	<b>-1 154</b>	<b>-1 563</b>
<b>Revenue/costs for the terminal activity</b>	<b>12 078</b>	<b>12 096</b>	<b>12 256</b>	<b>12 402</b>	<b>12 356</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>8.0%</b>	<b>6.4%</b>	<b>-9.8%</b>	<b>-9.3%</b>	<b>-12.6%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>17.2%</b>	<b>16.9%</b>	<b>-76.7%</b>	<b>-85.9%</b>	<b>-161.6%</b>

## FINLAND: Terminal ATSP (ANS Finland)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 ANS Finland terminal costs vs. PP

In 2019, ANS Finland actual terminal costs are +16.4% (+2.0 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much higher staff costs (+25.2%, or +1.7 M€2009) "due to structural changes that were made in the separation of ANS Finland and Finavia. Increase is mainly due to general increase in wages and overtime work";
- much higher other operating costs (+36.7%, or +1.4 M€2009) due to "structural changes in the cost base related to separation of ANS from airport operator Finavia. Finavia's overhead cost and cost of internal services were replaced by new service contracts with Finavia and other service providers. To Finavia ANS Finland pays rent for the premises, "fixed assets-fee" for the use ANS assets owned by Finavia, marketing and development fee in Helsinki-Vantaa airport. ANS Finland also pays for some IM, HR, accounting and other services, which are provided by Finavia. From 2018 costs increased partly due services bought from Traffic Management Finland.";
- much lower depreciation costs (-60.0%, or -0.8 M€2009). "From 1.4.2017 onwards airport operator Finavia owns the ANS assets in the airport and ANS Finland pays rent for the use of these assets. Rent includes depreciations and cost of capital of the assets. Because of this reported depreciations are lower than planned, but other operating income are higher."; and
- much lower cost of capital (-75.0%, or -0.3 M€2009). "Value of assets is much smaller because of structural changes in 1.4.2017: Finavia owns ANS assets at the airport and ANS Finland pays rent (depreciation and cost of capital) for these assets. Rent is included in other operating costs. Actual WACC is also lower than planned because cost of debt is smaller and share of debt was higher than planned."

See **Note 1** at the end of the report.

## ANS Finland net gain/loss on terminal activity in 2019

As shown in box 9, ANS Finland generated a net loss of -1.6 M€2009 on the terminal activity. This is a combination of three elements:

- a loss of -2.1 M€2009 arising from the cost sharing mechanism;
- a gain of +0.6 M€2009 arising from the traffic risk sharing mechanism; and
- a loss of -0.1 M€2009 (or -0.16 M€ in nominal terms), corresponding to a penalty as part of the terminal capacity target incentive mechanism. This amount corresponds to 1.0% of ANS Finland terminal revenues (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs). The inclusion of this penalty in the chargeable cost base will be examined by the European Commission.

The loss from cost sharing mentioned above (-2.1 M€2009) includes amounts reported by ANS Finland for cost exempt from cost sharing (-0.1 M€2009). Should these costs not be deemed eligible by the European Commission, ANS Finland would record a net loss of -1.6 M€2009 for the terminal activity in 2019.

## ANS Finland overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-1.6 M€2009) and the surplus embedded in the actual cost of capital (+0.1 M€2009) amounts to -1.6 M€2009 (12.6% of the 2019 terminal revenues) resulting in a negative ex-post rate of return on equity. See also **Note 1** at the end of the report.

When considering the whole of RP2 (2015-2019), ANS Finland generated cumulative losses in respect of cost sharing of -4.7 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +1.9 M€2009, which reflects the fact that actual traffic was in general terms +8.1% higher than planned during RP2. Adding the loss of -0.6 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+1.2 M€2009 over RP2) leads to an overall estimated surplus of -2.2 M€2009, which results in a negative average ex-post return on equity (compared to 8.6% as initially planned in the NPP).

## FINLAND: Gate-to-gate

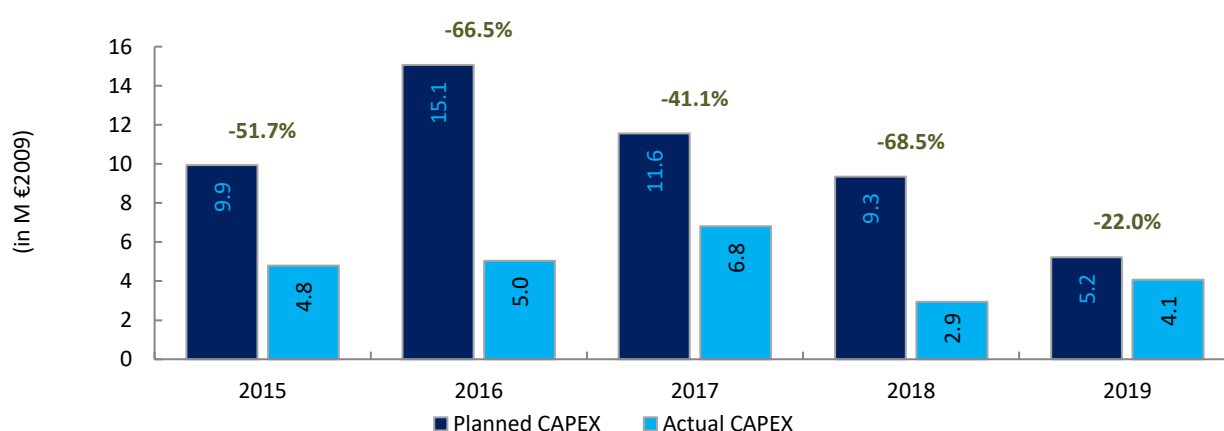
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Finland: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	39 368 663	39 179 750	38 843 860	38 294 684	37 662 953																																							
Real terminal costs (EUR2009)	12 977 755	13 018 624	13 030 610	13 030 753	13 032 329																																							
Real gate-to-gate costs (EUR2009)	52 346 419	52 198 375	51 874 470	51 325 437	50 695 282																																							
En-route share (%)	75.2%	75.1%	74.9%	74.6%	74.3%																																							
<b>Finland: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	40 118 861	40 360 311	37 529 161	36 963 240	36 912 878																																							
Real terminal costs (EUR2009)	12 630 972	12 692 259	14 652 206	14 628 452	15 020 873																																							
Real gate-to-gate costs (EUR2009)	52 749 833	53 052 570	52 181 367	51 591 692	51 933 751																																							
En-route share (%)	76.1%	76.1%	71.9%	71.6%	71.1%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	403 414	854 195	306 897	266 255	1 238 469																																							
in %	0.8%	1.6%	0.6%	0.5%	2.4%																																							
En-route share in p.p.	0.8 p.p.	1.0 p.p.	-3.0 p.p.	-3.0 p.p.	-3.2 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +2.4% (+1.2 M€2009) higher than planned due to higher than planned terminal costs (+15.3%, or +2.0 M€2009) while en-route costs are lower than planned (-2.0%, or -0.8 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (71.1%) is lower than planned in the PP for 2019 (74.3%).</p> <p>For ANS Finland, the estimated gate-to-gate economic surplus in 2019 amounts to 1.0 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 2.1% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>75.2%</td> <td>24.8%</td> </tr> <tr> <td>Actual</td> <td>76.1%</td> <td>23.9%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>75.1%</td> <td>24.9%</td> </tr> <tr> <td>Actual</td> <td>76.1%</td> <td>23.9%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>74.9%</td> <td>25.1%</td> </tr> <tr> <td>Actual</td> <td>71.9%</td> <td>28.1%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>74.6%</td> <td>25.4%</td> </tr> <tr> <td>Actual</td> <td>71.6%</td> <td>28.4%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>74.3%</td> <td>25.7%</td> </tr> <tr> <td>Actual</td> <td>71.1%</td> <td>28.9%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	75.2%	24.8%	Actual	76.1%	23.9%	2016	Determined	75.1%	24.9%	Actual	76.1%	23.9%	2017	Determined	74.9%	25.1%	Actual	71.9%	28.1%	2018	Determined	74.6%	25.4%	Actual	71.6%	28.4%	2019	Determined	74.3%	25.7%	Actual	71.1%	28.9%
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<b>3. Technical notes on en-route and terminal information reported by Finland</b>																																												
<b>Note 1: Organisational changes in Finland in RP2</b>																																												
<p>The Finnish state owned provider of the air navigation services has been separated from Finavia corporation (Finavia) to its own company which is totally independent from Finavia. The new legal entity Air Navigation Services Finland Oy (ANS Finland) has been established for the provision of the en-route and terminal air navigation services. ANS Finland started operating on 1 April 2017.</p> <p>ANS Finland is state-owned. It will function as a special assignment company under the ownership steering of the Ministry of Transport and Communications. The responsibility for Finavia's ownership steering has been transferred to the Ownership Steering Department of the Prime Minister's Office.</p> <p>ANS Finland provides en-route services as well as aerodrome control services and approach control services for 22 airports in Finland. En-route services include Finnish area control services, airspace management, aeronautical search and rescue and air traffic flow management.</p> <p>The cost allocation principles for the en-route and EFHK TN navigation services remains in principle the same as defined in the Performance Plan for Reference Period 2. Finavia's internal cost allocations have been replaced by the service agreements between Finavia and ANS Finland. Most of the assets included in the en-route cost base are owned by ANS Finland. For the EFHK TN navigation services most of the assets are owned by the Finavia.</p> <p>En-route charges are collected by the Eurocontrol on the behalf of the ANS Finland. EFHK TN navigation charges are collected by the Finavia on behalf of the ANS Finland.</p> <p>ANS Finland's cost base (other operating costs) includes (among others) costs incurred for the purchases from Finavia. These include goods and services used to support air navigation services provision. These outsourced services are in particular external staff, material, energy, utilities, rental of buildings, equipment and facilities, maintenance.</p> <p>In 1.4.2017 ANS Finland was separated from the airport operator Finavia. It was decided that ANS assets in the airports belong to Finavia and ANS Finland pays lease for the use of these assets. Rent is based on depreciation and cost of capital of these assets. In the case of new investments ANS Finland suggests new ANS investments for Finavia and Finavia makes final decision of the implementation. ANS Finland provides project management services to Finavia in these projects.</p> <p>From 1.1.2019 onwards ANS Finland is part of the Traffic Management Finland Group. Information about TMFG: <a href="https://tmfg.fi/en/tmfg">https://tmfg.fi/en/tmfg</a>. TMF provides services to ANS Finland related to ICT, HR, Financing, law, public relations etc. Cost of these services are allocated to different TMFG companies using FTE and turnover as allocation keys.</p> <p>The Finnish Transport Safety Agency (Trafi), the Finnish Communications Regulatory Authority (FICORA) and certain functions of the Finnish Transport Agency merged to form the Finnish Transport and Communications Agency Traficom on 1 January 2019. This change however hasn't any influence to the NSA's organising or cost base.</p>																																												

## FINLAND

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: ANS Finland						
FAB: NEFAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	11.4	17.5	13.7	11.3	6.5	60.3
Main CAPEX (in nominal M)	7.3	11.3	9.8	8.2	4.5	41.0
Inflation %	1.5%	1.7%	1.9%	2.0%	2.0%	
Inflation index (100 in 2009)	114.4	116.4	118.6	121.0	123.4	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>9.9</b>	<b>15.1</b>	<b>11.6</b>	<b>9.3</b>	<b>5.2</b>	<b>51.1</b>
Main CAPEX (in M €2009)	6.3	9.7	8.3	6.8	3.6	34.7
% Main of Total CAPEX	63.8%	64.3%	71.5%	72.6%	69.0%	67.8%
Real gate-to-gate ANSP costs (in M €2009)	46.0	45.7	45.4	44.8	44.2	226.1
Total CAPEX as % of Real gate-to-gate ANSP costs	21.6%	32.9%	25.5%	20.8%	11.8%	22.6%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	5.4	5.7	7.7	3.4	4.7	26.8
Main CAPEX (in nominal M)	3.7	3.9	5.3	2.5	2.1	17.5
Inflation %	-0.2%	0.4%	0.8%	1.2%	1.1%	
Inflation index (100 in 2009)	111.9	112.4	113.3	114.6	115.9	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>4.8</b>	<b>5.0</b>	<b>6.8</b>	<b>2.9</b>	<b>4.1</b>	<b>23.7</b>
Main CAPEX (in M €2009)	3.3	3.5	4.7	2.2	1.8	15.5
% Main of Total CAPEX	69.8%	68.6%	69.4%	73.5%	43.9%	65.4%
Real gate-to-gate ANSP costs (in M €2009)	46.2	46.6	45.6	45.4	45.7	229.6
Total CAPEX as % of Real gate-to-gate ANSP costs	10.4%	10.8%	14.9%	6.5%	8.9%	10.3%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-6.0	-11.9	-6.0	-7.9	-1.7	-33.5
Total CAPEX (in M €2009)	-5.1	-10.0	-4.7	-6.4	-1.2	-27.4
<b>Total CAPEX (in %, M €2009)</b>	<b>-51.7%</b>	<b>-66.5%</b>	<b>-41.1%</b>	<b>-68.5%</b>	<b>-22.0%</b>	<b>-53.7%</b>



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# Annual Monitoring Report 2019

Local level view

Latvia

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## LATVIA

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	75	C	D	D	D	C
LGS	79	C	D	D	D	C
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	CAA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	7	2				
Legal/Judiciary	5	2				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>14</b>	<b>4</b>				
LGS	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
One (Safety Policy and Objectives) of the EoSM Components/areas of the ANSP did not met the 2019 EoSM target level "D".						
All other safety targets have been met.						

## LATVIA

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

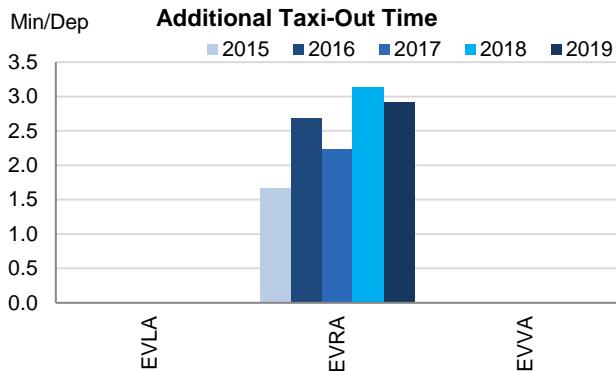
## 1. Overview

Latvia identified 3 airports as subject to RP2 monitoring, from which only Riga (EVRA) has established the Airport Operator Data Flow. Results for Latvia are therefore only representing this airport.

With a drastic traffic increase of 28% during RP2 at Riga (2019 vs 2015), the additional times have increased and remain high for an airport with that level of traffic.

Both EVLA and EVVA are uncontrolled aerodromes, no data is available for any evaluation of the environmental performance.

## 2. Additional Taxi-Out Time

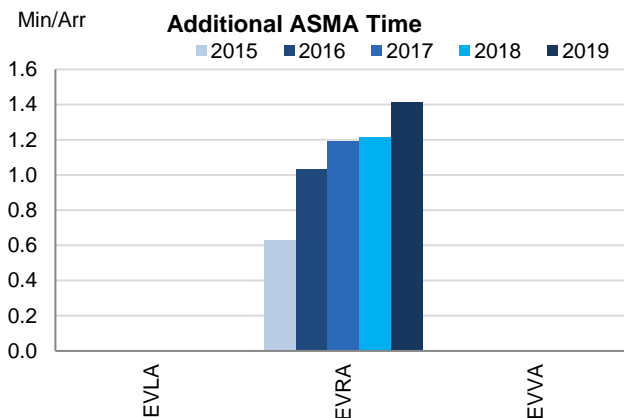


After a significant increase of the additional taxi-out times at Riga (EVRA) in 2018, the performance in 2019 has slightly improved.

The additional taxi-out time at Riga (EVRA: 2.92 min/dep.) is below the European average (RP2 airports: 3.56 min/dep.) but higher than other airports with a similar number of movements.

The additional times during most of the year are lower than the yearly average, but the performance in January, when additional TXOT average 6.91 min/dep, raise the annual value.

## 3. Additional ASMA Time



Additional times in the terminal airspace of Riga have worsened drastically through the reference period (EVRA: 2015: 0.63 min/arr.; 2019: 1.41 min/arr.)

NEFAB monitoring report argues that the increase in additional time in the terminal airspace can be attributed to the increase in air traffic, in particular during the summer season.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Liepaja	EVLA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Riga	EVRA	1.67	2.68	2.23	3.13	2.92	0.63	1.03	1.19	1.21	1.41
Ventspils	EVVA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**LATVIA**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.04	0.04	0.04	0.04	0.04	
Deadband +/-	0.01	0.01	0.01	0.01	0.01	
Actual performance	0.00	0.00	0.00	0.04	0.01	

**National capacity incentive scheme**

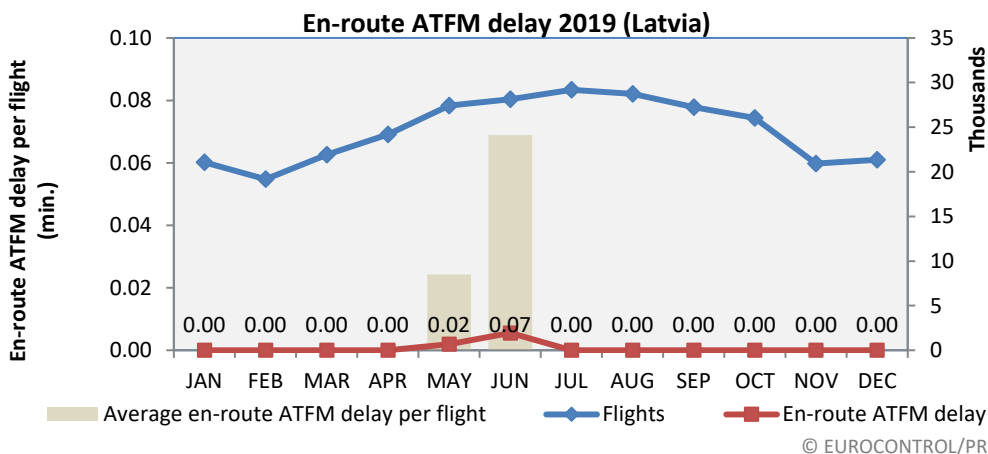
Latvia applied a national incentive scheme based on the following criteria for the period 2015 – 2019:

- 0,00min / flt or better: Bonus: 1 % of the revenues from air navigation services in year n
- 0,01min / flt: Bonus: 0,7% of the revenues from air navigation services in year n
- 0,02min / flt: Bonus: 0,5% of the revenues from air navigation services in year n
- 0,03min / flt: Bonus: 0,2% of the revenues from air navigation services in year n
- 0,05min / flt: Penalty: 0,2 % of the revenues from air navigation services in year n
- 0,06min / flt: Penalty: 0,5 % of the revenues from air navigation services in year n
- 0,07min / flt or worse: Penalty: Penalty: 1% of the revenues from air navigation services in year n

With an actual en route capacity performance of 0.01 minutes per flight in 2019, the ANSP LGS will receive a bonus of 0,7% of ANS revenues.

Latvia reports that this is equivalent to €156,807 in 2019.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	255		267		283		298		313		330	
Base	250	243	258	244	265	246	272	268	279	290	288	298
Low	246		249		251		253		255		258	

Traffic levels in Latvia grew by almost 3% on 2018 but remained under the high traffic scenario for 2019 forecasted by STATFOR back in 2014 when the FAB performance plans, and associated capacity plans were being determined.

Capacity performance improved significantly in Latvia with average delay per flight decreasing from 0,04 minutes per flight in 2018 to 0,01 minutes per flight in 2019. the actual delay was in line with the predicted delays published in NOP 2019 - 2024.

Delay forecast - LGS						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.01	0.01	0.01			

### Planning and Effective Use of CDRs

Free route airspace has been implemented in Latvia in 2015.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
42%	64%	35%	25%	20%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
0%	0%	0%	0%	0%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## LATVIA

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

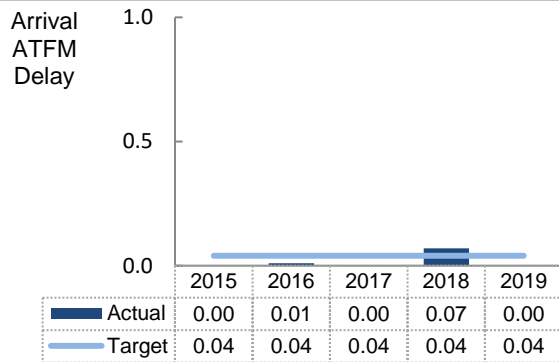
ANS at a total of 3 airports are subject to RP2 monitoring in Latvia, although NEFAB reports that Liepaja (EVLA) and Ventspils (EVVA) do not have ATC services, only AFIS and class G airspace. Traffic at Liepaja (EVLA) and Ventspils (EVVA) is marginal with little or no impact on the network.

Traffic levels at these airports have drastically increased during RP2 (+28.9% with respect to 2015) and arrival ATFM delays have appeared only in Riga and marginally in 2016 and 2018.

A national target on arrival ATFM has been established and it is met in 2019 (it was missed only in 2018).

ATFM slot adherence has increased during RP2 (2015: 95.5%; 2019: 98.0%) and ATC Pre-departure delay can only be monitored at the time being for Riga (EVRA), where these delays are negligible.

## 2. Arrival ATFM Delay



Only 16 minutes of arrival ATFM delays were registered at Riga during 2019, showing no capacity constraints at any of the airports under monitoring in Latvia.

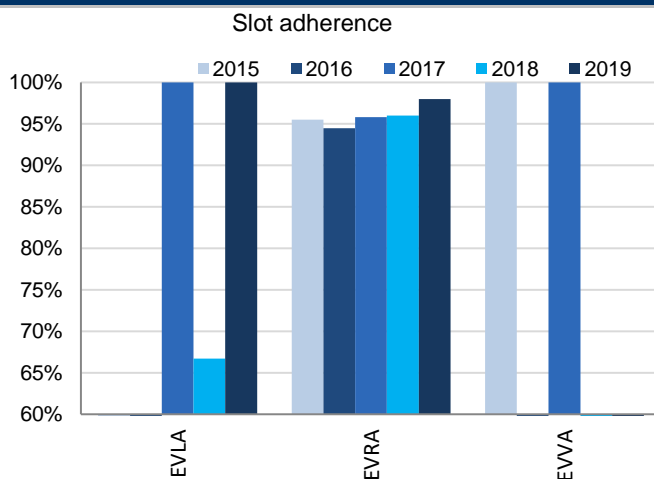
The target of 0.04 min/arr. Is met in 2019.

## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The NEFAB performance plan establishes a national target on arrival ATFM delay for Latvia, with breakdown only for Riga (EVRA). The conservative national target of 0.4 min/arr. is constant for the entire reference period 2.

The performance plan also presents an incentive scheme for Latvia. The target is met in 2019 and according to NEFAB performance plan and the achieved performance, the maximum bonus applies (1% of terminal ANS revenues)

## 4. ATFM Slot Adherence



The adherence to ATFM slots at Riga (EVRA) reaches 98% in 2019, showing excellent performance.

There was only one regulated departure at Liepaja (EVLA) in 2019 so the indicator has no real meaning. At Ventspils (EVVA) there was no regulated traffic.

## 5. ATC Pre-departure Delay

The Airport Operator Data Flow is established for Riga (EVRA) and allows for the monitoring of pre-departure delay. Riga accrued negligible pre-departure delay along RP2 years. This level of performance is commensurate with the level of traffic observed.

## 6. Appendix

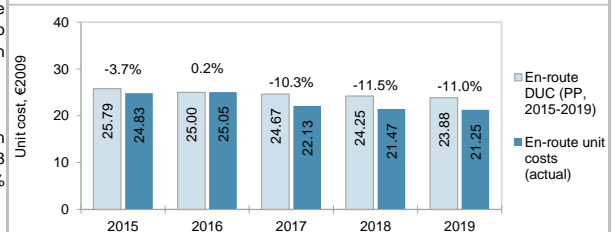
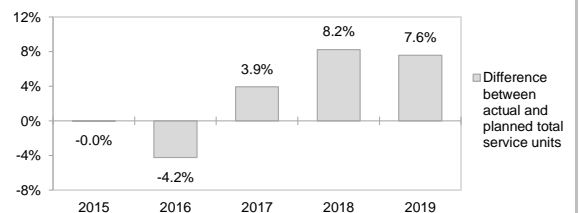
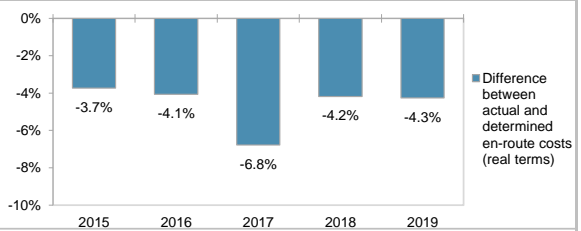
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Liepaja	EVLA	0.00	0.00	0.00	0.00	0.00	n/a	n/a	100.0%	66.7%	100.0%	n/a	n/a	n/a	n/a	n/a
Riga	EVRA	0.00	0.01	0.00	0.07	0.00	95.5%	94.5%	95.8%	96.0%	98.0%	n/a	0.08	0.05	0.05	0.04
Ventspils	EVVA	0.00	0.00	0.00	0.00	0.00	100.0%	n/a	100.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a

## LATVIA: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

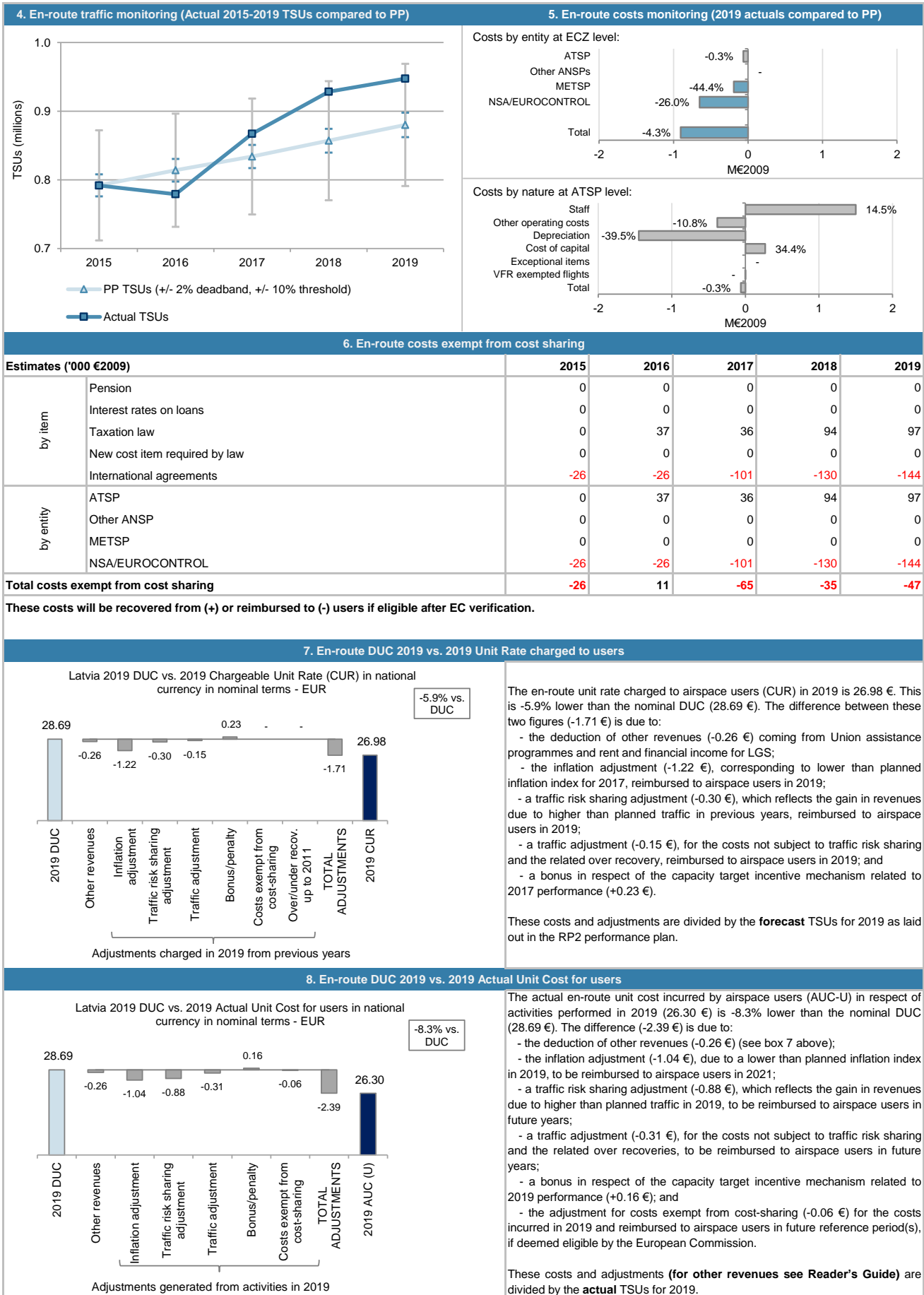
1. Contextual economic information: en-route air navigation services					
· Latvia ECZ represents 0.4% of the SES en-route ANS determined costs in 2019					
· ATSP: LGS					
· FAB: NEFAB					
· National currency: EUR					
2. En-route DUC monitoring at Charging Zone level					
Latvia: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	22 680 662	23 118 000	23 902 000	24 692 818	25 534 000
Inflation %	2.5%	2.3%	2.3%	2.3%	2.3%
Inflation index (100 in 2009)	109.7	112.2	114.8	117.4	120.1
Real en-route costs (EUR2009)	20 683 885	20 603 685	20 823 477	21 028 777	21 256 247
Total en-route Service Units	802 000	824 000	844 000	867 000	890 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>25.79</b>	<b>25.00</b>	<b>24.67</b>	<b>24.25</b>	<b>23.88</b>
Latvia: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	21 182 494	21 047 181	21 268 039	22 652 286	23 496 457
Inflation %	0.2%	0.1%	2.9%	2.6%	2.7%
Inflation index (100 in 2009)	106.4	106.5	109.6	112.4	115.5
Real en-route costs (EUR2009)	19 913 164	19 766 193	19 410 698	20 150 155	20 351 587
Total en-route Service Units	801 836	789 087	877 214	938 372	957 532
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>24.83</b>	<b>25.05</b>	<b>22.13</b>	<b>21.47</b>	<b>21.25</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)	-1 498 168	-2 070 819	-2 633 961	-2 040 532	-2 037 543
in %	-6.6%	-9.0%	-11.0%	-8.3%	-8.0%
Inflation %	-2.3 p.p.	-2.2 p.p.	0.6 p.p.	0.3 p.p.	0.4 p.p.
Inflation index (100 in 2009)	-3.3 p.p.	-5.7 p.p.	-5.2 p.p.	-5.0 p.p.	-4.7 p.p.
Real en-route costs (EUR2009)	-770 722	-837 492	-1 412 779	-878 622	-904 660
in %	-3.7%	-4.1%	-6.8%	-4.2%	-4.3%
Total en-route Service Units	-164	-34 913	33 214	71 372	67 532
in %	-0.0%	-4.2%	3.9%	8.2%	7.6%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>	<b>in value</b>
	<b>-0.96</b>	<b>0.04</b>	<b>-2.54</b>	<b>-2.78</b>	<b>-2.63</b>
	<b>in %</b>	<b>in %</b>	<b>in %</b>	<b>in %</b>	<b>in %</b>
	<b>-3.7%</b>	<b>0.2%</b>	<b>-10.3%</b>	<b>-11.5%</b>	<b>-11.0%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (21.25 €2009) is -11.0% lower than planned in the PP (23.88 €2009). This results from the combination of higher than planned TSUs (+7.6%) and lower than planned en-route costs in real terms (-4.3%, or -0.9 M€2009).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+7.6%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional revenues is therefore shared between the ATSP and the airspace users, with the ATSP (LGS) retaining +0.7 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -8.0% (-2.0 M€) lower than planned. However, since the actual inflation index is also lower than planned (-4.7 p.p.), actual en-route costs are -4.3% (-0.9 M€2009) below plans when expressed in real terms.					
The lower than planned en-route costs in real terms are driven by LGS (-0.3%, or -0.1 M€2009), the MET service provider (-44.4%, or -0.2 M€2009) and the NSA/EUROCONTROL (-26.0%, or -0.7 M€2009). A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -0.05 M€2009 comprising +0.10 M€2009 for unforeseen changes in national taxation law and -0.14 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +3.2% higher than planned, while actual costs in real terms are -4.6% lower than the determined costs (some -4.8 M€2009). As a result, the weighted average actual unit cost over RP2 (22.82 €2009) is -7.6% lower than planned in the NPP (24.70 €2009).					





LATVIA: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



## LATVIA: En-route ATSP (LGS)

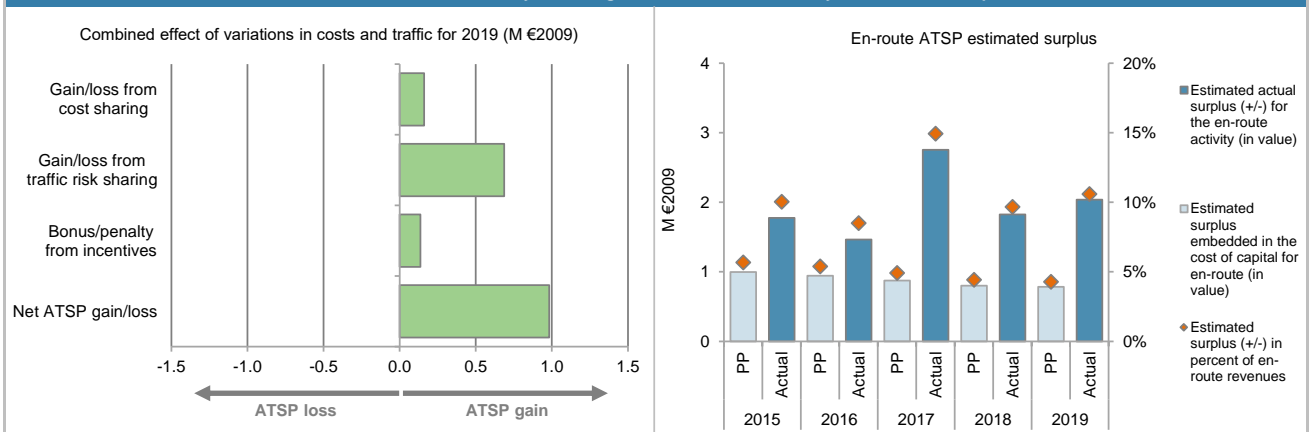
## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	17 518	17 486	17 751	18 030	18 325
Actual costs for the ATSP	16 896	16 737	16 711	18 057	18 262
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	622	749	1 040	-27	63
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	37	36	94	97
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>622</b>	<b>786</b>	<b>1 076</b>	<b>67</b>	<b>160</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.0%	-4.2%	3.9%	8.2%	7.6%
Determined costs for the ATSP (PP) - based on actual inflation	17 682	18 043	18 211	18 444	18 675
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-4</b>	<b>-482</b>	<b>470</b>	<b>714</b>	<b>687</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>176</b>	<b>172</b>	<b>188</b>	<b>0</b>	<b>136</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>794</b>	<b>476</b>	<b>1 734</b>	<b>781</b>	<b>982</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	15 008	14 296	13 320	12 335	11 907
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	15 008	14 296	13 320	12 335	11 907
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	996	943	873	801	786
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.6%	6.6%	6.6%	6.5%	6.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	996	943	873	801	786
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>996</b>	<b>943</b>	<b>873</b>	<b>801</b>	<b>786</b>
<b>Revenue/costs for the en-route activity</b>	<b>17 518</b>	<b>17 486</b>	<b>17 751</b>	<b>18 030</b>	<b>18 325</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>5.7%</b>	<b>5.4%</b>	<b>4.9%</b>	<b>4.4%</b>	<b>4.3%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.6%</b>	<b>6.6%</b>	<b>6.6%</b>	<b>6.5%</b>	<b>6.6%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	14 812	15 012	15 598	16 046	16 001
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	14 812	15 012	15 598	16 046	16 001
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	983	990	1 022	1 043	1 056
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	6.6%	6.6%	6.6%	6.5%	6.6%
Estimated surplus embedded in the cost of capital for en-route (in value)	983	990	1 022	1 043	1 056
Net ATSP gain(+)/loss(-) on en-route activity	794	476	1 734	781	982
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>1 777</b>	<b>1 466</b>	<b>2 756</b>	<b>1 823</b>	<b>2 038</b>
<b>Revenue/costs for the en-route activity</b>	<b>17 690</b>	<b>17 213</b>	<b>18 444</b>	<b>18 838</b>	<b>19 245</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>10.0%</b>	<b>8.5%</b>	<b>14.9%</b>	<b>9.7%</b>	<b>10.6%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>12.0%</b>	<b>9.8%</b>	<b>17.7%</b>	<b>11.4%</b>	<b>12.7%</b>

## LATVIA: En-route ATSP (LGS)

## Monitoring of en-route COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on en-route activity and estimated surplus



## 12. Focus on en-route ATSP: General conclusions

**Actual 2019 LGS en-route costs vs. PP**

In 2019, LGS actual en-route costs are -0.3% (-0.06 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- higher staff costs (+14.5%, or +1.5 M€2009) mainly due to "the overall salary increases in Latvia";
- lower other operating costs (-10.8%, or -0.4 M€2009), although higher than in 2018 driven mostly by "the new ATCO training programme";
- much lower depreciation costs (-39.5%, or -1.4 M€2009) mainly due to "end of useful life of several FA and investments made, but not yet put into operations. It is worth mentioning that ANSP did increase useful lives of newly bought assets in 2015"; and
- much higher cost of capital (+34.4%, or +0.3 M€2009).

**LGS net gain/loss on en-route activity in 2019**

As shown in box 9, LGS generated a net gain of +1.0 M€2009 on the en-route activity. This is a combination of three elements:

- a gain of +0.2 M€2009 arising from the cost sharing mechanism;
- a gain of +0.7 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +0.1 M€2009 (or +0.16 M€ in nominal terms), corresponding to a bonus as part of the en-route capacity target incentive mechanism. This amount corresponds to 0.7% of LGS en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

The gain from cost sharing mentioned above (+0.2 M€2009) includes amounts reported by LGS for cost exempt from cost sharing (+0.10 M€2009). Should these costs not be deemed eligible by the European Commission, LGS would record a net gain of +0.9 M€2009 for the en-route activity in 2019.

**LGS overall estimated surplus for the en-route activity**

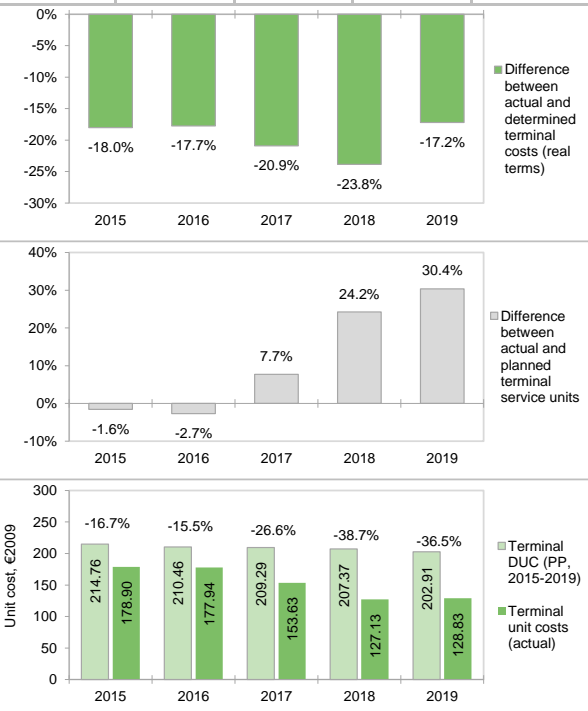
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+1.0 M€2009) and the surplus embedded in the actual cost of capital (+1.1 M€2009) amounts to +2.0 M€2009 (10.6% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 12.7%, which is much higher than the 6.6% planned in the PP.

When considering the whole of RP2 (2015-2019), LGS generated cumulative gains in respect of cost sharing of +2.7 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +1.4 M€2009, which reflects the fact that actual traffic was in general terms +3.2% higher than planned during RP2. Adding the gain of +0.7 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+5.1 M€2009 over RP2) leads to an overall estimated surplus of +9.9 M€2009, which corresponds to an average ex-post return on equity of 12.7% (compared to 6.6% as initially planned in the NPP).

## LATVIA: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
· Latvia TCZ represents 0.6% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		No	
· ATSP:	LGS	· Airports with fewer than 70,000 IFRs ATMs:		3	
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		0	
· Number of airports in charging zone in 2019:	3,	of which:	· Airports with more than 225,000 IFRs ATMs:	0	
2. Terminal DUC monitoring at Charging Zone level					
Latvia: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	7 583 029	7 698 210	7 903 554	8 108 786	8 262 790
Inflation %	2.5%	2.3%	2.3%	2.3%	2.3%
Inflation index (100 in 2009)	109.7	112.2	114.8	117.4	120.1
Real terminal costs (EUR2009)	6 915 428	6 860 952	6 885 595	6 905 565	6 878 511
Total terminal Service Units	32 200	32 600	32 900	33 300	33 900
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>214.76</b>	<b>210.46</b>	<b>209.29</b>	<b>207.37</b>	<b>202.91</b>
Latvia: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	6 030 644	6 010 389	5 966 105	5 912 000	6 574 232
Inflation %	0.2%	0.1%	2.9%	2.6%	2.7%
Inflation index (100 in 2009)	106.4	106.5	109.6	112.4	115.5
Real terminal costs (EUR2009)	5 669 267	5 644 581	5 445 084	5 258 971	5 694 308
Total terminal Service Units	31 690	31 722	35 442	41 367	44 200
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>178.90</b>	<b>177.94</b>	<b>153.63</b>	<b>127.13</b>	<b>128.83</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	-1 552 384	-1 687 821	-1 937 449	-2 196 786	-1 688 558
	in value				
	in %				
Inflation %	-2.3 p.p.	-2.2 p.p.	0.6 p.p.	0.3 p.p.	0.4 p.p.
	in p.p.				
Inflation index (100 in 2009)	-3.3 p.p.	-5.7 p.p.	-5.2 p.p.	-5.0 p.p.	-4.7 p.p.
	in p.p.				
Real terminal costs (EUR2009)	-1 246 162	-1 216 371	-1 440 510	-1 646 594	-1 184 204
	in value				
	in %				
Total terminal Service Units	-510	-878	2 542	8 067	10 300
	in value				
	in %				
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-35.87</b>	<b>-32.52</b>	<b>-55.66</b>	<b>-80.24</b>	<b>-74.08</b>
	in value				
	in %				
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Latvia Terminal Charging Zone (TCZ) comprising Riga (EVRA), Liepaja (EVLA) and Ventspils (EVVA) airports.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (128.83 €2009) is -36.5% lower than planned in the PP (202.91 €2009). This results from the combination of much higher than planned TNSUs (+30.4%) and much lower than planned terminal costs in real terms (-17.2%, or -1.2 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism does not apply in Latvia TCZ. In 2019, the actual TNSUs in Latvia TCZ are +30.4% higher than planned in the PP.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -20.4% (-1.69 M€) lower than planned. However, since the actual inflation index is also lower than planned (-4.7 p.p.), actual terminal costs are -17.2% (-1.2 M€2009) below plans when expressed in real terms.					
The lower than planned terminal costs in real terms are driven by LGS (-12.1%, or -0.7 M€2009), the MET service provider (-69.7%, or -0.2 M€2009) and the NSA (-50.0%, or -0.3 M€2009). A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of +0.04 M€2009 corresponding to unforeseen changes in national taxation law. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019) for Latvia TCZ, actual TNSUs are +11.8% higher than planned, while actual costs in real terms are -19.5% lower than the determined costs (some -6.7 M€2009). As a result, the weighted average actual unit cost over RP2 (150.27 €2009) is -28.1% lower than planned in the NPP (208.89 €2009).					



**LATVIA: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## LATVIA: Terminal ATSP (LGS)

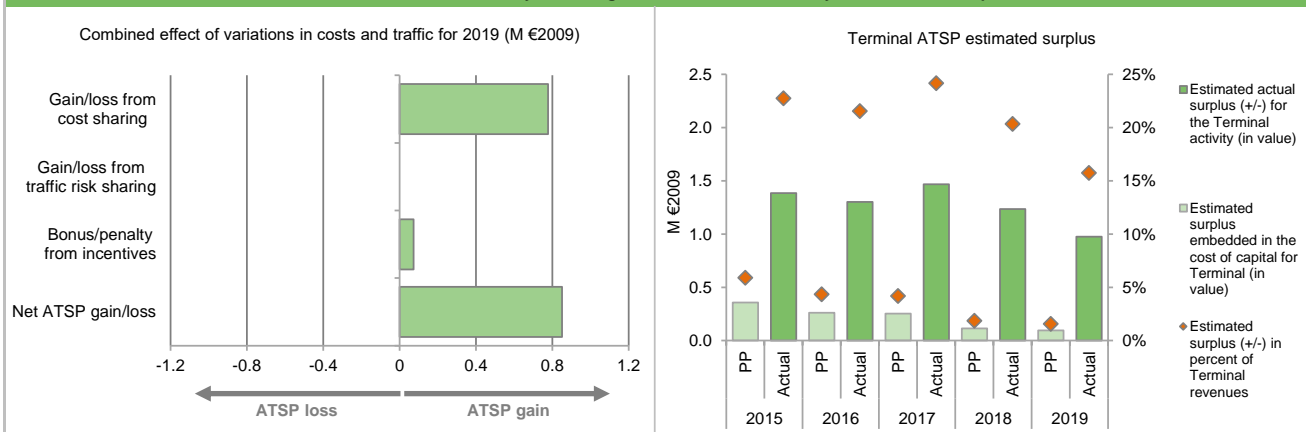
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	6 080	6 032	6 062	6 101	6 092
Actual costs for the ATSP	5 018	4 989	4 829	4 945	5 353
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 062	1 043	1 233	1 156	739
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	14	13	39	40
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 062</b>	<b>1 057</b>	<b>1 246</b>	<b>1 195</b>	<b>778</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Not Applicable					
Not Applicable					
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-77</b>	<b>73</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>1 062</b>	<b>1 057</b>	<b>1 246</b>	<b>1 117</b>	<b>851</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	6 855	6 774	6 739	6 587	6 737
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	6 855	6 774	6 739	6 587	6 737
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	358	262	254	113	95
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	5.2%	3.9%	3.8%	1.7%	1.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	358	262	254	113	95
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>358</b>	<b>262</b>	<b>254</b>	<b>113</b>	<b>95</b>
<b>Revenue/costs for the terminal activity</b>	<b>6 080</b>	<b>6 032</b>	<b>6 062</b>	<b>6 101</b>	<b>6 092</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>5.9%</b>	<b>4.3%</b>	<b>4.2%</b>	<b>1.9%</b>	<b>1.6%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>5.2%</b>	<b>3.9%</b>	<b>3.8%</b>	<b>1.7%</b>	<b>1.4%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	6 145	6 352	5 888	6 784	8 847
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	6 145	6 352	5 888	6 784	8 847
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	321	245	222	117	125
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	5.2%	3.9%	3.8%	1.7%	1.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	321	245	222	117	125
Net ATSP gain(+)/loss(-) on terminal activity	1 062	1 057	1 246	1 117	851
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 383</b>	<b>1 303</b>	<b>1 468</b>	<b>1 234</b>	<b>976</b>
<b>Revenue/costs for the terminal activity</b>	<b>6 080</b>	<b>6 046</b>	<b>6 075</b>	<b>6 062</b>	<b>6 204</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>22.8%</b>	<b>21.5%</b>	<b>24.2%</b>	<b>20.4%</b>	<b>15.7%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>22.5%</b>	<b>20.5%</b>	<b>24.9%</b>	<b>18.2%</b>	<b>11.0%</b>

## LATVIA: Terminal ATSP (LGS)

## Monitoring of terminal COST-EFFICIENCY for 2019

## 11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus



## 12. Focus on terminal ATSP: General conclusions

## Actual 2019 LGS terminal costs vs. PP

In 2019, LGS actual terminal costs are -12.1% (-0.7 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- higher staff costs (+4.3%, or +0.1 M€2009). "The main driver for the salary increases was overall salary increases in Latvia. The increase, however, was far less than in FY 2018";
- lower other operating costs (-13.0%, or -0.1 M€2009), although higher than in 2018 mostly due to "the new ATCO training programme";
- much lower depreciation costs (-38.0%, or -0.8 M€2009) mainly due to "end of useful life of several FA and investments made, but not yet put into operations. It is worth mentioning that ANSP did increase useful lives of newly bought assets in 2015"; and
- much higher cost of capital (+31.3%, or +0.03 M€2009).

## LGS net gain/loss on terminal activity in 2019

As shown in box 9, LGS generated a net gain of +0.8 M€2009 on the terminal activity. This is a combination of two elements:

- a gain of +0.8 M€2009 arising from the cost sharing mechanism; and
- a gain of +0.07 M€2009 (or +0.08 M€ in nominal terms), corresponding to a bonus as part of the terminal capacity target incentive mechanism. This amount corresponds to 2.3% of LGS terminal revenues (based on the ATSP chargeable unit rate in 2019 times the actual TNSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

The gain from cost sharing mentioned above (+0.8 M€2009) includes amounts reported by LGS for cost exempt from cost sharing (+0.04 M€2009). Should these costs not be deemed eligible by the European Commission, LGS would record a net gain of +0.8 M€2009 for the terminal activity in 2019.

## LGS overall estimated surplus for the terminal activity

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+0.8 M€2009) and the surplus embedded in the actual cost of capital (+0.1 M€2009) amounts to +1.0 M€2009 (15.7% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 11.0%, which is much higher than the 1.4% planned in the PP.

When considering the whole of RP2 (2015-2019), LGS generated cumulative gains in respect of cost sharing of +5.3 M€2009, as actual total costs for RP2 were lower than planned. The TCZ is not subject to traffic risk sharing. Adding the loss of -0.004 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the terminal cost of capital (+1.0 M€2009 over RP2) leads to an overall estimated surplus of +6.4 M€2009, which corresponds to an average ex-post return on equity of 18.7% (compared to 3.2% as initially planned in the NPP).

## LATVIA: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

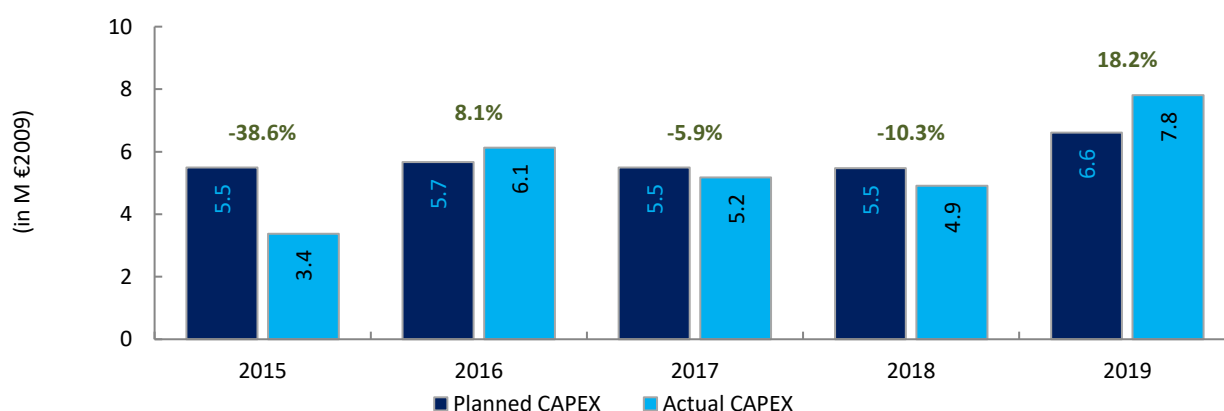
1. Monitoring of gate-to-gate ANS costs																																												
<b>Latvia: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	20 683 885	20 603 685	20 823 477	21 028 777	21 256 247																																							
Real terminal costs (EUR2009)	6 915 428	6 860 952	6 885 595	6 905 565	6 878 511																																							
Real gate-to-gate costs (EUR2009)	27 599 314	27 464 637	27 709 071	27 934 342	28 134 758																																							
En-route share (%)	74.9%	75.0%	75.2%	75.3%	75.6%																																							
<b>Latvia: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	19 913 164	19 766 193	19 410 698	20 150 155	20 351 587																																							
Real terminal costs (EUR2009)	5 669 267	5 644 581	5 445 084	5 258 971	5 694 308																																							
Real gate-to-gate costs (EUR2009)	25 582 430	25 410 774	24 855 782	25 409 126	26 045 895																																							
En-route share (%)	77.8%	77.8%	78.1%	79.3%	78.1%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009)																																												
in value	-2 016 884	-2 053 863	-2 853 289	-2 525 216	-2 088 864																																							
in %	-7.3%	-7.5%	-10.3%	-9.0%	-7.4%																																							
En-route share																																												
in p.p.	2.9 p.p.	2.8 p.p.	2.9 p.p.	4.0 p.p.	2.6 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are -7.4% (-2.1 M€2009) lower than planned due to lower than planned terminal costs (-17.2%, or -1.2 M€2009) and en-route costs (-4.3%, or -0.9 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (78.1%) is higher than planned in the PP for 2019 (75.6%).</p> <p>For LGS, the estimated gate-to-gate economic surplus in 2019 amounts to 3.0 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 11.8% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>74.9%</td> <td>25.1%</td> </tr> <tr> <td>Actual</td> <td>77.8%</td> <td>22.2%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>75.0%</td> <td>25.0%</td> </tr> <tr> <td>Actual</td> <td>77.8%</td> <td>22.2%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>75.2%</td> <td>24.8%</td> </tr> <tr> <td>Actual</td> <td>78.1%</td> <td>21.9%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>75.3%</td> <td>24.7%</td> </tr> <tr> <td>Actual</td> <td>79.3%</td> <td>20.7%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>75.6%</td> <td>24.4%</td> </tr> <tr> <td>Actual</td> <td>78.1%</td> <td>21.9%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	74.9%	25.1%	Actual	77.8%	22.2%	2016	Determined	75.0%	25.0%	Actual	77.8%	22.2%	2017	Determined	75.2%	24.8%	Actual	78.1%	21.9%	2018	Determined	75.3%	24.7%	Actual	79.3%	20.7%	2019	Determined	75.6%	24.4%	Actual	78.1%	21.9%
Year	Type	En-route (%)	Terminal (%)																																									
2015	Determined	74.9%	25.1%																																									
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	Actual	78.1%	21.9%																																									
<b>3. Technical notes on en-route and terminal information reported by Latvia</b>																																												
<b>Note 1: Terminal unit rate</b>																																												
<p>Latvia reduces the terminal unit rate through national funding and commercial revenues from technical maintenance in Lielvarde military airport and Jurmala airport. These amounts are recorded under item '5.6 - Other other revenues' in Table 2 of the terminal Reporting Tables.</p>																																												



## LATVIA

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: LGS						
FAB: NEFAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	6.0	6.4	6.3	6.4	7.9	33.1
Main CAPEX (in nominal M)	1.4	2.3	1.2	1.2	2.5	8.6
Inflation %	2.5%	2.3%	2.3%	2.3%	2.3%	
Inflation index (100 in 2009)	109.7	112.2	114.8	117.4	120.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>5.5</b>	<b>5.7</b>	<b>5.5</b>	<b>5.5</b>	<b>6.6</b>	<b>28.8</b>
Main CAPEX (in M €2009)	1.3	2.0	1.1	1.1	2.1	7.5
% Main of Total CAPEX	23.3%	35.6%	19.6%	19.2%	31.6%	26.1%
Real gate-to-gate ANSP costs (in M €2009)	23.6	23.5	23.8	24.1	24.4	119.5
Total CAPEX as % of Real gate-to-gate ANSP costs	23.3%	24.1%	23.1%	22.7%	27.1%	24.1%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	3.6	6.5	5.7	5.5	9.0	30.3
Main CAPEX (in nominal M)	0.6	1.2	2.0	1.7	3.3	8.8
Inflation %	0.2%	0.1%	2.9%	2.6%	2.7%	
Inflation index (100 in 2009)	106.4	106.5	109.6	112.4	115.5	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>3.4</b>	<b>6.1</b>	<b>5.2</b>	<b>4.9</b>	<b>7.8</b>	<b>27.4</b>
Main CAPEX (in M €2009)	0.5	1.1	1.9	1.5	2.9	7.9
% Main of Total CAPEX	15.4%	18.3%	35.9%	30.3%	37.0%	28.7%
Real gate-to-gate ANSP costs (in M €2009)	21.9	21.7	21.5	23.0	23.6	111.8
Total CAPEX as % of Real gate-to-gate ANSP costs	15.4%	28.2%	24.0%	21.4%	33.1%	24.5%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-2.4	0.2	-0.6	-0.9	1.1	-2.7
Total CAPEX (in M €2009)	-2.1	0.5	-0.3	-0.6	1.2	-1.3
<b>Total CAPEX (in %, M €2009)</b>	<b>-38.6%</b>	<b>8.1%</b>	<b>-5.9%</b>	<b>-10.3%</b>	<b>18.2%</b>	<b>-4.7%</b>



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# Annual Monitoring Report 2019

## Local level view

### Norway

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## NORWAY

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	69	C	C	D	D	C
Avinor	80	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	NCAA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	8	1				
Legal/Judiciary	5	2				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>15</b>	<b>3</b>				
Avinor	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
All safety targets have been met.						

## NORWAY

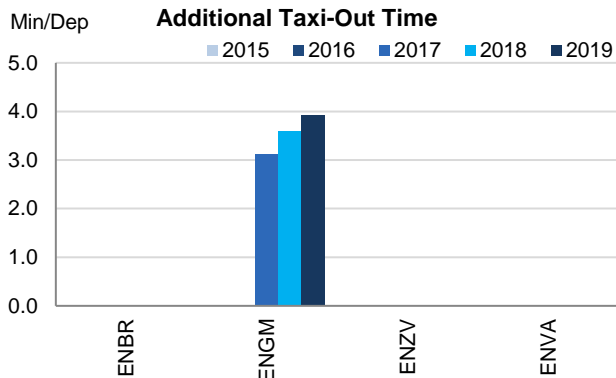
## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

Norway has identified four airports as subject to RP2 monitoring. Oslo (A-CDM implemented) is the only Norwegian airport that has finished the full implementation of the Airport Operator Data Flow and the monitoring can be performed as of 2017. As reported last year, the ATM system is not ready to implement the APDF at the other airports, which is necessary for the monitoring of the performance indicators. Avinor Flysikring AS, the service provider in Norway, is still considering alternate solution, but needs to take into account the additional cost required.

Oslo shows excellent performance in terms of additional ASMA times with a progressive improvement along RP2. Meanwhile, the additional taxi-out times have increased the last two years and now range above the RP2 average.

## 2. Additional Taxi-Out Time

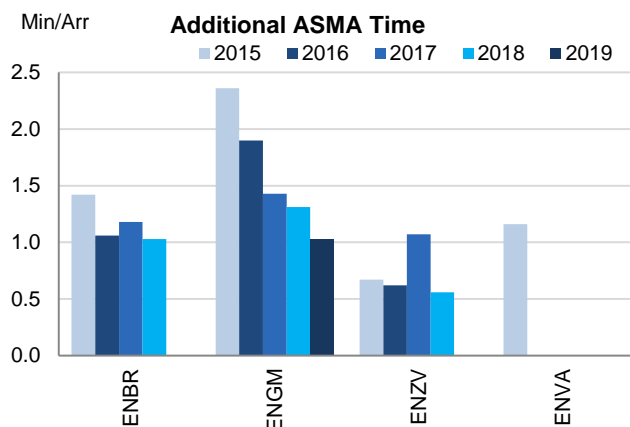


The additional taxi-out times at Oslo have increased once more in 2019 (ENGM; 2018: 3.58 min/dep.; 2019: 3.92 min/dep.)

As usual, the longest taxi-out times are observed in winter months, averaging then more than 6 min/dep.

The increase is also driven by the longer taxi-out times observed between May and August, when works on RWY 01R/19L took place.

## 3. Additional ASMA Time



Additional ASMA times at Oslo have decreased for the fourth year in a row (ENGM; 2018: 1.31 min/arr.; 2019: 1.03 min/arr.) showing best in class performance for airports above 150000 movements per year.

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bergen	ENBR	n/a	n/a	n/a	n/a	n/a	1.42	1.06	1.18	1.03	n/a
Oslo/ Gardermoen	ENGM	n/a	n/a	3.12	3.58	3.92	2.36	1.90	1.43	1.31	1.03
Stavanger	ENZV	n/a	n/a	n/a	n/a	n/a	0.67	0.62	1.07	0.56	n/a
Trondheim	ENVA	n/a	n/a	n/a	n/a	n/a	1.16	n/a	n/a	n/a	n/a

**NORWAY**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.08	0.08	0.08	0.08	0.08	
Deadband +/-	0.03 - 0.13		0.03 - 0.14			
Actual performance	0.05	0.11	0.02	0.00	0.00	

**National capacity incentive scheme**

Norway applied a national incentive scheme based on the following criteria for the period 2017 – 2019:

En route ATFM delay 2017 - 2019:

Over/under-achievement (Percentage) Aggregated Penalties/Bonuses (Percentage)

0,00 min / fht or better Bonus: 1 % of the revenues from air navigation services in year n

0,01 min / fht Bonus: 0,5 % of the revenues from air navigation services in year n

0,02 min / fht Bonus: 0,2% of the revenues from air navigation services in year n

Dead band 0,03 min / fht – 0,14 min / fht

0,15 min / fht Penalty: 0,2 % of the revenues from air navigation services in year n

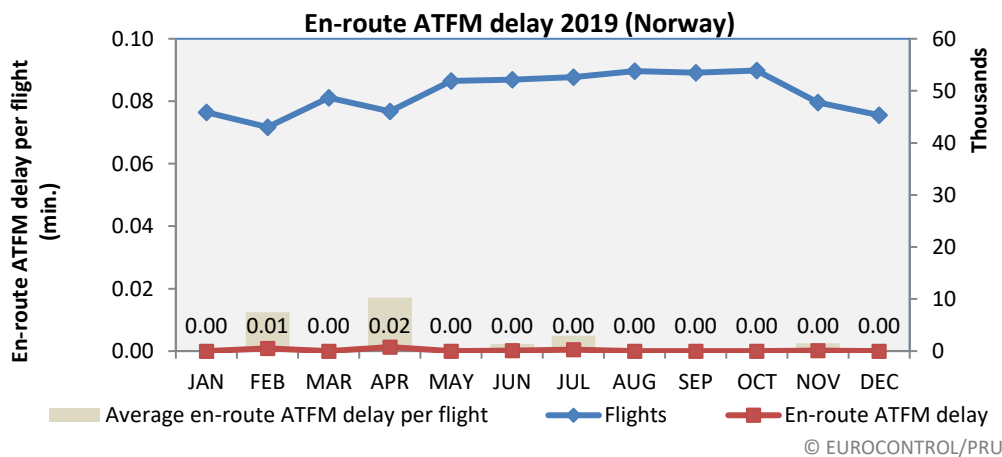
0,16 min / fht Penalty: 0,5 % of the revenues from air navigation services in year n

0,17 min / fht or worse Penalty: 1% of the revenues from air navigation services in year n

With an actual en route capacity performance of 0.00 minutes per flight in 2019, the ANSP Avinor will receive a bonus of 1% of the revenues from air navigation services in year n.

Norway has informed the PRB that the expected bonus will be 9 319 034 NOK for 2019.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.00	0.00	0.00	0.00	0.28	0.04	0.03	0.05	0.11	0.02	0.00	0.00

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
High	629		646		666		685		701		721	
Base	625	619	640	603	654	599	665	591	676	594	688	591
Low	621		629		630		631		633		635	

Traffic levels decreased marginally in 2019 in Norway and remained below the low traffic scenario forecast by STATFOR in 2014 when the FAB performance plans and associated capacity plans were being determined.

Norway provided excellent capacity performance to airspace users in 2019 with negligible delays.

Delay forecast - Avinor						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.02	0.04	0.02	0.02	N/A	N/A
<b>NOP 2019 - 2024</b>	0.02	0.02	0.02 - 0.06			

### Planning and Effective Use of CDRs

There are no CDR routes in Norway anymore - they were removed 12 November 2015.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
41%	54%	55%	58%	51%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.



## NORWAY

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

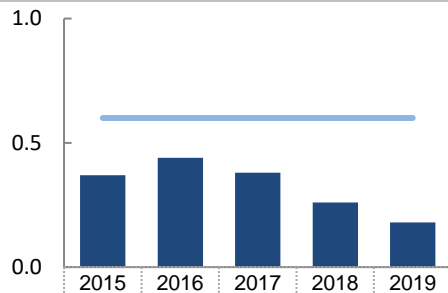
Norway identifies 4 airports as subject to RP2 monitoring where traffic levels have slightly decreased during RP2 (-1.3% with respect to 2015).

Arrival ATFM delays are now less than half of what they were at the beginning of RP2 (2015: 0.37 min/arr.; 2019: 0.18 min/arr.) and the established national target has been fully met every year of the reference period.

ATFM slot adherence, that was already best in class, has even slightly improved (2015:98.2%; 2019: 99.0%) and the level of pre-departure delay is very low (Oslo).

## 2. Arrival ATFM Delay

Arrival ATFM Delay



During 2019, arrival ATFM delays in Norway have moderately decreased with respect to the previous year (2018: 0.26 min/arr, 2019: 0.18 min/arr)

National average is highly driven by Oslo (ENGM) where delays significantly decreased in 2018 (ENGM: 2018: 0.45 min/arr.; 2019: 0.31 min/arr.). 91% of these delays are associated to weather and 6% to aerodrome capacity restrictions in the month of July, due to the closure of RWY 01R/19L for resurfacing works.

	2015	2016	2017	2018	2019
Actual	0.37	0.44	0.38	0.26	0.18
Target	0.60	0.60	0.60	0.60	0.60

Some minor delays are registered at Bergen (ENBR) and Stavanger (ENZV) in the month of April related to an ATC equipment issue .

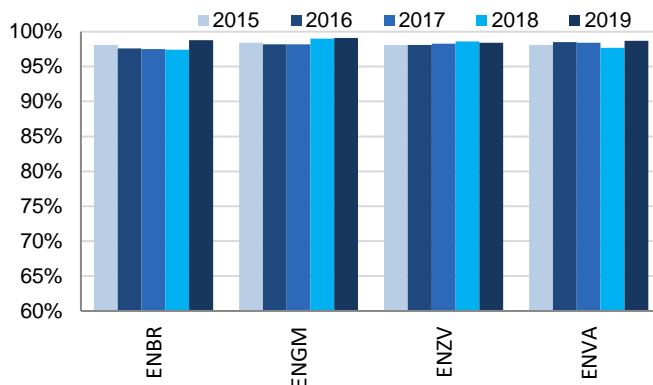
## 3. Arrival ATFM Delay – National Target and Incentive Scheme

The NEFAB performance plan sets a national target on arrival ATFM delay that is consistent with the historical performance and forms a lower bound with respect to the years previous to RP2. No further breakdown of the target per airport is made, inhibiting identification of the contribution of individual airports.

The performance plan presents an incentive scheme for the national targets on arrival ATFM delay for Norway. According to this incentive scheme, the achieved performance results in a bonus of 1% of the revenues of TNC services.

## 4. ATFM Slot Adherence

Slot adherence



The adherence to ATFM slots at the 4 Norwegian airports consistently ranges in the group of best-in-class performers across Europe, with actual values well above the 95% threshold.

## 5. ATC Pre-departure Delay

The monitoring of pre-departure delay is dependent on the establishment of the Airport Operator Data Flow. For the time being, this flow is only established for Oslo (EGNM).

ATC pre-departure delay at Oslo has decreased in 2019 (ENGM: 2018: 0.18 min/dep.; 2019: 0.14 min/dep.) and remains one of the lowest in Europe for airports with that level of traffic.

## 6. Appendix

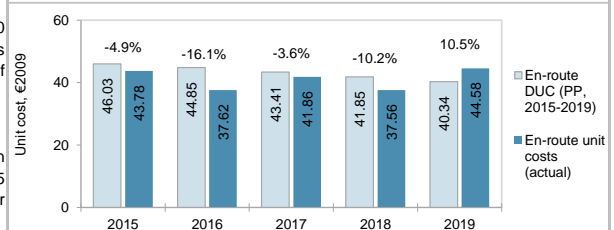
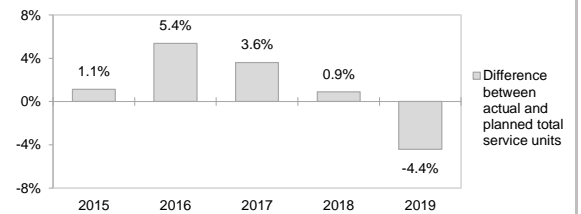
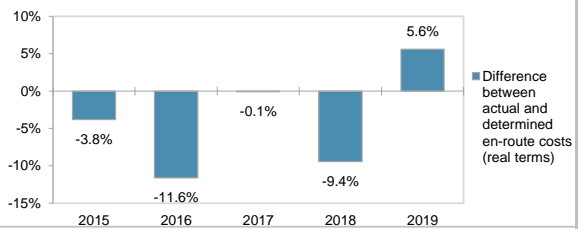
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Bergen	ENBR	0.11	0.09	0.02	0.03	0.02	98.1%	97.6%	97.5%	97.4%	98.8%	0.01	0.01	0.01	0.01	n/a
Oslo/ Gardermoen	ENGM	0.67	0.79	0.69	0.45	0.31	98.4%	98.2%	98.2%	99.0%	99.1%	0.06	0.08	0.15	0.18	0.14
Stavanger	ENZV	0.02	0.00	0.00	0.02	0.02	98.1%	98.1%	98.3%	98.6%	98.4%	0.01	0.01	0.00	0.01	n/a
Trondheim	ENVA	0.00	0.00	0.00	0.00	0.00	98.1%	98.5%	98.4%	97.7%	98.7%	0.00	0.00	0.00	0.00	n/a

## NORWAY: En-route charging zone

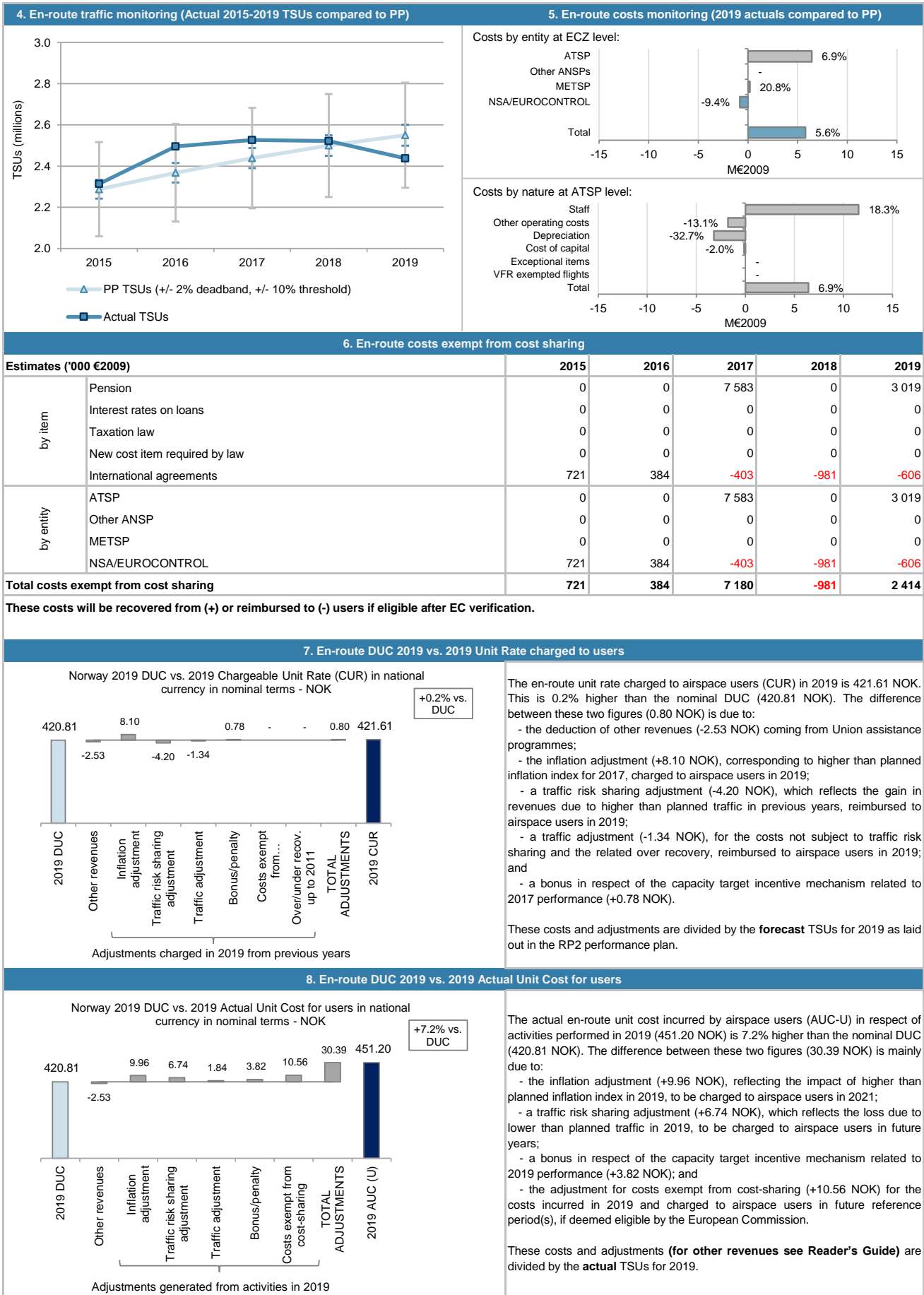
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· Norway ECZ represents 1.7% of the SES en-route ANS determined costs in 2019						
· ATSP: Avinor						
· FAB: NEFAB						
· National currency: NOK Exchange rate 2009: 1 EUR = 8.72807 NOK						
2. En-route DUC monitoring at Charging Zone level						
Norway: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D	
En-route costs (nominal NOK)	1 006 927 248	1 032 667 449	1 051 204 724	1 064 624 439	1 073 048 403	
Inflation %	1.6%	1.7%	2.1%	2.5%	2.5%	
Inflation index (100 in 2009)	109.5	111.4	113.7	116.6	119.5	
Real en-route costs (NOK2009)	919 164 836	926 904 186	924 136 061	913 105 964	897 883 922	
Total en-route Service Units	2 287 878	2 367 954	2 438 992	2 499 967	2 549 966	
<b>Real en-route unit cost per Service Unit (NOK2009)</b>	<b>401.75</b>	<b>391.44</b>	<b>378.90</b>	<b>365.25</b>	<b>352.12</b>	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>46.03</b>	<b>44.85</b>	<b>43.41</b>	<b>41.85</b>	<b>40.34</b>	
Norway: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
En-route costs (nominal NOK)	968 642 559	932 421 601	1 070 819 986	987 910 794	1 158 952 119	
Inflation %	2.0%	3.9%	1.9%	3.0%	2.3%	
Inflation index (100 in 2009)	109.5	113.8	116.0	119.5	122.2	
Real en-route costs (NOK2009)	884 206 780	819 194 585	923 245 142	826 953 460	948 316 262	
Total en-route Service Units	2 313 891	2 495 164	2 526 846	2 522 273	2 437 377	
<b>Real en-route unit cost per Service Unit (NOK2009)</b>	<b>382.13</b>	<b>328.31</b>	<b>365.37</b>	<b>327.86</b>	<b>389.07</b>	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>43.78</b>	<b>37.62</b>	<b>41.86</b>	<b>37.56</b>	<b>44.58</b>	
Difference between Actuals and Planned	2015	2016	2017	2018	2019	
En-route costs (nominal NOK)	-38 284 689	-100 245 848	19 615 263	-76 713 645	85 903 716	
in value						
in %	-3.8%	-9.7%	1.9%	-7.2%	8.0%	
Inflation %	0.4 p.p.	2.2 p.p.	-0.2 p.p.	0.5 p.p.	-0.2 p.p.	
in p.p.						
Inflation index (100 in 2009)	0.0 p.p.	2.4 p.p.	2.2 p.p.	2.9 p.p.	2.7 p.p.	
in p.p.						
Real en-route costs (NOK2009)	-34 958 056	-107 709 601	-890 919	-86 152 504	50 432 340	
in value						
in %	-3.8%	-11.6%	-0.1%	-9.4%	5.6%	
Total en-route Service Units	26 013	127 210	87 854	22 306	-112 589	
in value						
in %	1.1%	5.4%	3.6%	0.9%	-4.4%	
<b>Real en-route unit cost per Service Unit (NOK2009)</b>	<b>-19.62</b>	<b>-63.12</b>	<b>-13.53</b>	<b>-37.39</b>	<b>36.96</b>	
in value						
in %	-4.9%	-16.1%	-3.6%	-10.2%	10.5%	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-2.25</b>	<b>-7.23</b>	<b>-1.55</b>	<b>-4.28</b>	<b>4.23</b>	
in value						
in %	-4.9%	-16.1%	-3.6%	-10.2%	10.5%	
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (389.07 NOK2009 or 44.58 €2009) is +10.5% higher than planned in the PP (352.12 NOK2009 or 40.34 €2009). This results from the combination of lower than planned TSUs (-4.4%) and higher than planned en-route costs in real terms (+5.6%). In the NSA monitoring report 2019, it is reported that "non specific action taken by the NSA" in terms of corrective measures.						
<b>En-route service units</b>						
The difference between actual and planned TSUs (-4.4%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Avinor) bearing a loss of -2.5 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are +8.0% (+85.9 MNOK) higher than planned. However, since the actual inflation index is also higher than planned (+2.7 p.p.), actual en-route costs are +5.6% (+5.8 M€2009) above plans when expressed in real terms. The higher than planned en-route costs in real terms are driven by Avinor (+6.9%, or +6.4 M€2009) and the MET provider (+20.8%, or +0.2 M€2009), while the costs for the NSA/EUROCONTROL (-9.4%, or -0.8 M€2009) are lower than planned. A detailed analysis is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +2.4 M€2009 comprising +3.0 M€2009 for pensions and -0.6 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +1.2% higher than planned, while actual costs in real terms are -3.9% lower than the determined costs (some -20.5 M€2009). As a result, the weighted average actual unit cost over RP2 (358.01 NOK2009 or 41.02 €2009) is -5.1% lower than planned in the NPP (377.22 NOK2009 or 43.22 €2009).						



**NORWAY: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## NORWAY: En-route ATSP (Avinor)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	96 046	96 703	96 257	94 931	93 126
Actual costs for the ATSP	91 436	84 272	96 836	86 169	99 550
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	4 611	12 432	-578	8 762	-6 425
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	7 583	0	3 019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>4 611</b>	<b>12 432</b>	<b>7 004</b>	<b>8 762</b>	<b>-3 406</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.1%	5.4%	3.6%	0.9%	-4.4%
Determined costs for the ATSP (PP) - based on actual inflation	96 045	94 655	94 403	92 650	91 066
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>1 092</b>	<b>2 851</b>	<b>2 342</b>	<b>827</b>	<b>-2 481</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>195</b>	<b>933</b>	<b>874</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>5 703</b>	<b>15 282</b>	<b>9 542</b>	<b>10 521</b>	<b>-5 013</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	87 373	92 744	94 221	93 175	89 787
Estimated proportion of financing through equity (in %)	40.2%	40.2%	40.2%	40.2%	40.2%
Estimated proportion of financing through equity (in value)	35 139	37 299	37 893	37 473	36 110
Estimated proportion of financing through debt (in %)	59.8%	59.8%	59.8%	59.8%	59.8%
Estimated proportion of financing through debt (in value)	52 234	55 445	56 327	55 702	53 677
Cost of capital pre-tax (in value)	6 640	7 049	7 161	7 081	6 824
Average interest on debt (in %)	5.4%	5.4%	5.4%	5.4%	5.4%
Interest on debt (in value)	2 810	2 983	3 030	2 997	2 888
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	3 830	4 066	4 130	4 085	3 936
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>3 830</b>	<b>4 066</b>	<b>4 130</b>	<b>4 085</b>	<b>3 936</b>
<b>Revenue/costs for the en-route activity</b>	<b>96 046</b>	<b>96 703</b>	<b>96 257</b>	<b>94 931</b>	<b>93 126</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>4.0%</b>	<b>4.2%</b>	<b>4.3%</b>	<b>4.3%</b>	<b>4.2%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	74 631	76 451	87 803	92 408	88 027
Estimated proportion of financing through equity (in %)	40.2%	40.2%	40.2%	40.2%	40.2%
Estimated proportion of financing through equity (in value)	30 015	30 746	35 312	37 164	35 403
Estimated proportion of financing through debt (in %)	59.8%	59.8%	59.8%	59.8%	59.8%
Estimated proportion of financing through debt (in value)	44 617	45 704	52 491	55 244	52 624
Cost of capital pre-tax (in value)	5 672	5 810	6 673	7 023	6 690
Average interest on debt (in %)	5.4%	5.4%	5.4%	5.4%	5.4%
Interest on debt (in value)	2 400	2 459	2 824	2 972	2 831
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	3 272	3 351	3 849	4 051	3 859
Net ATSP gain(+)/loss(-) on en-route activity	5 703	15 282	9 542	10 521	-5 013
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>8 974</b>	<b>18 634</b>	<b>13 391</b>	<b>14 572</b>	<b>-1 154</b>
<b>Revenue/costs for the en-route activity</b>	<b>97 138</b>	<b>99 554</b>	<b>106 377</b>	<b>96 691</b>	<b>94 537</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>9.2%</b>	<b>18.7%</b>	<b>12.6%</b>	<b>15.1%</b>	<b>-1.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>29.9%</b>	<b>60.6%</b>	<b>37.9%</b>	<b>39.2%</b>	<b>-3.3%</b>

**NORWAY: En-route ATSP (Avinor)**

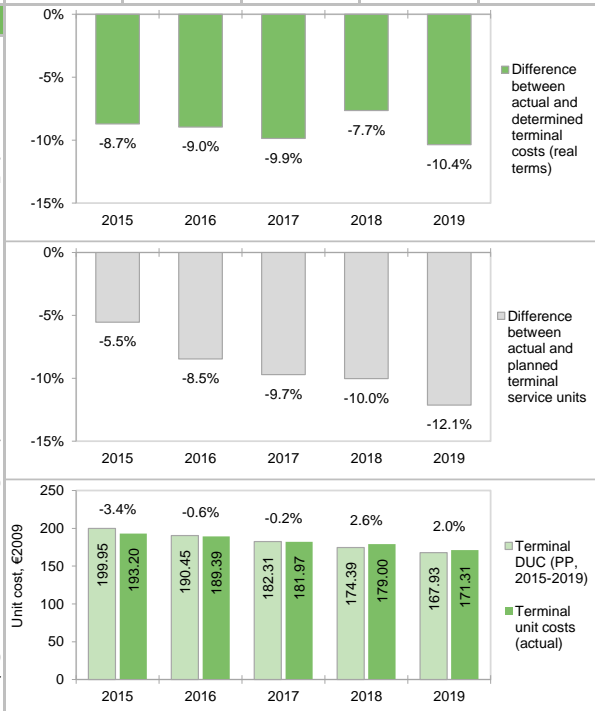
**Monitoring of en-route COST-EFFICIENCY for 2019**



## NORWAY: Terminal charging zone

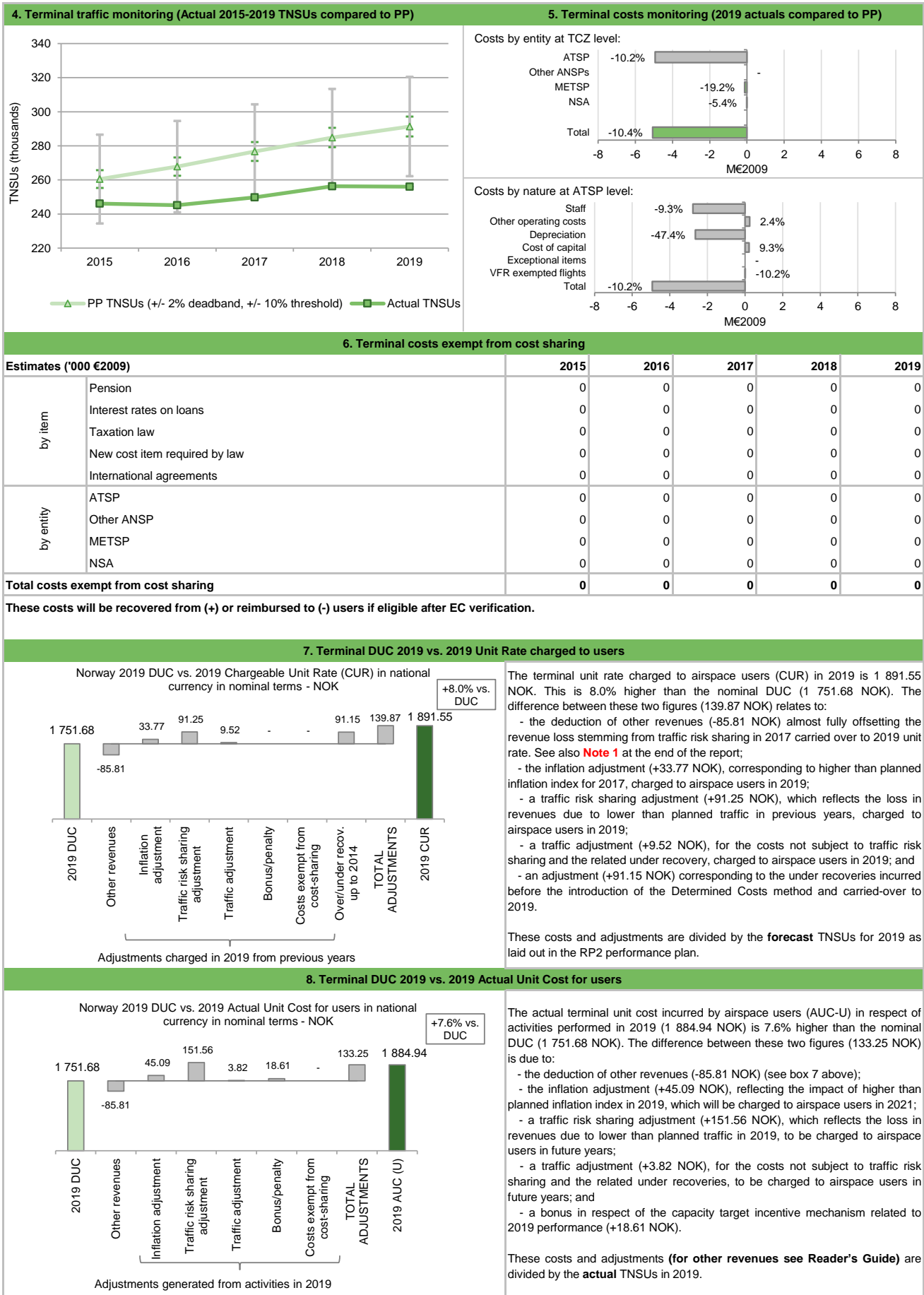
## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
· Norway TCZ represents 4.6% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP:	Avinor	· Airports with fewer than 70,000 IFRs ATMs:		1	
· National currency:	NOK	· Airports with between 70,000 and 225,000 IFRs ATMs:		2	
· Number of airports in charging zone in 2019:	4,	of which:	· Airports with more than 225,000 IFRs ATMs:	1	
2. Terminal DUC monitoring at Charging Zone level					
Norway: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal NOK)	498 031 263	495 968 632	500 784 828	505 570 149	510 317 178
Inflation %	1.6%	1.7%	2.1%	2.5%	2.5%
Inflation index (100 in 2009)	109.5	111.4	113.7	116.6	119.5
Real terminal costs (NOK2009)	454 623 534	445 172 743	440 250 417	433 616 871	427 012 974
Total terminal Service Units	260 503	267 818	276 677	284 877	291 330
<b>Real terminal unit cost per Service Unit (NOK2009)</b>	<b>1 745.18</b>	<b>1 662.22</b>	<b>1 591.21</b>	<b>1 522.12</b>	<b>1 465.74</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>199.95</b>	<b>190.45</b>	<b>182.31</b>	<b>174.39</b>	<b>167.93</b>
Norway: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal NOK)	454 600 144	461 305 845	460 212 882	478 363 139	467 804 031
Inflation %	2.0%	3.9%	1.9%	3.0%	2.3%
Inflation index (100 in 2009)	109.5	113.8	116.0	119.5	122.2
Real terminal costs (NOK2009)	414 973 022	405 287 962	396 788 735	400 424 872	382 782 138
Total terminal Service Units	246 093	245 182	249 825	256 300	256 006
<b>Real terminal unit cost per Service Unit (NOK2009)</b>	<b>1 686.24</b>	<b>1 653.01</b>	<b>1 588.27</b>	<b>1 562.33</b>	<b>1 495.21</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>193.20</b>	<b>189.39</b>	<b>181.97</b>	<b>179.00</b>	<b>171.31</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal NOK)	-43 431 119	-34 662 787	-40 571 946	-27 207 010	-42 513 147
	in %	in %	in %	in %	in %
	-8.7%	-7.0%	-8.1%	-5.4%	-8.3%
Inflation %	0.4 p.p.	2.2 p.p.	-0.2 p.p.	0.5 p.p.	-0.2 p.p.
Inflation index (100 in 2009)	0.0 p.p.	2.4 p.p.	2.2 p.p.	2.9 p.p.	2.7 p.p.
Real terminal costs (NOK2009)	-39 650 512	-39 884 781	-43 461 682	-33 191 999	-44 230 836
	in %	in %	in %	in %	in %
	-8.7%	-9.0%	-9.9%	-7.7%	-10.4%
Total terminal Service Units	-14 410	-22 636	-26 852	-28 577	-35 324
	in %	in %	in %	in %	in %
	-5.5%	-8.5%	-9.7%	-10.0%	-12.1%
<b>Real terminal unit cost per Service Unit (NOK2009)</b>	<b>-58.93</b>	<b>-9.21</b>	<b>-2.94</b>	<b>40.21</b>	<b>29.47</b>
	in %	in %	in %	in %	in %
	-3.4%	-0.6%	-0.2%	2.6%	2.0%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>-6.75</b>	<b>-1.06</b>	<b>-0.34</b>	<b>4.61</b>	<b>3.38</b>
	in %	in %	in %	in %	in %
	-3.4%	-0.6%	-0.2%	2.6%	2.0%
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Norway Terminal Charging Zone (TCZ) comprising 4 airports: Bergen/Flesland (ENBR), Oslo/Gardermoen (ENGM), Stavanger/Sola (ENZV) and Trondheim/Vaernes (ENVA).					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (1 495.21 NOK2009 or 171.31 €2009) is +2.0% higher than planned in the PP (1 465.74 NOK2009 or 167.93 €2009). This results from the combination of much lower than planned TNSUs (-12.1%) and much lower than planned terminal costs in real terms (-10.4%, or -5.1 M€2009).					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Norway TCZ. The difference between actual and planned TNSUs (-12.1%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (Avinor) bearing a loss of -2.1 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are -8.3% (-42.51 MNOK) lower than planned. However, since the actual inflation index is higher than planned (+2.7 p.p.), actual terminal costs are -10.4% (-5.1 M€2009) below plans when expressed in real terms.					
The lower than planned terminal costs in real terms are driven by Avinor (-10.2%, or -4.9 M€2009), the MET service provider (-19.2%, or -0.1 M€2009) and the NSA (-5.4%, or -0.01 M€2009). A detailed analysis at ATSP level is provided in box 12.					
There are no costs exempt from cost-sharing reported.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual TNSUs are -9.3% lower than planned, while actual costs in real terms are also -9.1% lower than the determined costs (some -23.0 M€2009). As a result, the weighted average actual unit cost over RP2 (1 595.86 NOK2009 or 182.84 €2009) is +0.2% higher than planned in the NPP (1 593.30 NOK2009 or 182.55 €2009).					



NORWAY: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019



## NORWAY: Terminal ATSP (Avinor)

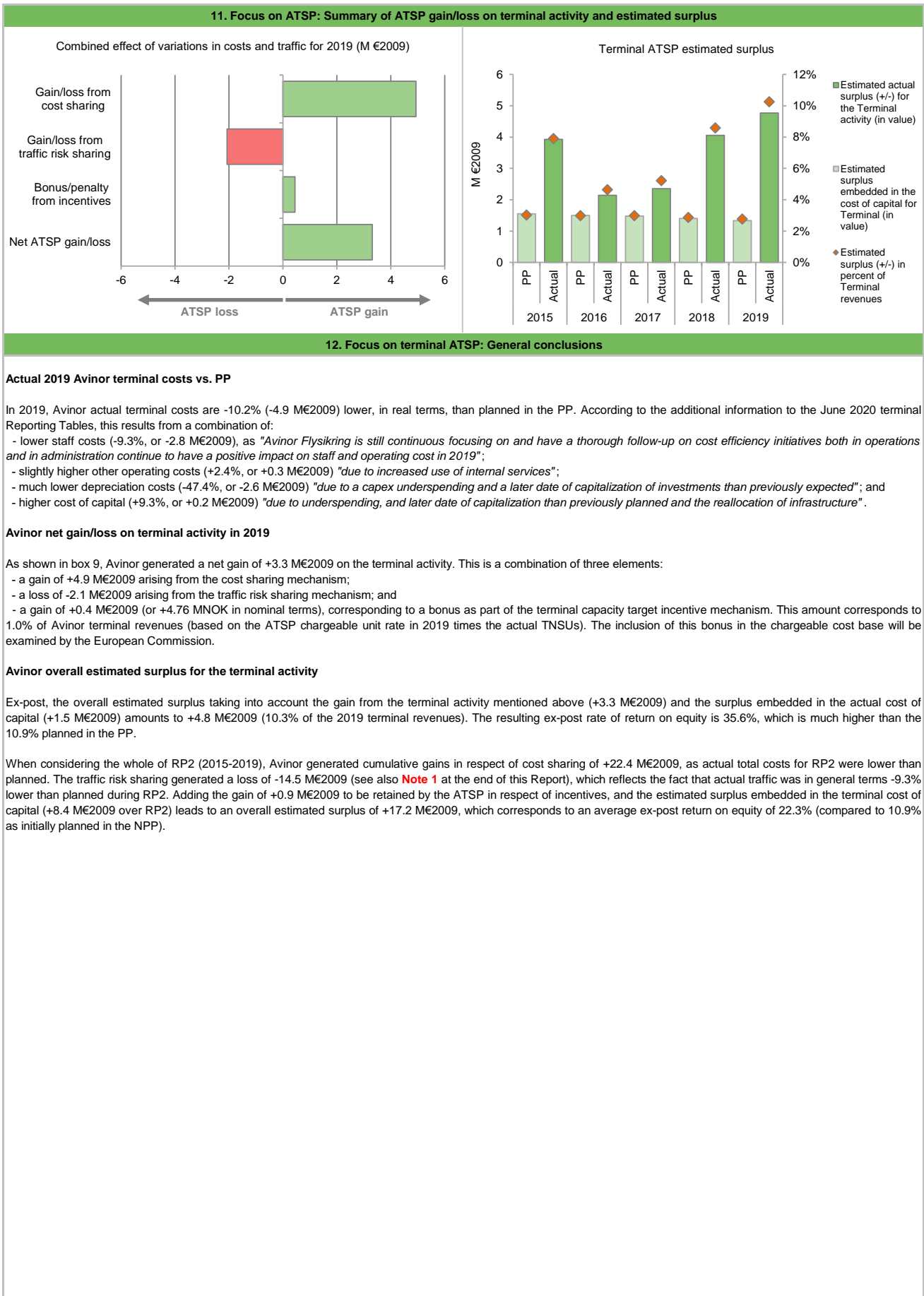
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	51 271	50 195	49 642	48 895	48 151
Actual costs for the ATSP	46 672	45 826	44 822	45 224	43 216
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	4 599	4 370	4 820	3 671	4 935
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>4 599</b>	<b>4 370</b>	<b>4 820</b>	<b>3 671</b>	<b>4 935</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-5.5%	-8.5%	-9.7%	-10.0%	-12.1%
Determined costs for the ATSP (PP) - based on actual inflation	51 270	49 132	48 685	47 720	47 086
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-1 569</b>	<b>-4 153</b>	<b>-4 569</b>	<b>-2 100</b>	<b>-2 072</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>454</b>	<b>447</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>3 031</b>	<b>217</b>	<b>251</b>	<b>2 025</b>	<b>3 310</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	35 326	34 239	33 818	31 947	30 459
Estimated proportion of financing through equity (in %)	40.2%	40.2%	40.2%	40.2%	40.2%
Estimated proportion of financing through equity (in value)	14 214	13 776	13 607	12 854	12 256
Estimated proportion of financing through debt (in %)	59.8%	59.8%	59.8%	59.8%	59.8%
Estimated proportion of financing through debt (in value)	21 112	20 463	20 211	19 093	18 204
Cost of capital pre-tax (in value)	2 685	2 602	2 570	2 428	2 315
Average interest on debt (in %)	5.4%	5.4%	5.4%	5.4%	5.4%
Interest on debt (in value)	1 136	1 101	1 087	1 027	979
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	1 549	1 501	1 483	1 401	1 336
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 549</b>	<b>1 501</b>	<b>1 483</b>	<b>1 401</b>	<b>1 336</b>
<b>Revenue/costs for the terminal activity</b>	<b>51 271</b>	<b>50 195</b>	<b>49 642</b>	<b>48 895</b>	<b>48 151</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>2.9%</b>	<b>2.8%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	20 412	43 834	47 954	46 339	33 306
Estimated proportion of financing through equity (in %)	40.2%	40.2%	40.2%	40.2%	40.2%
Estimated proportion of financing through equity (in value)	8 213	17 637	19 298	18 645	13 401
Estimated proportion of financing through debt (in %)	59.8%	59.8%	59.8%	59.8%	59.8%
Estimated proportion of financing through debt (in value)	12 199	26 197	28 656	27 694	19 905
Cost of capital pre-tax (in value)	1 551	3 331	3 645	3 522	2 531
Average interest on debt (in %)	5.4%	5.4%	5.4%	5.4%	5.4%
Interest on debt (in value)	656	1 409	1 542	1 490	1 071
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	895	1 922	2 103	2 032	1 460
Net ATSP gain(+)/loss(-) on terminal activity	3 031	217	251	2 025	3 310
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>3 926</b>	<b>2 139</b>	<b>2 354</b>	<b>4 057</b>	<b>4 770</b>
<b>Revenue/costs for the terminal activity</b>	<b>49 702</b>	<b>46 043</b>	<b>45 073</b>	<b>47 249</b>	<b>46 526</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>7.9%</b>	<b>4.6%</b>	<b>5.2%</b>	<b>8.6%</b>	<b>10.3%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>47.8%</b>	<b>12.1%</b>	<b>12.2%</b>	<b>21.8%</b>	<b>35.6%</b>



**NORWAY: Terminal ATSP (Avinor)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## NORWAY: Gate-to-gate

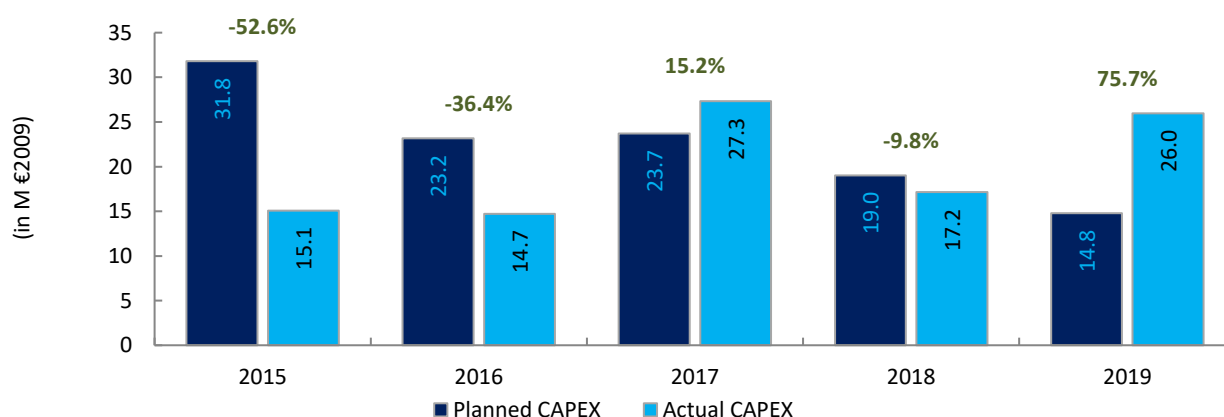
## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Norway: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	105 311 350	106 198 070	105 880 918	104 617 168	102 873 135																																							
Real terminal costs (EUR2009)	52 087 522	51 004 717	50 440 752	49 680 728	48 924 101																																							
Real gate-to-gate costs (EUR2009)	157 398 872	157 202 787	156 321 670	154 297 896	151 797 235																																							
En-route share (%)	66.9%	67.6%	67.7%	67.8%	67.8%																																							
<b>Norway: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	101 306 105	93 857 472	105 778 843	94 746 428	108 651 313																																							
Real terminal costs (EUR2009)	47 544 649	46 435 004	45 461 223	45 877 825	43 856 447																																							
Real gate-to-gate costs (EUR2009)	148 850 754	140 292 476	151 240 065	140 624 254	152 507 760																																							
En-route share (%)	68.1%	66.9%	69.9%	67.4%	71.2%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	-8 548 118	-16 910 311	-5 081 605	-13 673 642	710 524																																							
in %	-5.4%	-10.8%	-3.3%	-8.9%	0.5%																																							
En-route share in p.p.	1.2 p.p.	-0.7 p.p.	2.2 p.p.	-0.4 p.p.	3.5 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +0.5% (+0.7 M€2009) higher than planned due to higher than planned en-route costs (+5.6%, or +5.8 M€2009) while terminal costs are lower than planned (-10.4%, or -5.1 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (71.2%) is higher than planned in the PP for 2019 (67.8%).</p> <p>For Avinor, the estimated gate-to-gate economic surplus in 2019 amounts to 3.6 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 2.6% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>66.9%</td> <td>33.1%</td> </tr> <tr> <td>Actual</td> <td>68.1%</td> <td>31.9%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>67.6%</td> <td>32.4%</td> </tr> <tr> <td>Actual</td> <td>66.9%</td> <td>33.1%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>67.7%</td> <td>32.3%</td> </tr> <tr> <td>Actual</td> <td>69.9%</td> <td>30.1%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>67.8%</td> <td>32.2%</td> </tr> <tr> <td>Actual</td> <td>67.4%</td> <td>32.6%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>67.8%</td> <td>32.2%</td> </tr> <tr> <td>Actual</td> <td>71.2%</td> <td>28.8%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	66.9%	33.1%	Actual	68.1%	31.9%	2016	Determined	67.6%	32.4%	Actual	66.9%	33.1%	2017	Determined	67.7%	32.3%	Actual	69.9%	30.1%	2018	Determined	67.8%	32.2%	Actual	67.4%	32.6%	2019	Determined	67.8%	32.2%	Actual	71.2%	28.8%
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<b>3. Technical notes on en-route and terminal information reported by Norway</b>																																												
<b>Note 1: Reimbursement of a part of the surplus generated in 2016 and 2017</b>																																												
<p>In 2018 and 2019, Avinor reimbursed to airspace users a part of the surplus stemming mainly from the cost sharing mechanism in 2016 and 2017 by reducing the grand total for the calculation of 2018 and 2019 unit rates. Therefore, part of revenue losses of -22 MNOK and -27 MNOK stemming from the traffic risk sharing mechanism in 2016 and 2017 respectively, which were carried over to 2018 and 2019 unit rates, were almost completely offset by other revenues (ref. Terminal Table 2 ANSP, item 5.6 "Other other revenues").</p> <p>In other words, the revenue losses resulting from significantly lower terminal traffic than planned in 2016 and 2017 (-8.5% and -9.7%, respectively) were almost completely born by Avinor (i.e. not shared with airspace users). This affects the analysis on ANSP terminal gains and surplus presented in boxes 9 and 10 of this report.</p>																																												

## NORWAY

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: Avinor						
FAB: NEFAB						
Currency: NOK						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	304.0	225.4	235.6	193.6	154.1	1 112.5
Main CAPEX (in nominal M)	304.0	225.4	235.6	193.6	154.1	1 112.5
Inflation %	1.6%	1.7%	2.1%	2.5%	2.5%	
Inflation index (100 in 2009)	109.5	111.4	113.7	116.6	119.5	
Exchange rate 2009 (1 EUR =)	8.72807	8.72807	8.72807	8.72807	8.72807	
<b>Total CAPEX (in M €2009)</b>	<b>31.8</b>	<b>23.2</b>	<b>23.7</b>	<b>19.0</b>	<b>14.8</b>	<b>112.5</b>
Main CAPEX (in M €2009)	31.8	23.2	23.7	19.0	14.8	112.5
% Main of Total CAPEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real gate-to-gate ANSP costs (in M €2009)	147.3	146.9	145.9	143.8	141.3	725.2
Total CAPEX as % of Real gate-to-gate ANSP costs	21.6%	15.8%	16.3%	13.2%	10.5%	15.5%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	144.2	146.3	276.7	178.9	276.8	1 022.9
Main CAPEX (in nominal M)	144.2	146.3	265.3	168.4	248.8	973.1
Inflation %	2.0%	3.9%	1.9%	3.0%	2.3%	
Inflation index (100 in 2009)	109.5	113.8	116.0	119.5	122.2	
Exchange rate 2009 (1 EUR =)	8.72807	8.72807	8.72807	8.72807	8.72807	
<b>Total CAPEX (in M €2009)</b>	<b>15.1</b>	<b>14.7</b>	<b>27.3</b>	<b>17.2</b>	<b>26.0</b>	<b>100.3</b>
Main CAPEX (in M €2009)	15.1	14.7	26.2	16.2	23.3	95.5
% Main of Total CAPEX	100.0%	100.0%	95.9%	94.1%	89.9%	95.3%
Real gate-to-gate ANSP costs (in M €2009)	138.1	130.1	141.7	131.4	142.8	684.0
Total CAPEX as % of Real gate-to-gate ANSP costs	10.9%	11.3%	19.3%	13.1%	18.2%	14.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-159.9	-79.0	41.1	-14.6	122.8	-89.6
Total CAPEX (in M €2009)	-16.7	-8.4	3.6	-1.9	11.2	-12.2
<b>Total CAPEX (in %, M €2009)</b>	<b>-52.6%</b>	<b>-36.4%</b>	<b>15.2%</b>	<b>-9.8%</b>	<b>75.7%</b>	<b>-10.9%</b>



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# **Annual Monitoring Report 2019**

Local level view  
SOUTH WEST FAB

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## SW FAB

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management							
			2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs					C
	at ANSP level	For Safety Culture MO					C
		For all other MOs					D
FAB level	States / Regulatory authorities	For all MOs	A	A	B	B	B
	ANSPs	For Safety Culture MO	C	C	C	C	D
	ANSPs	For all other MOs	D	D	D	D	D
Application of the severity classification of the Risk Analysis Tool (RAT)							
Ground Score			2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%		100%
	Runway Incursions (RIs)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	100%	100%	100%	100%
	Runway Incursions (RIs)		100%	100%	100%	100%	100%
Overall Score			2015 Value	2016 Value	2017 Target	2018 Target	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		39%	54%	79%	89%	93%
	Runway Incursions (RIs)		7%	26%	61%	64%	58%
	ATM Specific occurrences (ATM-S)		27%	23%	66%	73%	87%

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

#### Observations

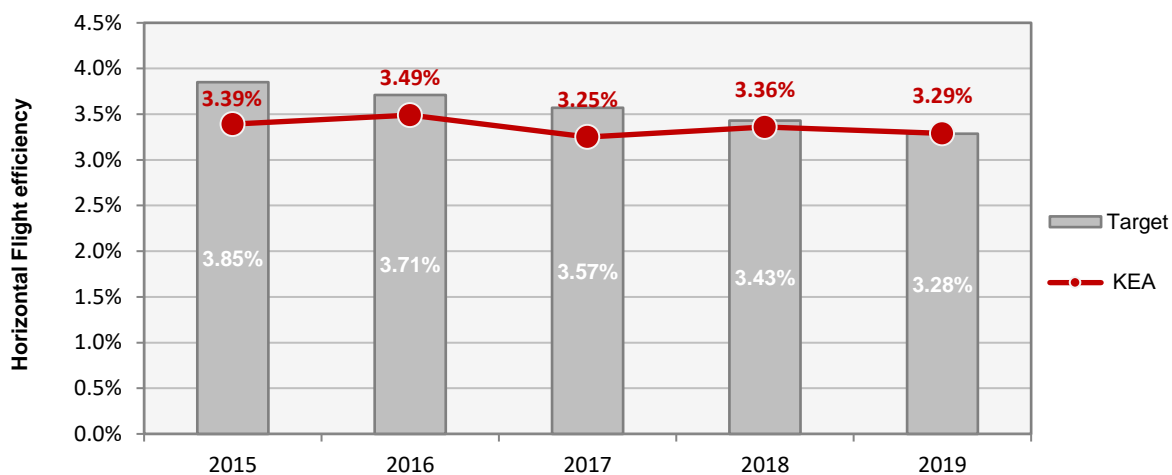
The lowest level in the EoSM Components/areas of the States is Level "B" which is below the 2019 EoSM target level. Only Safety Risk Management is at the 2019 EoSM target level.

With regards the ANSP EoSM level, the minimum level is Level "D" for all components, which is at or above the 2019 EoSM target level.

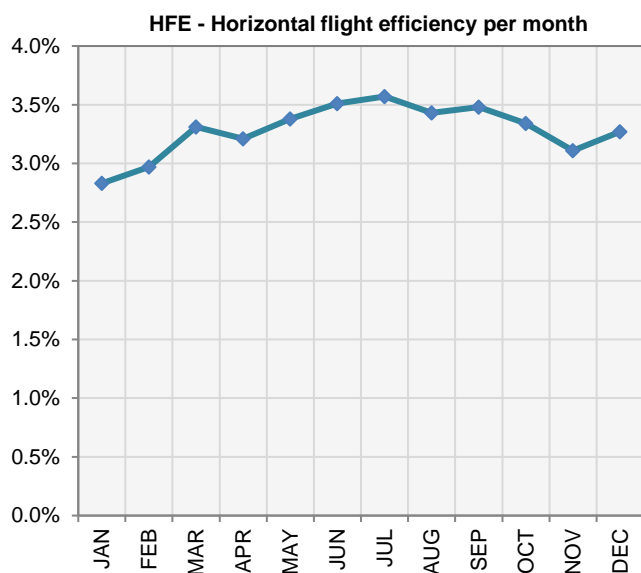
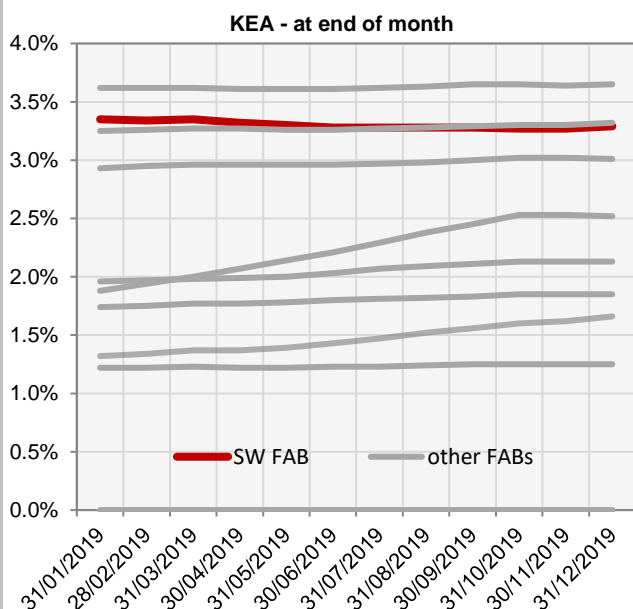
SW FAB

Monitoring of ENVIRONMENT for 2019

KEA					
	2015	2016	2017	2018	2019
FAB Target	3.85%	3.71%	3.57%	3.43%	3.28%
KEA Value	3.39%	3.49%	3.25%	3.36%	3.29%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KEA (at end of month)	3.35%	3.34%	3.35%	3.32%	3.30%	3.28%	3.28%	3.28%	3.28%	3.27%	3.27%	3.29%
HFE	2.83%	2.97%	3.31%	3.21%	3.38%	3.51%	3.57%	3.43%	3.48%	3.34%	3.11%	3.27%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.



**SW FAB**

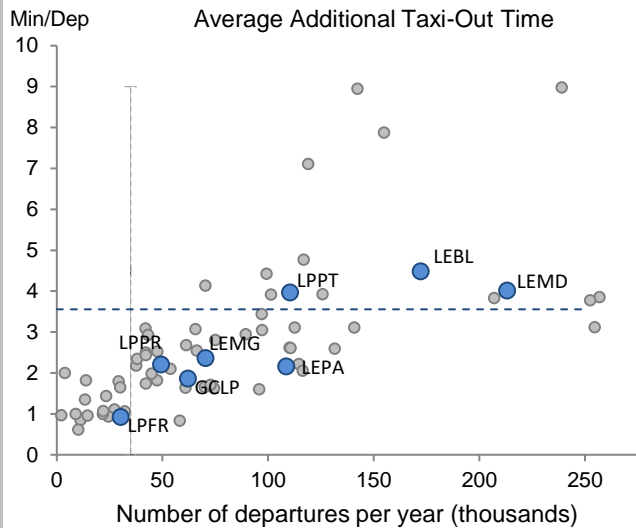
**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

SW FAB states identify a total of 15 airports as subject to RP2 monitoring. However, only the busiest 8 had established in 2019 the proper reporting through the airport data flow to allow such monitoring.

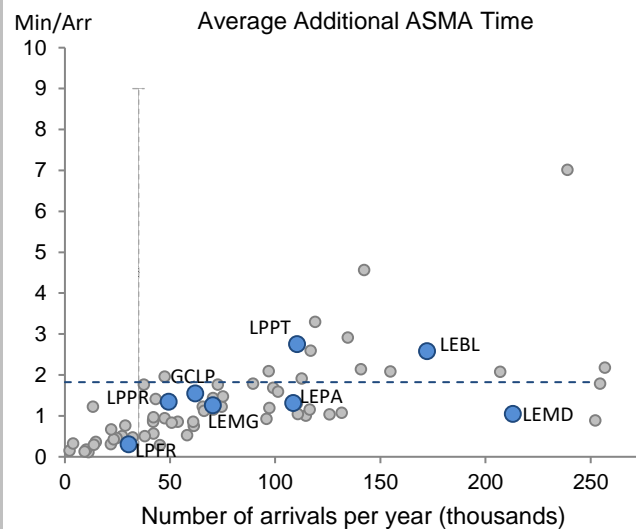
In general terms, the environmental performance indicators in the SW FAB airports are commensurate with their levels of traffic, with Madrid showing in addition very good values together with some of the busiest airports in Europe.

**2. Additional Taxi-Out Time**



The situation concerning additional taxi-out times at airports in SW FAB remains similar as last year, with only 3 airports (Barcelona, Madrid and Lisbon) showing additional taxi-out times above the average of airports in RP2 in 2019 (3.56 min/dep.)

**3. Additional ASMA Time**



Regarding additional time in terminal airspace, Lisbon (LPPT) and Barcelona (LEBL) have two of the highest values in the SES area, while Madrid has remarkably low additional ASMA times given its traffic.

## SW FAB

## Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
<b>FAB Reference Value</b>	0.30	0.31	0.31	0.30	0.30	The total presented includes the results of NM post operations adjustment process
<b>FAB Target</b>	0.30	0.31	0.31	0.30	0.30	
<b>Actual performance</b>	0.46	0.42	0.40	0.64	0.53	
SW FAB assessment of capacity performance						
<p>In the framework of the capacity KPA the SW FAB highlights that the traffic forecasts set in 2014 for the preparation of the SOWEPP have been overwhelmed along RP2 (+28%) with the current unexpected traffic figures, so the delay objectives set at that time were based on values that are completely out of date. At FAB level the main delay cause is ATC Capacity (69% of the total delay), followed by Weather (15%) and ATC Staffing (10%).</p> <p>It is worth mentioning that Spain obtained a significantly lower result (-70%) than the European average (1.57 min/fl for the EUROCONTROL area). The Spanish contribution to the en-route capacity (0.47 min/fl) was higher than the expected contribution (0.27), but much lower than the previous year result (-21%) as a consequence of the following causes:</p> <ul style="list-style-type: none"> <li>- ATC Capacity causes were -5% lower than the previous year, representing near 73% of the total ATFM en-route delay of Spain. Barcelona ACC was the main contributor (48% of the total ATC Capacity delay), followed by Madrid ACC, which experienced a significant increase (+56%) compared to the previous year.</li> <li>- Meteorological causes were -53% lower than the previous year, representing only 16% of the total ATFM en-route delay of Spain. They were mainly located in Barcelona ACC (72% of the Spanish weather delay), and were generated during the months with more traffic demand (Summer).</li> <li>- The third cause in number of minutes of delay was ATC Staffing, which increased by 82% compared to the previous year, mainly due to the contribution of the ACCs of Barcelona and Madrid (49% and 35% of the total delay by ATC Staffing, respectively)</li> </ul> <p>Part of the minutes of ATFM en route delay were reassigned after the application of the Post-Ops process by the Network Manager, which represented a total of 45,063 minutes (all of them associated to strikes in France). In addition, according to eNM/S2019 measures for the re-distribution of traffic flows to avoid constrains in central Europe, 312,910 minutes of en route delay initially assigned to Spain were reassigned to the responsible state. The total amount of minutes of en route delay subtracted from the final result of Spain was of 357,973 minutes.</p> <p>The Lisbon FIR recorded an average ATFM En Route delay of 0.25min/flight in 2019. Of these, 25,6% were caused by the replacement of Porto Santo's radar ("T-Equipment ATC"), which caused the provision of air traffic control in degraded mode (conventional mode) for several months on a large portion of Lisbon FIR airspace. If those minutes were excluded, the value of the ATFM delay in Lisbon FIR would be 0.19min/flight, the same value as in 2018, but with a traffic volume 2.7% higher.</p>						
Monitoring process for capacity performance						
<p>The AESA Monitoring Process has been streamlined to be more efficient. The en route delay indicator was monitored against the FAB level target during 2019 on a monthly basis against an alert mechanism in the context of the RP2 SOWEPP Monitoring Process. Issues in Spain were identified by AESA in midyear and ENAIRE was consulted for reasons and set out corrective measures.</p> <p>AESA identified after analysing the data versus the alerts and the information made available by ENAIRE that the target was not going to be met by the end of the year. Consequently, in compliance to Regulation (EU) No 390/2013 Article 18.4, AESA submitted a notification to the EC in October analysing the situation and providing information about:</p> <ul style="list-style-type: none"> <li>• An insight of how the implementation of planned activities were affecting performance.</li> <li>• Information on factors that have contributed to the noncompliance of the targets</li> <li>• A preview of some measures to come that would focus on elements to be improved.</li> </ul> <p>The overall conclusion was that the set of measures deployed would not be sufficient to meet the Spain target by the end of the year, which ended up being true. The large number of projects, the difficulties in implementing and coordinating the most appropriate technical solution, together with the lack of ATCOs, have led to some projects being postponed. But the general guidelines to achieve them and finally be able to meet the objectives would be fundamentally: Increase in the number of ATCOs, increase in capacity and use new technologies plus improvement of the existing ones. The efforts made by ENAIRE will required time before they come to fruition.</p> <p>Monitoring of en route ATFM delay by ANSPs is done through the PRU monitoring process, taking into account, when necessary, the results of the PostOps process and the Summer Measures carried out by the Network Manager.</p> <p>NAV Portugal and ANAC has a monitoring process implemented which comprises a quarterly meeting, information sharing concerning the evolution of the different performance indicators.</p>						

### Application of Corrective Measures for Capacity

As agreed with the NM as part of the NOP process, the following measures were implemented in Spain within the Capacity Plan in 2019 in order to contribute to the reduction of delay figures:

- ALL ACCs: Optimised sector configurations and sector capacities; New version of Automated System (SACTA); and the progressive incorporation of ATCOs, that will be one of the main to reduce the delay in following years.
- MADRID ACC: Improvement of SANTIAGO sector.
- BARCELONA ACC: Improvement of BALSE sector. New NATPI traffic organisation (improved LFBB-LECB).
- SEVILLA ACC: Splitting of LECSSEV.
- CANARIAS ACC: Improvement of NE sectors.

### Capacity Planning

The new planning period 2020-2024 will be very challenging for NAV Portugal due to several deployment projects. Amongst them, the new ATM system for Lisbon ACC entails a transition plan coordinated with NM for its deployment and implementation. As presented to the NM in the preparation of the Portuguese capacity plan 2020-2024, NAV Portugal will be impacted by the preparation, implementation and initial endurance of a completely new ATM system in Lisbon ACC and main TWRs by 2020-2021. Consequently, it is expected that Lisbon ACC will generate higher delays during these periods and well above its historical records. Moreover, it is planned during this period the deployment of a second airport in Lisbon as well as a completely airspace redesign for its TMA airspace with the introduction of a Point Merge System for both airports in Lisbon.

Last April 2019 the NMB approved the Network Operations Plan (NOP) for the planning period 2019-2024. In addition, during 2019, ENAIRE updated its Summer Plan 2019-2020 for the period 2020-2021 (this Summer Plan is a living document that will be monitored and updated regularly in order to be adapted to the changing conditions of the Air Navigation Service), which details the projects and actions planned to increase and improve capacity, focusing efforts in the less performing areas. The main projects planned were:

- ALL ACCs: Progressive incorporation of ATCOs; improved ATFCM, in line with AF4 of PCP; optimised sector configurations and sector capacities.
- MADRID ACC: Splitting of high ZAR/TER sectors (2020) and LECM-France-UK interface (2020).
- BARCELONA ACC: Splitting of BALSE sector (2021).
- PALMA ACC: Splitting of MXX sector (2021).
- CANARIAS ACC: Improvements of NW and NE sectors (2020) and 11th sector (sector cluster) (2021).

However, due to the exceptional current situation that the whole world is experiencing with the COVID-19 pandemic, all these actions planned in the NOP for Spain will need to be reviewed to adapt them to a scenario focused on service recovery and to facilitate users the return to normality, always prioritizing safety and the minimum delay.

### Assessment of capacity performance

For the fifth year in a row, SW FAB failed to meet its adopted target for en route capacity performance, albeit with higher than predicted traffic levels for each of those years. Traffic levels in 2017 were already above the highest traffic level predicted for SW FAB in the STATFOR forecast of 2014, for the entirety of RP2, when the FAB performance plans and associated capacity plans were being determined.

Traffic levels in 2019 were an additional 2% on top of 2018 levels (and 10% above 2019 high traffic scenario). En route AFTM delays increased from 0,65 minutes per flight in 2018 to 0.69 minutes per flight in 2019, including the 358k minutes of delay that were reassigned during the post operations process. The actual delays were significantly higher than the 0,48 minutes per flight predicted in the NOP 2019 - 2024.

Some airspace users (IATA), recognised the Spanish and Portuguese ACCs as being good performers on the South West axis.

#### EUROCONTROL 7 year traffic forecast February 2014

	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	1 648		1 708		1 783		1 848		1 921		1 997	
<b>Base</b>	1 625	<b>1 727</b>	1 667	<b>1 782</b>	1 711	<b>1 930</b>	1 750	<b>2 059</b>	1 795	<b>2 168</b>	1 841	<b>2 221</b>
<b>Low</b>	1 600		1 622		1 629		1 643		1 662		1 681	

#### Delay forecast (with eNM/ANSPs measures for 2019/2020)

	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.63	0.33	0.32	0.24	N/A	N/A
<b>NOP 2019 - 2024</b>	0.48	0.59	0.39 – 0.54			

### En route Capacity Incentive Scheme

SW FAB provided details of an en route capacity incentive scheme in their revised performance plan v2.0, dated July 2016.

This incentive scheme was based on a FAB target of 0.30 minutes per flight with a dead-band between 0.54 - 0.16 minutes per flight. The incentive scheme was based on all causes of delays but there were caveats regarding 'unusually high' incidences of certain delays codes activating an exclusion system based on Article 15(g) of Regulation 391/2013.

### Result of FAB Capacity Incentive Scheme

Actual performance (0,53 minutes per flight) fell within the deadband of the incentive mechanism. Therefore neither penalty nor bonus are applicable.

### Update on Military dimension of the plan

No new information was provided.

### Observations on Military dimension of the plan

Nil

### Application of FUA

Spain:

Strategic ASM Level 1 actually is performed by the civil/military high level body CIDETMA and its Working Groups (Ponencias), specifically through PREA and UPEA. User requirements and route improvements are handled by CIDETMA through sub working groups. During 2019 CIDETMA has approved a new definition for a single CDR category. In 2020 PREA will be working on the Transition Plan to SCC, on a document defining priorities to be applied at ASM level 2 and on the definition of new AMC functions.

Pre tactical ASM level 2 is performed by the Spanish AMC. FUA structures manageable are handled through AUP and UUP via CIAM Tool from NM. Airspace Structures which are going to be applied in Spain in application of the "FUA Concept" has been approved by CIDEFO (currently CIDETMA) on March 2015 (Plenary meeting 01/2015). Since the 1st of January of 2020 AMC is using LARA Tool for the generation of AUP/UUP via B2B. During 2019, ASM level 2 has defined LARA Manuals for the different units affected and has been training military and civil units on the use of LARA Tool. For 2020, implementation of LARA V3.2 is planned.

Tactical ASM level 3 is performed in the Ops Room through a direct coordination between ATCOs and military positions in the ACCs. Coordination through AMC is available as well on request. Enaire has been certified as ASM level 3 provider by the end of 2019.

Portugal:

The concept of the Flexible Use of Airspace (FUA) is implemented in Portugal since 1996 and is protocolled between the Air force and the civil ANSP in order to promote efficient civil-military coordination procedures relying on rules and standards to ensure efficient use of airspace by all users.

The accuracy of information on airspace status and on specific air traffic situations and timely distribution of this information to civil and military controllers has a direct impact on the safety and efficiency of operations.

The concept addresses airspace management at strategic, pre-tactical and tactical levels, which are separate, but closely interdependent management functions and therefore need to be performed coherently to ensure efficient use of airspace.

Functions at the strategic level (1) are assigned to the Joint National High-Level Policy Body (INFANAV), which gathers high representatives from the Civil Aviation Authority (ANAC), the Portuguese Air Force and the main civil Air Navigation Service Provider (NAV Portugal, E.P.E.). This body evaluates the national airspace structures and route network with the aim of planning for flexible airspace structures and procedures in order to adapt them to the traffic demand.

The co-location of a military position at Lisboa ACC enables direct, relevant and timely exchange of information and coordination between civil and military users as required by FUA level 2 and 3.

The airspace management cell is a joint civil military representative body and is responsible, at level 2, to manage daily airspace allocation in accordance with the requirements of the airspace users and is supported by LARA tool to communicate in due time the airspace availability to all affected users.

Finally, at the real-time activation deactivation or reallocation (level 3), of the airspace allocated at pre-tactical level, coordination procedures are established between air traffic service units and controlling military units to permit direct communication to resolve specific traffic situations in order to ensure safety when managing interactions between civil and military flights.

### Observations of the Application of FUA

The PRB notes the updated information.

**SW FAB**

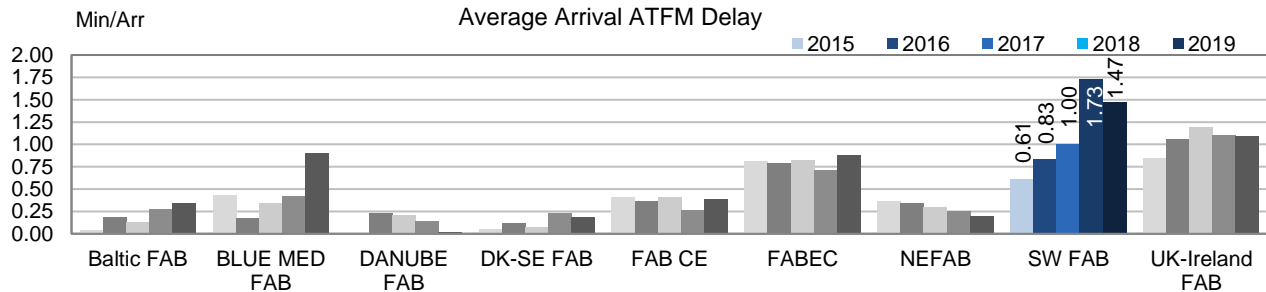
**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

SW FAB includes some of the most capacity constrained airports in Europe. In 2019, SW FAB has improved performance in terms of arrival ATFM delays, averaging 1.47 min/arr., but this is still the worst FAB average in 2019 and more than half a minute above the European average (0.88 min/arr)

Next to FABEC and UK-Ireland FAB, SW FAB performance influences the European average significantly. Efforts are required to reduce the high level of arrival ATFM delay that represents 22% of all arrival ATFM in the SES monitoring airports in 2019 and 13% of the traffic.

**2. Arrival ATFM Delay**



The reason for the decrease in the aggregated arrival ATFM delay is the reduction of delays at Barcelona (LEBL) and Palma (LEPA) airports. Lisbon (LPPT), Porto (LPPR) and Madrid (LEMD) have in fact worsen the performance with a significant increase of the delays.

Lisbon (LPPT) and Porto (LPPR) have the 2nd and the 5th highest arrival ATFM delay per flight in the SES area in 2019.

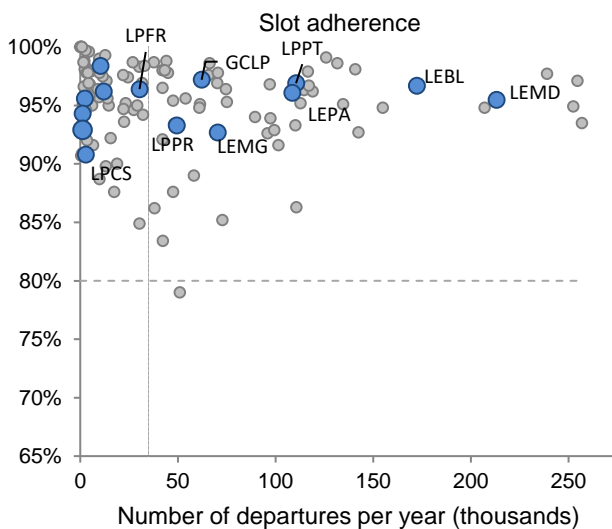
**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

The SW FAB performance plan sets a national target on arrival ATFM delay with a breakdown per airport for each of the years of the reference period for Spain. For Portugal, the breakdown is provided for two airports while the other 7 airports are aggregated into a third summary value. The national targets set are consistent with the observed performance at the beginning of the reference period.

Both Portugal and Spain have missed their national target in 2016, 2017, 2018, and 2019 showing a deterioration with respect to the beginning of the reference period.

The SW FAB performance plan presents no incentive schemes for the national targets on arrival ATFM delay.

**4. ATFM Slot Adherence**



The adherence to ATFM slots at all airports in the SW FAB is above 90%. A group of airports in SW FAB also show best-in-class performance with adherences above 95%.

**5. ATC Pre-departure Delay**

ATC pre-departure delay at Lisbon is the highest in the SES area, reaching 4.16 min/dep., more than double of the second worst performer. In Spain, the quality of the reporting does not allow the calculation of the indicator in 4 of the 5 airports under monitoring.

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# **Annual Monitoring Report 2019**

Local level view  
Portugal

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## PORTUGAL

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	54	B	C	B	B	C
NAV Portugal	95	D	E	D	D	E
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	100%	100%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	NAV-P					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	6	3				
Legal/Judiciary	7	0				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>15</b>	<b>3</b>				
NAV Portugal	Number of questions answered					
	YES	NO				
Policy and its implementation	13	0				
Legal/Judiciary	2	1				
Occurrence reporting and Investigation	8	0				
<b>TOTAL</b>	<b>23</b>	<b>1</b>				
Observations						
The State did not meet the RP2 target level "C" in 2019 in three EoS Components. 6 questions out 36 did not achieved such level C.						
With regard the RAT application, targets have been met.						

## PORTUGAL

## Monitoring of Airports Contribution to ENVIRONMENT for 2019

## 1. Overview

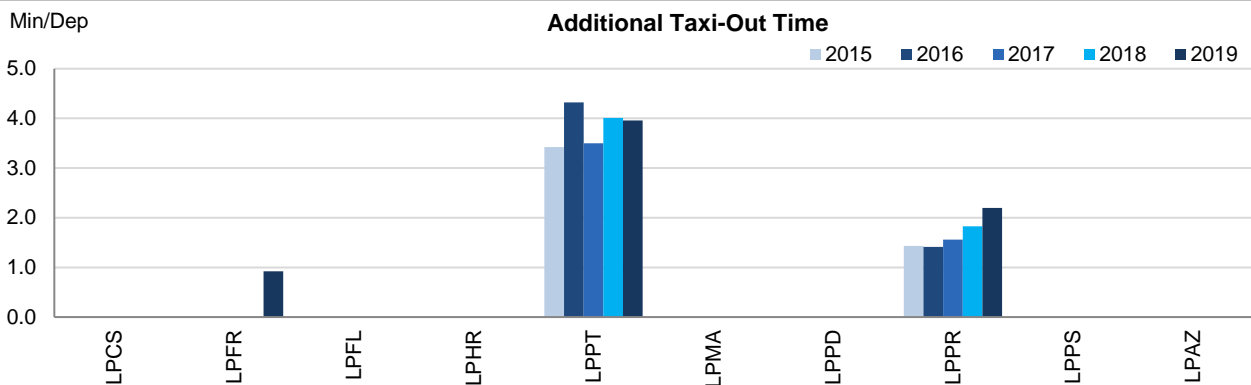
The scope of RP2 monitoring for Portugal comprises 10 airports in 2016, from which the Airport Operator Data Flow was established for 2 (Porto and Lisbon) plus Faro who joined in 2019.

Cascais (LPCS) is added to the list of airports in 2016 after its inclusion in the Charging Zone.

Traffic at the three airports that can be monitored increased drastically in the course of RP2, between a 33% and a 40% with respect to 2015, and Lisbon and Porto observe some deterioration in environmental performance along this reference period.

In 2019, the observed environmental performance is to a certain extent commensurate with that traffic, although Lisbon shows the 10 highest in the SES area for additional taxi-out and the 5 highest for the additional ASMA times.

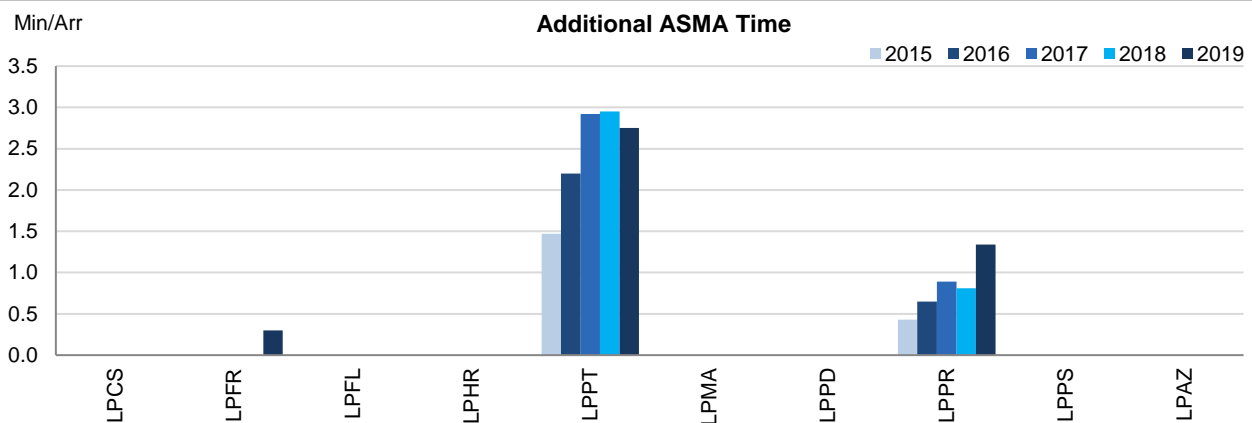
## 2. Additional Taxi-Out Time



Additional taxi-out times at Lisbon have not changed much in 2019, while at Porto have increased once more. Lisbon's additional time (LPPT; 2019: 3.96 min/dep.) is again above the SES average (3.56 min/dep.) and the 10th highest in Europe.

Faro (LPFR; 2019: 0.92 min/dep.) shows good performance with additional taxi-out times below similar airports in terms of traffic. The performance is influenced by the seasonality of the traffic.

## 3. Additional ASMA Time



Additional times in the terminal airspace at Lisbon have slightly reduced in 2019 (LPPT; 2018: 2.95 min/arr.; 2019: 2.75 min/arr.) but still the 5th longest additional ASMA times in the SES area, reaching up to 3.5 min/arr. in August.

Porto shows a significant deterioration (LPPR; 2018: 0.81 min/arr.; 2019: 1.34 min/arr.), with longer additional times observed in the second part of the year.

Faro very low additional ASMA times (LPFR: 2019: 0.3 min/arr.)

## 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Cascais	LPCS		n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a
Faro	LPFR	n/a	n/a	n/a	n/a	0.92	n/a	n/a	n/a	n/a	0.30
Flores	LPFL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Horta	LPHR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lisbon	LPPT	3.42	4.32	3.50	4.01	3.96	1.47	2.20	2.92	2.95	2.75
Madeira	LPMA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ponta Delgada	LPPD	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Porto	LPPR	1.43	1.41	1.56	1.83	2.20	0.43	0.65	0.89	0.81	1.34
Porto Santo	LPPS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Santa Maria	LPAZ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**PORTUGAL**

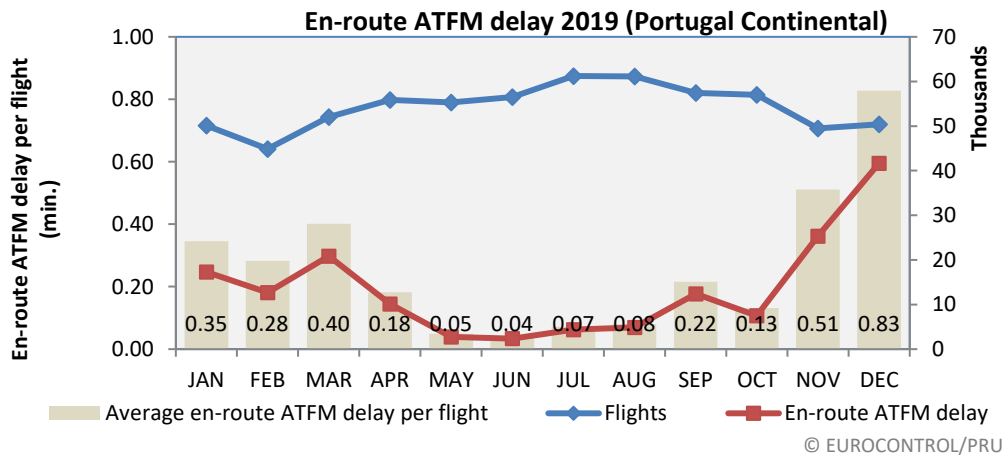
**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.19	0.15	0.14	0.14	0.13	
Deadband +/-	0.00	0.00	0.00	0.00	0.00	
Actual performance	0.48	0.21	0.19	0.19	0.25	

**National capacity incentive scheme**

Not applicable: incentive scheme defined at FAB level.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.19	0.02	0.01	0.16	0.65	0.27	0.50	0.48	0.21	0.19	0.19	0.25

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	483		507		529		547		568		589	
Base	476	480	494	505	505	559	514	613	525	634	536	651
Low	469		480		481		482		485		488	

Capacity performance deteriorated with delays increasing from 0,19 minutes per flight in 2018 to 0,25 minutes per flight. 44% of delays were attributed to ATC capacity, 24% to disruptions (ATC) and 20% to ATC staffing.

Traffic levels rose by approximately 3% from 2018, remaining above the highest traffic level predicted by STATFOR in February 2014 when the performance targets were being set and associated capacity plans were being developed.

The airspace users (IATA) commended the Portugal for handling the increased traffic well.

The actual delays were significantly higher than predicted in NOP 2019- 2024.

Delay forecast - NAV Portugal						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	1.39	0.30	0.28	0.21	N/A	N/A
NOP 2019 - 2024	0.15	0.36	0.14 - 0.35			

**Planning and Effective Use of CDRs**

No data was provided at national level, since Portugal has implemented free route airspace operations.

**Observations on Planning and Effective Use of CDRs**

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

**Effective booking procedures**

No data was provided.

**Observations on Effective booking procedures**

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

**PORTUGAL**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

Currently ANS at 10 Portuguese airports are subject to RP2 monitoring. With the monitoring of 2016, performance at Cascais (LPCS) was added to the monitoring. Traffic levels at these airports have drastically increased during RP2 (+34.8% with respect to 2015).

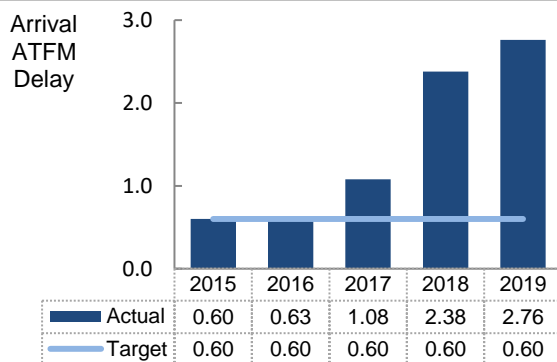
Along with the increase in traffic, arrival ATFM delays have suffered, quadrupling those in the beginning of the reference period and reaching a national average of 2.76 min/arr., the third highest amongst the SES states. Portugal has established a national target on arrival ATFM delay that was widely exceeded again in 2019.

ATFM slot adherence has improved significantly (2015: 89.3%; 2019: 95.8%).

The airport operator data required for the monitoring of ATC pre-departure delay is now available for Lisbon (LPPT), Porto (LPPR) and Faro (LPFR).

The capacity problems at Lisbon stand out and this airport shows the second highest arrival ATFM delay (4.13 min/arr.) and the highest ATC pre-departure delay (4.16 min/dep.) in Europe. Porto's performance has also degraded drastically in the last years, and is now the 5th airport with the highest arrival ATFM delay (3.09 min/arr.) in the SES area.

**2. Arrival ATFM Delay**



During 2019, arrival ATFM delays in Portugal are moderately higher than with respect to the previous year (2018: 2.38 min/arr, 2019: 2.76 min/arr)

Lisbon (LPPT: 2019: 4.13 min/arr.) is the 2nd biggest contributor to arrival ATFM delays in the SES area (after Amsterdam) despite being only the 20th in terms of movements.

35% of these delays are attributed to Aerodrome Capacity (airport infrastructure limitations to accommodate traffic demand), 32% to Weather and 31% to Airspace Management due to military activity affecting the arrival flow into Lisbon.

As regards Oporto Airport, as in 2018, it had its worst performance in Q3 where more than half of the total ATFM delay is recorded. The biggest contribution continues to be the "Weather" factor having accumulated this year 68% of the total delay share, followed by Aerodrome Capacity (24%).

SWFAB's monitoring report states that *the traffic growth at Portugal's main airports, namely +1.6% in Lisbon and +5.4% in Oporto against 2018, was responsible for a +19.1% increase in the ATFM delay in the Portuguese terminal area, with Oporto airport increasing +60.4% and Lisbon airport recording +9.7% delay.*

*Lisbon airport accumulated 74.8% of the total ATFM delay in the Portuguese terminal area, the rest being mostly generated by Oporto airport (25.0%).*

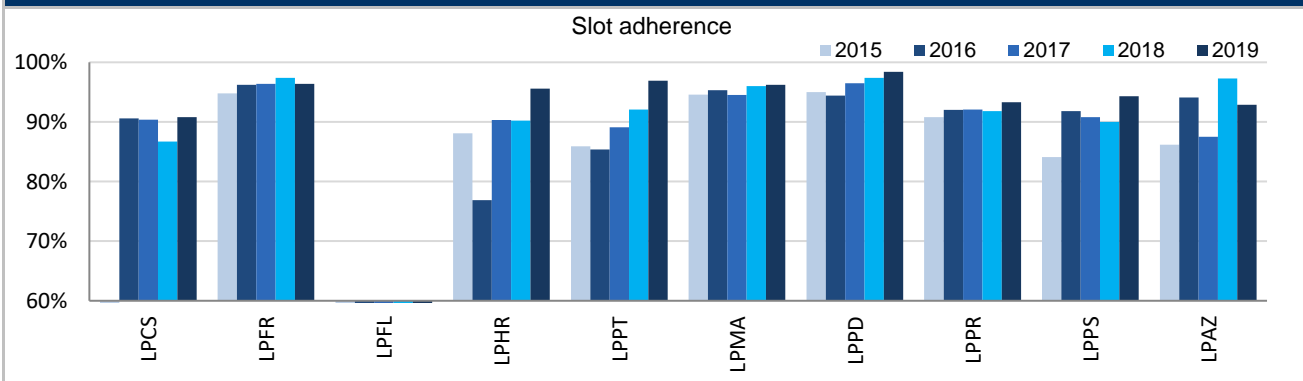
**3. Arrival ATFM Delay – National Target and Incentive Scheme**

The SW FAB performance plan establishes a national target on arrival ATFM delay (0.60 min/arr.) with a breakdown for the two major airports (i.e. Lisbon and Porto) and aggregates the remaining 7 airports into a single value for each of the years of the reference period. Cascais (LPCS) is not included in this group as this airport has now been added to the monitoring. Therefore no reference is established for LPCS.

The national target on arrival ATFM delay (0.60 min/arr.) is not met. At airport level, while almost all the smaller airports (except Faro that exceeds its reference value by 0.01 min/arr.) perform better than their reference target value, the actual values at both Lisbon and Porto are dramatically higher than their reference value (i.e. LPPR: PP2019 = 0.75 min/arr vs Actual2019 = 3.09 min/arr. and LPPT: PP2019 = 0.50 min/arr vs Actual2019 = 4.13 min/arr.).

The SW FAB performance plan presents no (capacity) incentive scheme for the national target on arrival ATFM delay for Portugal.

**4. ATFM Slot Adherence**



Since the beginning of RP2, slot adherence at Portuguese airports has improved in general reaching now an average national slot compliance of 95.8% in 2019.

Slot adherence at Lisbon has significantly improved and it is almost 97% in 2019. At Faro, despite a slight decrease, the adherence is still above the 95%. Porto has improved and gets closer to the best-in-class performance category threshold of 95%.

The low traffic levels at Santa Maria (LPAZ), Horta (LPHR), Cascais (LPCS) and Porto Santo (LPPS) make the compliance indicator very volatile, as only a few flights might have a big impact.

For another year, there are no regulated departures at LPFL.

## 5. ATC Pre-departure Delay

The Airport Operator Data Flow during 2019 was established only for the three main airports: Lisbon (LPPT), Porto (LPPR) and Faro, so the calculation of the pre-departure delay is only possible for these airports.

The accrued ATC pre-departure delay at both airports is very significant and in the case of Lisbon reaches one more year the highest value in the SES area (LPPT: 2019: 4.16 min/dep.)

SW FAB reports that the level of pre-departure delay in Lisbon along RP2 deteriorated significantly, especially since 2018.

*The main reason for the performance is the airport infrastructure limitation as a consequence of the rapid increase in traffic in the last few years which was not followed by the necessary improvements at ground level.*

*As for Porto, the pre-departure delays are mainly due to weather, which combined with significant increases in traffic for the past years led to a deterioration in this indicator.*

## 6. Appendix

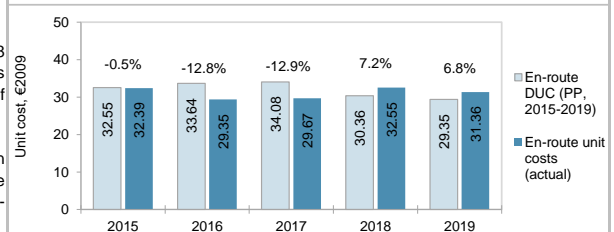
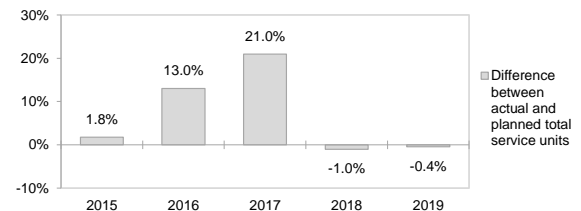
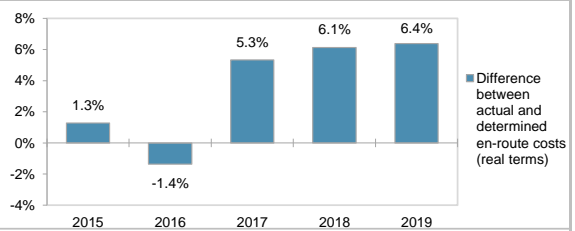
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Cascais	LPCS		0.00	0.00	0.00	0.00	n/a	90.6%	90.4%	86.7%	90.8%		n/a	n/a	n/a	n/a
Faro	LPFR	0.06	0.00	0.00	0.02	0.03	94.8%	96.2%	96.4%	97.4%	96.4%	n/a	n/a	n/a	n/a	0.34
Flores	LPFL	0.00	0.00	0.00	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Horta	LPHR	0.00	0.00	0.00	0.00	0.00	88.1%	76.9%	90.3%	90.2%	95.6%	n/a	n/a	n/a	n/a	n/a
Lisbon	LPPT	0.79	0.88	1.65	3.82	4.13	85.9%	85.4%	89.1%	92.1%	96.9%	n/a	n/a	2.60	4.32	4.16
Madeira	LPMA	0.01	0.02	0.06	0.07	0.00	94.6%	95.3%	94.5%	96.0%	96.2%	n/a	n/a	n/a	n/a	n/a
Ponta Delgada	LPPD	0.00	0.00	0.00	0.00	0.00	95.0%	94.4%	96.5%	97.4%	98.4%	n/a	n/a	n/a	n/a	n/a
Porto	LPPR	0.87	0.93	1.22	2.03	3.09	90.8%	92.0%	92.1%	91.8%	93.3%	n/a	n/a	0.59	0.61	0.75
Porto Santo	LPPS	0.00	0.00	0.00	0.00	0.00	84.1%	91.8%	90.8%	90.0%	94.3%	n/a	n/a	n/a	n/a	n/a
Santa Maria	LPAZ	0.00	0.00	0.00	0.00	0.00	86.2%	94.1%	87.5%	97.3%	92.9%	n/a	n/a	n/a	n/a	n/a

## PORTUGAL: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

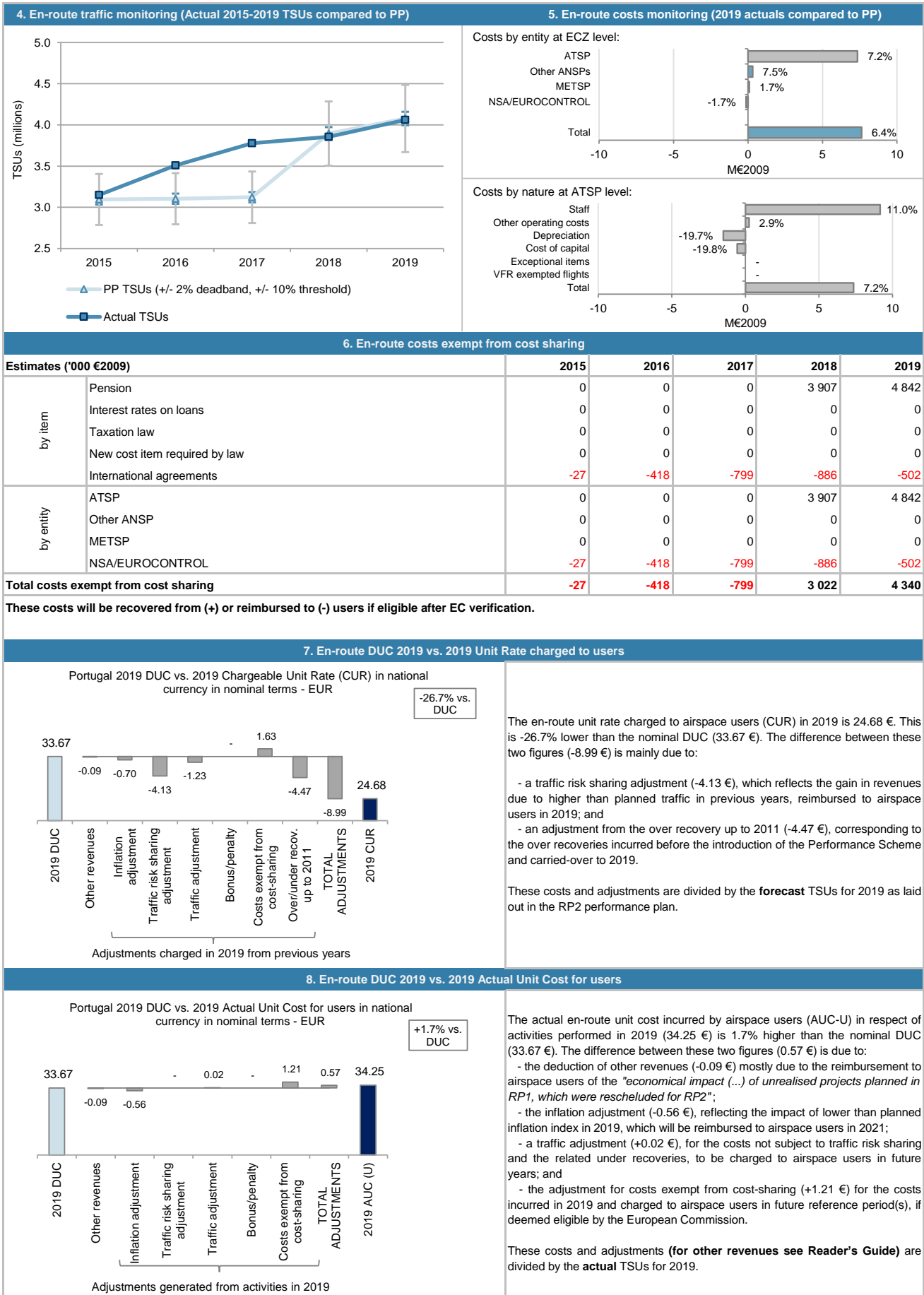
1. Contextual economic information: en-route air navigation services						
<ul style="list-style-type: none"> <li>Portugal ECZ represents 1.9% of the SES en-route ANS determined costs in 2019</li> <li>ATSP: NAV Portugal</li> <li>FAB: SW FAB</li> <li>National currency: EUR</li> </ul>						
2. En-route DUC monitoring at Charging Zone level						
Portugal: Data from RP2 Performance Plan (EC Decision 2018/2021 of 17 December 2018)		2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)		111 331 252	117 112 878	121 117 127	133 551 913	137 314 735
Inflation %		1.2%	1.5%	1.5%	1.6%	1.6%
Inflation index (100 in 2009)		110.5	112.2	113.8	112.9	114.7
Real en-route costs (EUR2009)		100 758 704	104 424 905	106 399 345	118 261 552	119 678 710
Total en-route Service Units		3 095 250	3 104 536	3 122 232	3 895 148	4 077 832
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>32.55</b>	<b>33.64</b>	<b>34.08</b>	<b>30.36</b>	<b>29.35</b>
Portugal: Actual data from Reporting Tables		2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)		110 975 595	112 678 540	124 561 665	141 180 751	143 628 143
Inflation %		0.5%	0.6%	1.6%	1.2%	0.3%
Inflation index (100 in 2009)		108.7	109.4	111.2	112.5	112.8
Real en-route costs (EUR2009)		102 048 433	102 996 411	112 065 407	125 511 103	127 304 944
Total en-route Service Units		3 150 186	3 509 556	3 777 024	3 855 541	4 059 860
<b>Real en-route unit cost per Service Unit (EUR2009)</b>		<b>32.39</b>	<b>29.35</b>	<b>29.67</b>	<b>32.55</b>	<b>31.36</b>
Difference between Actuals and Planned		2015	2016	2017	2018	2019
En-route costs (nominal EUR)	in value	-355 657	-4 434 338	3 444 537	7 628 838	6 313 408
	in %	-0.3%	-3.8%	2.8%	5.7%	4.6%
Inflation %	in p.p.	-0.7 p.p.	-0.9 p.p.	0.1 p.p.	-0.4 p.p.	-1.3 p.p.
Inflation index (100 in 2009)	in p.p.	-1.7 p.p.	-2.7 p.p.	-2.7 p.p.	-0.4 p.p.	-1.9 p.p.
Real en-route costs (EUR2009)	in value	1 289 729	-1 428 495	5 666 062	7 249 551	7 626 234
	in %	1.3%	-1.4%	5.3%	6.1%	6.4%
Total en-route Service Units	in value	54 936	405 020	654 792	-39 607	-17 972
	in %	1.8%	13.0%	21.0%	-1.0%	-0.4%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-0.16</b>	<b>-4.29</b>	<b>-4.41</b>	<b>2.19</b>	<b>2.01</b>
	<b>in %</b>	<b>-0.5%</b>	<b>-12.8%</b>	<b>-12.9%</b>	<b>7.2%</b>	<b>6.8%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
<p>In 2019, the actual en-route unit cost in real terms (31.36 €2009) is +6.8% higher than planned in the PP (29.35 €2009). This results from the combination of TSUs staying practically as planned (-0.4%) and higher than planned en-route costs in real terms (+6.4%, or +7.6 M€2009). According to the NSA monitoring report 2019, the additional costs are due to the necessary "overtime to meet demand at Lisbon FIR, while implementing and training for the new ATM system, which forced the withdrawal of ATCOs from the operation.". See also <b>Note 1</b> at the end of the report.</p>						
<b>En-route service units</b>						
<p>The difference between actual and planned TSUs (-0.4%) falls inside the ±2% dead band foreseen in the traffic risk sharing mechanism. The resulting loss of en-route revenues (-0.5 M€2009) is therefore fully borne by the main ATSP (NAV Portugal).</p>						
<b>En-route costs</b>						
<p>In nominal terms, actual en-route costs are +4.6% (+6.3 M€) higher than planned. However, since the actual inflation index is lower than planned (-1.9 p.p.), actual en-route costs are +6.4% (+7.6 M€2009) above plans when expressed in real terms.</p> <p>The higher than planned en-route costs in real terms are driven by NAV Portugal (+7.2%, or +7.4 M€2009), the SAR entities (+7.5%, or +0.3 M€2009) and the MET service provider (+1.7%, or +0.1 M€2009), while the costs for the NSA/EUROCONTROL (-1.7%, or -0.1 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.</p>						
<p>Costs exempt from cost-sharing are reported for a total amount of +4.3 M€2009 comprising +4.8 M€2009 for pensions and -0.5 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.</p>						
<b>RP2 summary</b>						
<p>When considering the whole of RP2 (2015-2019), actual en-route TSUs are +6.1% higher than planned, while actual costs in real terms are also +3.7% higher than the determined costs (some +20.4 M€2009). As a result, the weighted average actual unit cost over RP2 (31.05 €2009) is 2.3% lower than planned in the NPP (31.77 €2009).</p>						





**PORTUGAL: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



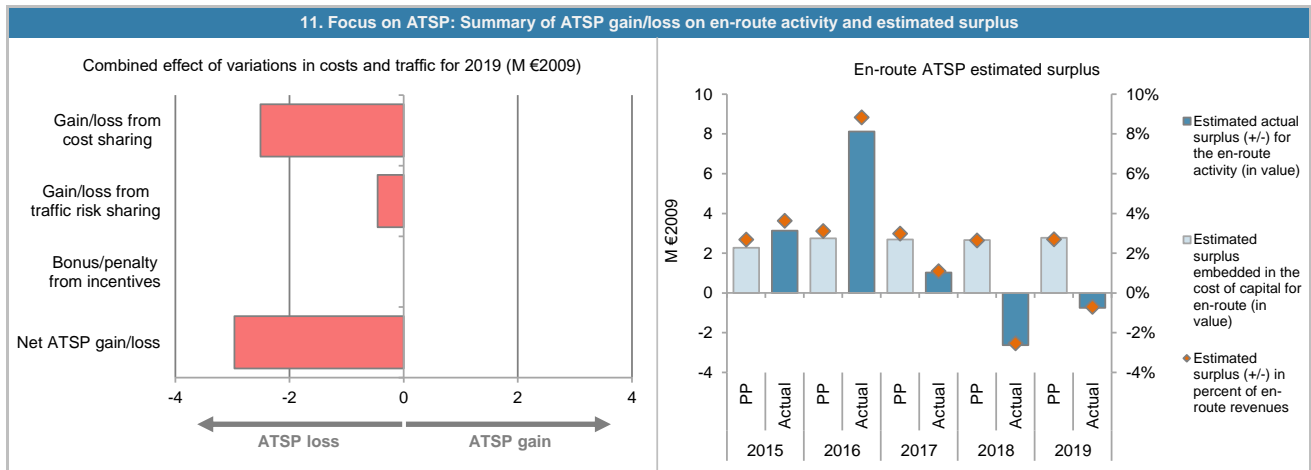
## PORTUGAL: En-route ATSP (NAV Portugal)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	84 614	88 012	89 772	101 050	102 286
Actual costs for the ATSP	85 438	86 201	95 027	108 656	109 637
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-825	1 811	-5 256	-7 605	-7 351
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	3 907	4 842
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-825</b>	<b>1 811</b>	<b>-5 256</b>	<b>-3 698</b>	<b>-2 509</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	1.8%	13.0%	21.0%	-1.0%	-0.4%
Determined costs for the ATSP (PP) - based on actual inflation	85 450	89 742	91 492	101 037	103 592
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>1 517</b>	<b>3 949</b>	<b>4 026</b>	<b>-1 027</b>	<b>-457</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-384</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>692</b>	<b>5 760</b>	<b>-1 230</b>	<b>-5 109</b>	<b>-2 966</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	35 910	43 412	42 420	42 118	43 753
Estimated proportion of financing through equity (in %)	98.3%	98.3%	98.3%	98.3%	98.3%
Estimated proportion of financing through equity (in value)	35 310	42 687	41 711	41 414	43 023
Estimated proportion of financing through debt (in %)	1.7%	1.7%	1.7%	1.7%	1.7%
Estimated proportion of financing through debt (in value)	599	725	708	703	730
Cost of capital pre-tax (in value)	2 277	2 752	2 689	2 670	2 774
Average interest on debt (in %)	0.5%	0.5%	0.5%	0.5%	0.5%
Interest on debt (in value)	3	3	3	3	3
Determined RoE pre-tax rate (in %)	6.4%	6.4%	6.4%	6.4%	6.4%
Estimated surplus embedded in the cost of capital for en-route (in value)	2 274	2 749	2 686	2 667	2 771
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>2 274</b>	<b>2 749</b>	<b>2 686</b>	<b>2 667</b>	<b>2 771</b>
<b>Revenue/costs for the en-route activity</b>	<b>84 614</b>	<b>88 012</b>	<b>89 772</b>	<b>101 050</b>	<b>102 286</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>2.7%</b>	<b>3.1%</b>	<b>3.0%</b>	<b>2.6%</b>	<b>2.7%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.4%</b>	<b>6.4%</b>	<b>6.4%</b>	<b>6.4%</b>	<b>6.4%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	38 574	37 367	35 653	39 234	35 082
Estimated proportion of financing through equity (in %)	98.3%	98.3%	98.3%	98.3%	98.3%
Estimated proportion of financing through equity (in value)	37 930	36 743	35 058	38 579	34 496
Estimated proportion of financing through debt (in %)	1.7%	1.7%	1.7%	1.7%	1.7%
Estimated proportion of financing through debt (in value)	644	624	595	655	586
Cost of capital pre-tax (in value)	2 446	2 369	2 260	2 487	2 224
Average interest on debt (in %)	0.5%	0.5%	0.5%	0.5%	0.5%
Interest on debt (in value)	3	3	3	3	3
Determined RoE pre-tax rate (in %)	6.4%	6.4%	6.4%	6.4%	6.4%
Estimated surplus embedded in the cost of capital for en-route (in value)	2 443	2 366	2 258	2 484	2 222
Net ATSP gain(+)/loss(-) on en-route activity	692	5 760	-1 230	-5 109	-2 966
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>3 134</b>	<b>8 126</b>	<b>1 028</b>	<b>-2 625</b>	<b>-744</b>
<b>Revenue/costs for the en-route activity</b>	<b>86 130</b>	<b>91 961</b>	<b>93 797</b>	<b>103 546</b>	<b>106 671</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.6%</b>	<b>8.8%</b>	<b>1.1%</b>	<b>-2.5%</b>	<b>-0.7%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>8.3%</b>	<b>22.1%</b>	<b>2.9%</b>	<b>-6.8%</b>	<b>-2.2%</b>

**PORTUGAL: En-route ATSP (NAV Portugal)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 NAV Portugal en-route costs vs. PP**

In 2019, NAV Portugal actual en-route costs are +7.2% (+7.4 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- much higher staff costs (+11.0%, or +9.2 M€2009) which is due to two main elements: "a) The overtime, which was necessary to meet the demand at the Lisbon FIR, given the constraints resulting from the implementation / training plan for the new ATM system, which forced the withdrawal of some ATCOs from the operation; and b) The additional costs with ANSP defined benefit pension funds, due to the drop in the discount rate by half a percentage point, partially mitigated by the improvement in the return rate of the underlying assets";
- higher other operating costs (+2.9%, or +0.3 M€2009) "mainly due to traveling related with the new ATM system and maintenance & repair activities";
- much lower depreciation costs (-19.7%, or -1.5 M€2009) mostly due to the re-planning and postponing of some projects, especially in relation with the new ATM system; and
- much lower cost of capital (-19.8%, or -0.5 M€2009) for similar reasons as above for depreciation.

**NAV Portugal net gain/loss on en-route activity in 2019**

As shown in box 9, NAV Portugal generated a net loss of -3.0 M€2009 on the en-route activity. This is a combination of two elements:

- a loss of -2.5 M€2009 arising from the cost sharing mechanism; and
- a loss of -0.5 M€2009 arising from the traffic risk sharing mechanism.

The loss from cost sharing mentioned above (-2.5 M€2009) includes amounts reported by NAV Portugal for cost exempt from cost sharing (+4.8 M€2009). Should these costs not be deemed eligible by the European Commission, NAV Portugal would record a net loss of -7.8 M€2009 for the en-route activity in 2019.

**NAV Portugal overall estimated surplus for the en-route activity**

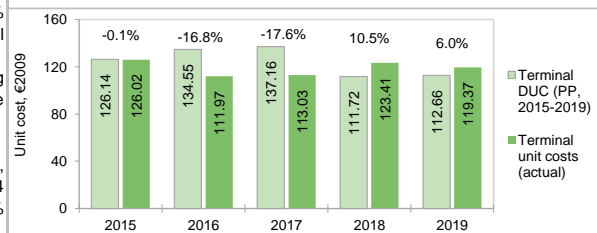
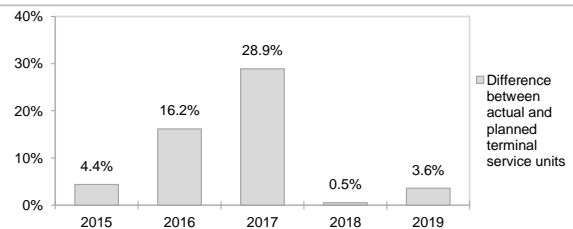
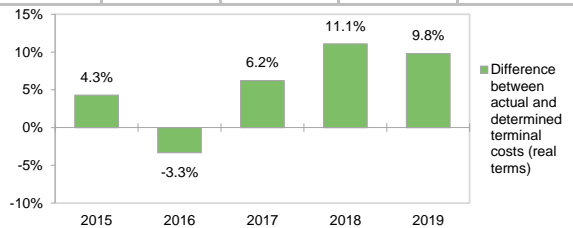
Ex-post, the overall estimated surplus taking into account the net loss from the en-route activity mentioned above (-3.0 M€2009) and the surplus embedded in the actual cost of capital (+2.2 M€2009) amounts to -0.7 M€2009 (0.7% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is -2.2%, which indicates that the surplus embedded in the cost of capital (6.4%) was not sufficient to compensate for the loss related to the en-route activity.

When considering the whole of RP2 (2015-2019), NAV Portugal generated cumulative losses in respect of cost sharing of -10.5 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +8.0 M€2009, which reflects the fact that actual traffic was in general terms +6.1% higher than planned during RP2. Adding the loss of -0.4 M€2009 to be borne by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+11.8 M€2009 over RP2) leads to an overall estimated surplus of +8.9 M€2009, which corresponds to an average ex-post return on equity of 4.9% (compared to 6.4% as initially planned in the NPP).

## PORTUGAL: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services					
Portugal TCZ represents 2.9% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes	
ATSP: NAV Portugal		Airports with fewer than 70,000 IFRs ATMs:		9	
National currency: EUR		Airports with between 70,000 and 225,000 IFRs ATMs:		1	
Number of airports in charging zone in 2019: 10, of which:		Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level					
Portugal: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal EUR)	27 415 133	30 183 378	31 371 504	34 595 706	36 709 523
Inflation %	1.2%	1.5%	1.5%	1.6%	1.6%
Inflation index (100 in 2009)	110.5	112.2	113.8	112.9	114.7
Real terminal costs (EUR2009)	24 811 661	26 913 320	27 559 335	30 634 843	31 994 733
Total terminal Service Units	196 700	200 022	200 922	274 200	284 000
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>126.14</b>	<b>134.55</b>	<b>137.16</b>	<b>111.72</b>	<b>112.66</b>
Portugal: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal EUR)	28 136 876	28 465 925	32 533 176	38 270 404	39 638 152
Inflation %	0.5%	0.6%	1.6%	1.2%	0.3%
Inflation index (100 in 2009)	108.7	109.4	111.2	112.5	112.8
Real terminal costs (EUR2009)	25 873 474	26 019 933	29 269 387	34 022 773	35 133 314
Total terminal Service Units	205 314	232 390	258 955	275 684	294 319
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>126.02</b>	<b>111.97</b>	<b>113.03</b>	<b>123.41</b>	<b>119.37</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal EUR)	in value 721 744	-1 717 453	1 161 672	3 674 699	2 928 629
	in % 2.6%	-5.7%	3.7%	10.6%	8.0%
Inflation %	in p.p. -0.7 p.p.	-0.9 p.p.	0.1 p.p.	-0.4 p.p.	-1.3 p.p.
Inflation index (100 in 2009)	in p.p. -1.7 p.p.	-2.7 p.p.	-2.7 p.p.	-0.4 p.p.	-1.9 p.p.
Real terminal costs (EUR2009)	in value 1 061 813	-893 387	1 710 052	3 387 930	3 138 581
	in % 4.3%	-3.3%	6.2%	11.1%	9.8%
Total terminal Service Units	in value 8 614	32 368	58 032	1 484	10 319
	in % 4.4%	16.2%	28.9%	0.5%	3.6%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -0.12</b>	<b>-22.58</b>	<b>-24.14</b>	<b>11.69</b>	<b>6.71</b>
	<b>in % -0.1%</b>	<b>-16.8%</b>	<b>-17.6%</b>	<b>10.5%</b>	<b>6.0%</b>
3. Focus on terminal at State/Charging Zone level					
This analysis focuses on Portugal Terminal Charging Zone (TCZ) comprising 10 airports: Lisboa, Porto, Faro, Madeira, Porto Santo, Ponta Delgada, Santa Maria, Horta, Flores and Cascais.					
<b>Terminal unit cost</b>					
In 2019, the actual terminal unit cost in real terms (119.37 €2009) is +6.0% higher than planned in the PP (112.66 €2009). This results from the combination of higher than planned TNSUs (+3.6%) and higher than planned terminal costs in real terms (+9.8%, or +3.1 M€2009). According to the NSA monitoring report 2019, the additional costs are due to the necessary "overtime to meet demand especially in the Lisbon airport". See also <b>Note 1</b> at the end of the report.					
<b>Terminal service units</b>					
The traffic risk sharing mechanism applies in Portugal TCZ. The difference between actual and planned TNSUs (+3.6%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (NAV Portugal) retaining an amount of +0.8 M€2009.					
<b>Terminal costs</b>					
In nominal terms, actual terminal costs are +8.0% (+2.9 M€) higher than planned. However, since the actual inflation index is lower than planned (-1.9 p.p.), actual terminal costs are +9.8% (+3.1 M€2009) above plans when expressed in real terms. The higher than planned terminal costs in real terms are driven by NAV Portugal. A detailed analysis is provided in box 12. Costs exempt from cost-sharing are reported for a total amount of +2.1 M€2009 corresponding to pensions. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual TNSUs are +9.6% higher than planned, while actual costs in real terms are also +5.9% higher than the determined costs (some +8.4 M€2009). As a result, the weighted average actual unit cost over RP2 (118.67 €2009) is -3.3% lower than planned in the NPP (122.78 €2009).					



**PORTUGAL: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

Costs by nature at ATSP level:

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	1 467	2 060
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	1 467	2 060
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>1 467</b>	<b>2 060</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Portugal 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 73.26 €. This is -43.3% lower than the nominal DUC (129.26 €). The difference between these two figures (-56.00 €) mostly relates to:

- a traffic risk sharing adjustment (-26.89 €), which reflects the gain in revenues due to higher than planned traffic in previous years, reimbursed to airspace users in 2019; and
- an adjustment (-27.12 €) corresponding to the over recoveries incurred before the introduction of the Determined Costs method and carried-over to 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Portugal 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (133.63 €) is 3.4% higher than the nominal DUC (129.26 €).

The difference between these two figures (4.38 €) is mainly due to the adjustment for costs exempt from cost-sharing (+7.90 €) for the costs incurred in 2019 and charged to airspace users in future reference period(s), if deemed eligible by the European Commission, which is only partially offset by the other adjustments (inflation (-2.08 €), traffic risk sharing (-1.42 €) and traffic adjustment (-0.02 €)).

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## PORTUGAL: Terminal ATSP (NAV Portugal)

## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	24 812	26 913	27 559	30 635	31 995
Actual costs for the ATSP	25 873	26 020	29 269	34 023	35 133
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-1 062	893	-1 710	-3 388	-3 139
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	1 467	2 060
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-1 062</b>	<b>893</b>	<b>-1 710</b>	<b>-1 921</b>	<b>-1 078</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	4.4%	16.2%	28.9%	0.5%	3.6%
Determined costs for the ATSP (PP) - based on actual inflation	25 052	27 429	28 061	30 591	32 367
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>680</b>	<b>1 207</b>	<b>1 235</b>	<b>166</b>	<b>806</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-382</b>	<b>2 100</b>	<b>-475</b>	<b>-1 756</b>	<b>-272</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	14 035	16 139	18 345	19 201	18 491
Estimated proportion of financing through equity (in %)	98.3%	98.3%	98.3%	98.3%	98.3%
Estimated proportion of financing through equity (in value)	13 791	15 858	18 026	18 867	18 170
Estimated proportion of financing through debt (in %)	1.7%	1.7%	1.7%	1.7%	1.7%
Estimated proportion of financing through debt (in value)	244	280	319	334	321
Cost of capital pre-tax (in value)	889	1 023	1 162	1 217	1 172
Average interest on debt (in %)	0.4%	0.4%	0.4%	0.4%	0.4%
Interest on debt (in value)	1	1	1	1	1
Determined RoE pre-tax rate (in %)	6.4%	6.4%	6.4%	6.4%	6.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	888	1 021	1 161	1 215	1 170
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>888</b>	<b>1 021</b>	<b>1 161</b>	<b>1 215</b>	<b>1 170</b>
<b>Revenue/costs for the terminal activity</b>	<b>24 812</b>	<b>26 913</b>	<b>27 559</b>	<b>30 635</b>	<b>31 995</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>3.6%</b>	<b>3.8%</b>	<b>4.2%</b>	<b>4.0%</b>	<b>3.7%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.4%</b>	<b>6.4%</b>	<b>6.4%</b>	<b>6.4%</b>	<b>6.4%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	8 541	10 585	12 607	14 086	12 728
Estimated proportion of financing through equity (in %)	98.3%	98.3%	98.3%	98.3%	98.3%
Estimated proportion of financing through equity (in value)	8 393	10 409	12 397	13 851	12 516
Estimated proportion of financing through debt (in %)	1.7%	1.7%	1.7%	1.7%	1.7%
Estimated proportion of financing through debt (in value)	148	177	210	235	212
Cost of capital pre-tax (in value)	541	671	799	893	807
Average interest on debt (in %)	0.4%	0.4%	0.4%	0.4%	0.4%
Interest on debt (in value)	1	1	1	1	1
Determined RoE pre-tax rate (in %)	6.4%	6.4%	6.4%	6.4%	6.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	541	670	798	892	806
Net ATSP gain(+)/loss(-) on terminal activity	-382	2 100	-475	-1 756	-272
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>159</b>	<b>2 771</b>	<b>323</b>	<b>-864</b>	<b>534</b>
<b>Revenue/costs for the terminal activity</b>	<b>25 492</b>	<b>28 120</b>	<b>28 794</b>	<b>32 267</b>	<b>34 861</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>0.6%</b>	<b>9.9%</b>	<b>1.1%</b>	<b>-2.7%</b>	<b>1.5%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>1.9%</b>	<b>26.6%</b>	<b>2.6%</b>	<b>-6.2%</b>	<b>4.3%</b>

**PORTUGAL: Terminal ATSP (NAV Portugal)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



## PORTUGAL: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

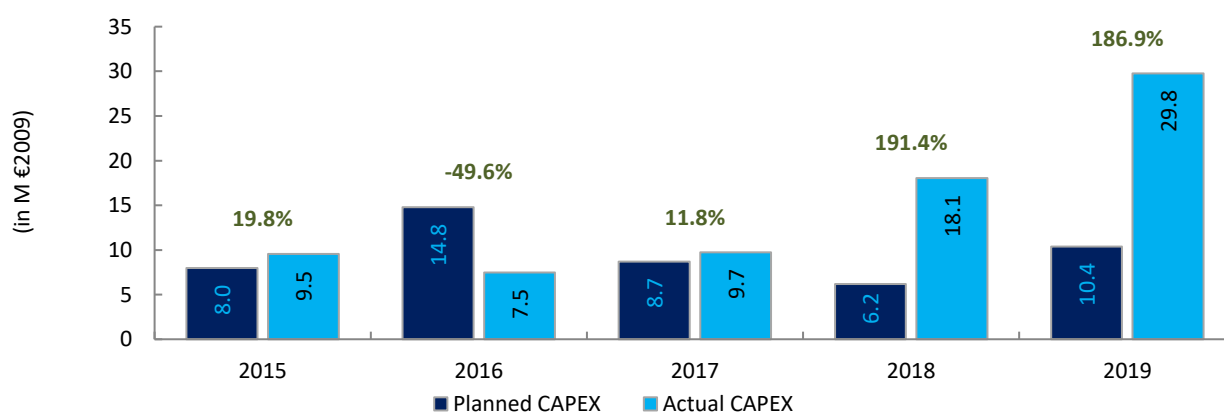
1. Monitoring of gate-to-gate ANS costs																																												
<b>Portugal: Data from RP2 Performance Plan</b>																																												
	2015D	2016D	2017D	2018D	2019D																																							
Real en-route costs (EUR2009)	100 758 704	104 424 905	106 399 345	118 261 552	119 678 710																																							
Real terminal costs (EUR2009)	24 811 661	26 913 320	27 559 335	30 634 843	31 994 733																																							
Real gate-to-gate costs (EUR2009)	125 570 365	131 338 226	133 958 680	148 896 395	151 673 443																																							
En-route share (%)	80.2%	79.5%	79.4%	79.4%	78.9%																																							
<b>Portugal: Actual data from Reporting Tables</b>																																												
	2015A	2016A	2017A	2018A	2019A																																							
Real en-route costs (EUR2009)	102 048 433	102 996 411	112 065 407	125 511 103	127 304 944																																							
Real terminal costs (EUR2009)	25 873 474	26 019 933	29 269 387	34 022 773	35 133 314																																							
Real gate-to-gate costs (EUR2009)	127 921 907	129 016 344	141 334 794	159 533 876	162 438 258																																							
En-route share (%)	79.8%	79.8%	79.3%	78.7%	78.4%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	2015	2016	2017	2018	2019																																							
Real gate-to-gate costs (EUR2009) in value	2 351 543	-2 321 882	7 376 114	10 637 481	10 764 815																																							
in %	1.9%	-1.8%	5.5%	7.1%	7.1%																																							
En-route share in p.p.	-0.5 p.p.	0.3 p.p.	-0.1 p.p.	-0.8 p.p.	-0.5 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are +7.1% (+10.8 M€2009) higher than planned due to higher than planned en-route costs (+6.4%, or +7.6 M€2009) and terminal costs (+9.8%, or +3.1 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (78.4%) is slightly lower than planned in the PP for 2019 (78.9%).</p> <p>For NAV Portugal, the estimated gate-to-gate economic surplus in 2019 amounts to -0.2 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 0.1% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>80.2%</td> <td>19.8%</td> </tr> <tr> <td>Actual</td> <td>79.8%</td> <td>20.2%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>79.5%</td> <td>20.5%</td> </tr> <tr> <td>Actual</td> <td>79.8%</td> <td>20.2%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>79.4%</td> <td>20.6%</td> </tr> <tr> <td>Actual</td> <td>79.3%</td> <td>20.7%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>79.4%</td> <td>20.6%</td> </tr> <tr> <td>Actual</td> <td>78.7%</td> <td>21.3%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>78.9%</td> <td>21.1%</td> </tr> <tr> <td>Actual</td> <td>78.4%</td> <td>21.6%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	80.2%	19.8%	Actual	79.8%	20.2%	2016	Determined	79.5%	20.5%	Actual	79.8%	20.2%	2017	Determined	79.4%	20.6%	Actual	79.3%	20.7%	2018	Determined	79.4%	20.6%	Actual	78.7%	21.3%	2019	Determined	78.9%	21.1%	Actual	78.4%	21.6%
Year	Type	En-route (%)	Terminal (%)																																									
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	Actual	78.4%	21.6%																																									
<b>3. Technical notes on en-route and terminal information reported by Portugal</b>																																												
<b>Note 1: Revision of RP2 cost-efficiency targets for the years 2018 to 2019</b>																																												
<p>Portugal has revised their RP2 en-route cost-efficiency targets for the years 2018 to 2019. The figures shown in this report reflect: i) the initial adopted Performance Plan (EC Decision 2015/348 of 2 March 2015) for the years 2015 and 2017; and ii) the revised Performance Plan (EC Decision 2018/2021 of 17 December 2018) for the years 2018 to 2019.</p> <p>It is also noted that a similar revision was done for the terminal determined unit costs in Portugal terminal charging zone for the period 2018 to 2019.</p>																																												



## PORTUGAL

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: NAV Portugal (Continental)						
FAB: SW FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	8.8	16.6	9.9	7.0	11.9	54.2
Main CAPEX (in nominal M)	8.7	16.3	9.9	7.0	11.8	53.7
Inflation %	1.2%	1.5%	1.5%	1.6%	1.6%	
Inflation index (100 in 2009)	110.5	112.2	113.8	112.9	114.7	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>8.0</b>	<b>14.8</b>	<b>8.7</b>	<b>6.2</b>	<b>10.4</b>	<b>48.0</b>
Main CAPEX (in M €2009)	7.9	14.5	8.7	6.2	10.3	47.6
% Main of Total CAPEX	98.9%	98.2%	100.0%	100.0%	99.2%	99.1%
Real gate-to-gate ANSP costs (in M €2009)	109.4	114.9	117.3	131.7	134.3	607.6
Total CAPEX as % of Real gate-to-gate ANSP costs	7.3%	12.9%	7.4%	4.7%	7.7%	7.9%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	10.4	8.2	10.8	20.3	33.6	83.2
Main CAPEX (in nominal M)	7.9	5.4	6.7	17.7	29.3	67.0
Inflation %	0.5%	0.6%	1.6%	1.2%	0.3%	
Inflation index (100 in 2009)	108.7	109.4	111.2	112.5	112.8	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>9.5</b>	<b>7.5</b>	<b>9.7</b>	<b>18.1</b>	<b>29.8</b>	<b>74.5</b>
Main CAPEX (in M €2009)	7.3	4.9	6.0	15.8	25.9	59.9
% Main of Total CAPEX	76.2%	66.1%	61.8%	87.2%	87.2%	80.4%
Real gate-to-gate ANSP costs (in M €2009)	111.3	112.2	124.3	142.7	144.8	635.3
Total CAPEX as % of Real gate-to-gate ANSP costs	8.6%	6.6%	7.8%	12.7%	20.6%	11.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	1.6	-8.4	0.9	13.3	21.7	29.0
Total CAPEX (in M €2009)	1.6	-7.3	1.0	11.9	19.4	26.5
<b>Total CAPEX (in %, M €2009)</b>	<b>19.8%</b>	<b>-49.6%</b>	<b>11.8%</b>	<b>191.4%</b>	<b>186.9%</b>	<b>55.2%</b>



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# Annual Monitoring Report 2019

## Local level view

### Spain

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## SPAIN

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	68	C	C	C	C	B
ENAIRE	98	D	E	E	E	D

Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.

Application of the severity classification of the Risk Analysis Tool (RAT)		
	RAT application (%)	
	ATM Ground	ATM Overall
Separation Minima Infringements (SMIs)	100%	93%
Runway Incursions (RIs)	100%	57%
ATM Specific Occurrences (ATM-S)		76%
<b>Source of RAT data:</b>	AESA	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

Just culture		
State level	Number of questions answered	
	YES	NO
Policy and its implementation	9	0
Legal/Judiciary	6	1
Occurrence reporting and Investigation	2	0
<b>TOTAL</b>	<b>17</b>	<b>1</b>

ENAIRE	Number of questions answered	
	YES	NO
Policy and its implementation	13	0
Legal/Judiciary	2	1
Occurrence reporting and Investigation	8	0
<b>TOTAL</b>	<b>23</b>	<b>1</b>

### Observations

The State did not reach the RP2 target in 2019 by only one question in the EoS Component/area of Safety Culture, out of 36 questions. That question was self-assessed and not reviewed by EASA.

With regards application of RAT, data received from the AST mechanism and the Monitoring Report show performance below targets in the application of RAT to RI Overall and ATM-S occurrences.

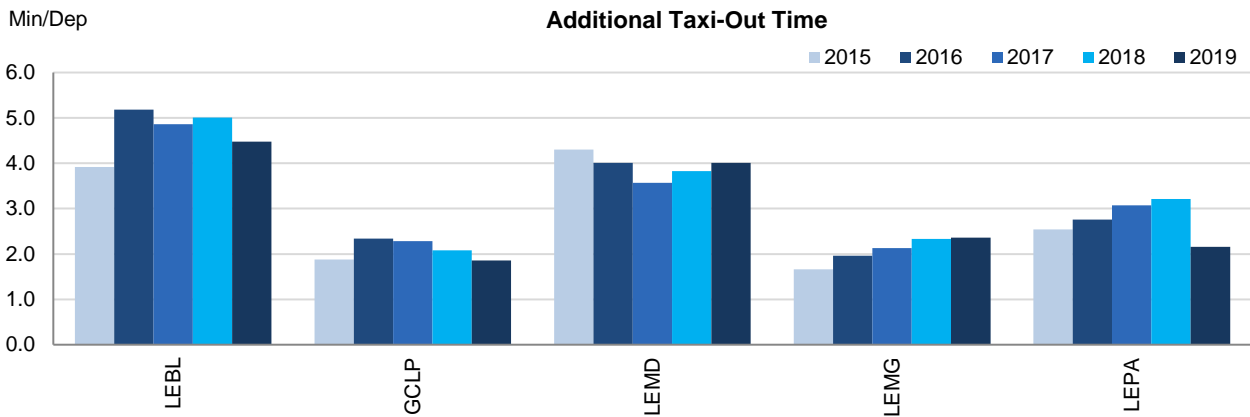
**SPAIN**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

Spain included five airports under RP2 monitoring. All of them have successfully established the airport operator data flow, allowing a correct monitoring of both environment indicators.  
 Traffic increase at these airports during RP2 varies from one airport to another, and while Malaga has observed a 31% traffic increase with respect to 2015, Madrid growth in movements is 16%. In 2019 the total increase at these airports was only 2% (vs 2018), with Gran Canaria in fact reducing its traffic by 3%.  
 The environmental indicators at Spanish airports show values in line with the traffic levels at these airports, except for the additional ASMA times in Madrid which are within best-in-class for Europe. In general terms no major changes are observed with respect to last year.

**2. Additional Taxi-Out Time**

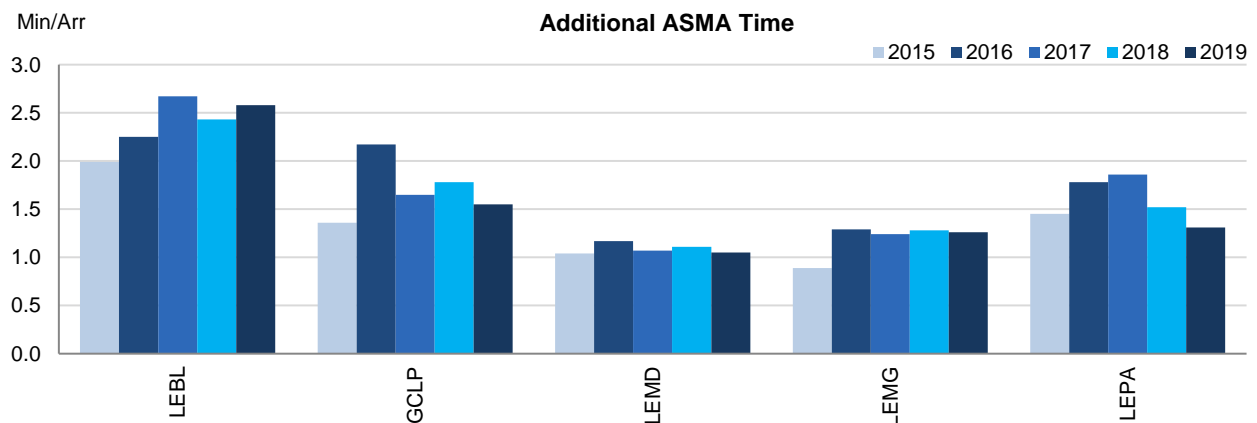


The additional taxi out time at national level has decreased in 2019 by 8% in relation to the value of 2018 due to the reduction on most of the main airports. 2019 actual figures show a decrease in the additional taxi-out time with respect to 2018 in all Spanish airports except Madrid (LEMD) and Málaga (LEMG). The metric typically rises during high season (summer) except for Gran Canaria and Madrid that have a more stable profile.

The slight increase in Madrid (LEMD; 2018: 3.83 min/dep.; 2019: 4.01 min/dep.) is driven by the performance in the month of March, when the additional taxi-out times averaged 4.84 min/arr., almost a minute more than usual, probably due to the works on the runway 14L/32R.

The SW FAB reports that in 2019 ENAIRE has implemented the D-DCL at the Airports of Palma, Barcelona and Malaga, which automatizes departure authorizations, avoiding the saturation of the frequency that occurs in large airports and increasing efficiency.

**3. Additional ASMA Time**



Additional ASMA times have decreased at 4 of the 5 monitored Spanish airports, increasing only for Barcelona, which is the only Spanish airport that exceeds the RP2 average of 1.82 min/arr.

Madrid maintains very good performance, with additional ASMA times just above a minute per arrival, third lowest for airports above 250000 movements per year.

Palma shows another significant reduction in the additional ASMA times (LEPA; 2018: 1.52 min/arr.; 2019: 1.31 min/arr.), in the same order of magnitude as Gran Canaria (GCLP; 2018: 1.78 min/arr.; 2019: 1.55 min/arr.)

The SW FAB monitoring reports highlights that the additional time in terminal area at national level has decreased by 2% in relation to the value of 2018.

#### 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Barcelona	LEBL	3.92	5.18	4.86	5.01	4.48	1.99	2.25	2.67	2.43	2.58
Gran Canaria	GCLP	1.88	2.34	2.28	2.08	1.86	1.36	2.17	1.65	1.78	1.55
Madrid/ Barajas	LEMD	4.30	4.01	3.57	3.83	4.01	1.04	1.17	1.07	1.11	1.05
Málaga	LEMG	1.66	1.96	2.13	2.33	2.36	0.89	1.29	1.24	1.28	1.26
Palma de Mallorca	LEPA	2.54	2.76	3.07	3.21	2.16	1.45	1.78	1.86	1.52	1.31

**SPAIN**

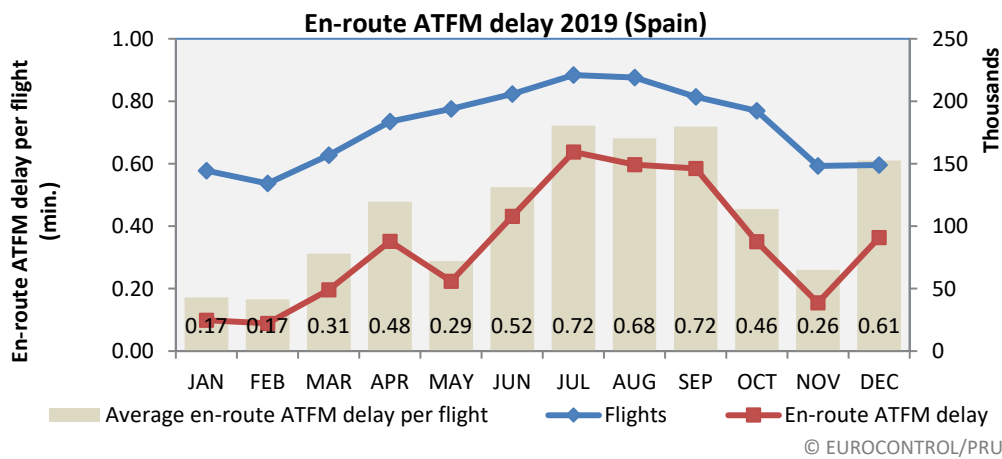
**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.30	0.29	0.28	0.27	0.27	Actual performance reported here is for all causes of delay and includes NM post operations adjustment.
Deadband +/-	0.00	0.00	0.00	0.00	0.00	
Actual performance	0.33	0.37	0.35	0.60	0.47	

**National capacity incentive scheme**

Not applicable: incentive scheme defined at FAB level.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.57	0.78	1.93	1.56	0.48	0.41	0.30	0.33	0.37	0.35	0.60	0.47

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
High	1 577		1 639		1 711		1 772		1 842		1 914	
Base	1 555	<b>1 587</b>	1 600	<b>1 640</b>	1 642	<b>1 766</b>	1 679	<b>1 880</b>	1 723	<b>1 970</b>	1 767	<b>2 018</b>
Low	1 531		1 556		1 563		1 577		1 596		1 615	

Traffic levels in Spain in 2018 rose by more than 2% on 2018 levels. This traffic increase meant that Spain, for the sixth year running, handled traffic above the high traffic scenario forecasted by STATFOR back in 2014 when the FAB performance plans and associated capacity plans were being determined.

En route ATFM delays increased to 0.64 minutes per flight from 0.62 minute per flight in 2018, including 313k minutes of delay subsequently reallocated to France, in accordance with the NM post operations adjustment process, since they related to additional traffic through the eNM/S19 measures. The actual delays were significantly higher than predicted in the NOP 2019- 2024.

73% of the original delays were attributed to ATC capacity; 16% to adverse weather and 6% were attributed to ATC staffing.

The airspace users commented that Spanish ACCs performed well in general, considering the high levels of traffic on the South West axis.

Delay forecast - ENAIRE						
	2019	2020	2021	2022	2023	2024
NOP 2018 - 2022	0.25	0.25	0.25	0.19	N/A	N/A
NOP 2019 - 2024	0.43	0.48	0.36 - 0.46			



### Planning and Effective Use of CDRs

Spain – Planning via CDRs	2015	2016	2017	2018	2019
Number of aircraft filing flight plans via CDRs		150272	130248	75404	176088
Number of aircraft that could have planned CDRs		231905	230495	239207	298676
Rate of planning		44%	30%	32%	59%

Spain – Effective Use of CDRs	2015	2016	2017	2018	2019
Number of aircraft using CDRs		110960	114684	63968	133769
Number of aircraft that could have planned CDRs		231905	230495	239207	298676
Effective use of CDRs		26%	21%	27%	45%

### Observations on Planning and Effective Use of CDRs

Once again Spain is the only State that provided any information on these indicators. The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
42%	46%	52%	50%	56%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
N/A	1%	<1%	<1%	<1%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	71%	100%	52%

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

## SPAIN

## Monitoring of Airports Contribution to CAPACITY for 2019

## 1. Overview

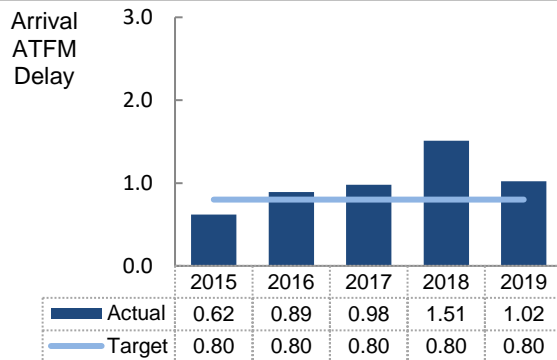
Spain identifies 5 airports as subject to RP2 monitoring, where traffic levels have significantly increased during RP2 (+20.7% with respect to 2015).

In terms of arrival ATFM delays, values are also significantly higher than those in the beginning of the reference period reaching now 1.02 min/arr and subsequently exceeding the target (0.80 min/arr.) once more in 2019.

Regarding the adherence to ATFM slots, the performance has improved in during RP2 (2015:94.5%; 2019:95.7%) and 4 of the 5 airports surpass the mark of 95%.

The quality of the delay reporting used in the calculation of the ATC pre-departure delay has significantly deteriorated in 2019 due to the extensive use of ambiguity codes, up to the point that the calculation of the indicator is only possible in Gran Canaria.

## 2. Arrival ATFM Delay



During 2019, arrival ATFM delays in Spain have moderately decreased with respect to the previous year (2018: 1.51 min/arr, 2019: 1.02 min/arr)

The decrease is mainly driven by the approximately 50% reduction of delays at both Barcelona (LEBL: 2018: 2.94 min/arr.; 2019: 1.33 min/arr.) and Palma (LEPA: 2018: 2.12 min/arr.; 2019: 1.08 min/arr.). On the other hand, delays at Madrid have increased (LEMD: 2018: 0.80 min/arr.; 2019: 1.29 min/arr.) following the same trend observed in previous years (average delay in Madrid has multiplied by almost 4 since the beginning of RP2)

SW FAB monitoring report provides extensive information concerning these delays:

*IFR arrival movements increased in 2019 in Madrid, Barcelona and Malaga airports, reaching an increase for Spain (5 main airports) of 1.8%.*

- *Barcelona Airport: Although Barcelona reduced the delay levels of the previous year in 2019 by reducing more than 260000 minutes from the 2018 result, it remained as the most constrained airport in the entire ENAIRE network. The minutes of ATFM arrival delay in 2019 were due to Meteorological causes (55%), with an important peak in September due to intense storms, which, however, decreased by -51% compared to the previous year; Environmental causes (21%), also reduced by 36% the minutes of the previous year; ATC Capacity (14%), which increased significantly by 50% compared to the previous year; and Aerodrome Capacity (8%). According to the NOP, the actions planned in the short term to improve arrival capacity are: PBN implementation (2020) and 15-20 new ATCOs (2020).*

- *Madrid Airport: ATFM arrival delay at Madrid/Barajas airport increased significantly compared to the previous year (+68%), with 110000 more minutes distributed among the following causes: ATC Capacity (37%) increased by 167% compared to 2018; Meteorological causes (33%), which recorded peaks in July and August due to storms, and in September and December due to wind, cumulonimbus and storms; Aerodrome Capacity (16%), which recorded a peak on a specific day in February and a month of March with very high values; and Special Event (13%), due to the phase 1 of the Operational Transition Plan of the AMBER Project, between June 20 and July 5. According to the NOP, the actions planned in the short term to improve arrival capacity are: independent approaches to parallel runways (2020) once the improved APP procedures in south configuration and the reduced ARR separation from 4 to 3 NM have been performed, PBN implementation (2020) and increase of ATCOs.*

- *Malaga Airport: this airport exceeded its reference value only by 0.02%, due to following causes: Meteorological causes (41%), which decreased by almost 9000 minutes compared to the previous year (-71%), were concentrated on specific days in January, August and September, due to low visibility and cumulonimbus; ATC Capacity (40.5%) increased the number of minutes compared to 2018, increasing by almost 3000 minutes; ATC Equipment (7%), as a result of a SACTA failure in July. Planned improves in NOP include: RNAV1 procedures (2020), system (SACTA) improvements (2020), improvement of operation mode TWR-APP (2021), and new ATCOs to maintain the current number.*

*As in the case of the actions planned to improve the en route delay, the planning of actions to improve the airport ATFM arrival delay will need to be revised to adapt them to the new priorities that have emerged as a consequence of COVID-19.*

*ATFM arrival delays have been adjusted as a result of the Post-Ops process applied by the Network Manager, reducing the total minutes of delay by 2792 minutes.*

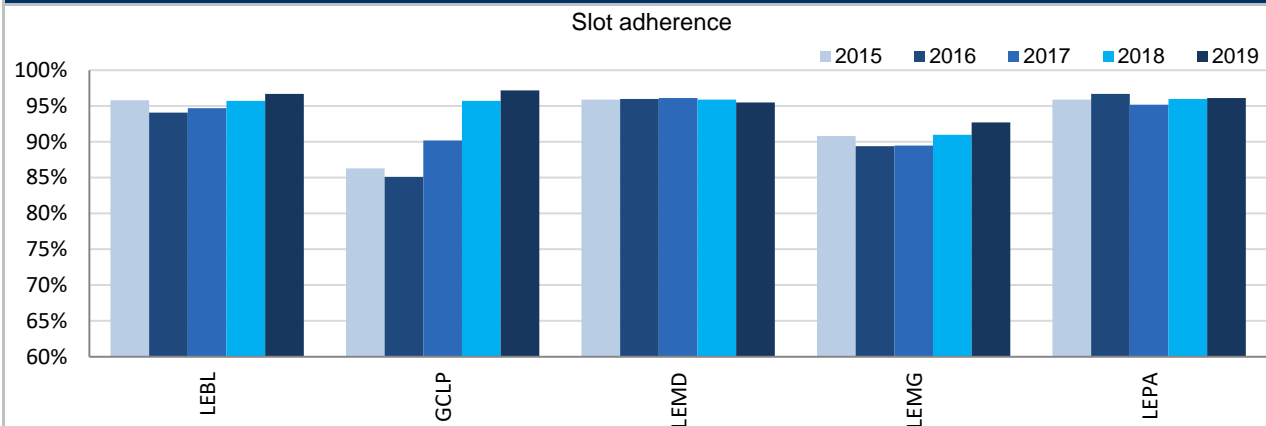
### 3. Arrival ATFM Delay – National Target and Incentive Scheme

The SW FAB performance plan sets a consistent national target on arrival ATFM delay with a breakdown per airport for each of the years of the reference period. The target is constant throughout RP2.

Given the actual performance, the national target is not met in 2019, while the local reference values are met only for Palma de Mallorca and Gran Canaria. During RP2, the national target was met only in 2015.

The SW FAB performance plan presents no (capacity) incentive scheme for the national target on arrival ATFM delay for Spain.

### 4. ATFM Slot Adherence



There is a further improvement at national level during 2019, and the adherence to ATFM slots at LEPA, LEBL, LEMD and GCLP are included in the best-in-class category in Europe above 95%. Malaga (LEMG) exceeds the 90% mark and shows another improvement in 2019.

Taking into account the traffic at these airports, the good ATFM slot adherence in Spain has a very positive impact on the predictability of the network.

### 5. ATC Pre-departure Delay

The Airport Operator Data Flow is established for all Spanish airports subject to RP2 monitoring.

Unfortunately, after an improvement of the data quality in 2018, there is a clear worsening of this data quality again in 2019 and the calculation of the indicator is not possible for 4 of the 5 airports.

As explained in previous monitoring reports, the high share of delayed flights with no delay code attribution and/or ambiguity delay codes puts at risk the validity of the ATC pre-departure delay.

Spain shall encourage the proper reporting of the pre-departure delays at all airports.

The ATC pre-departure delay calculated at Gran Canaria has not changed much along RP2, and is now 0.36 min/dep, which is commensurate with the level of traffic.

### 6. Appendix

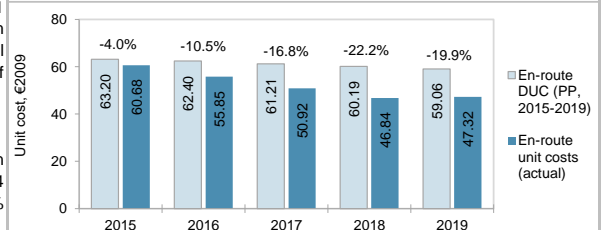
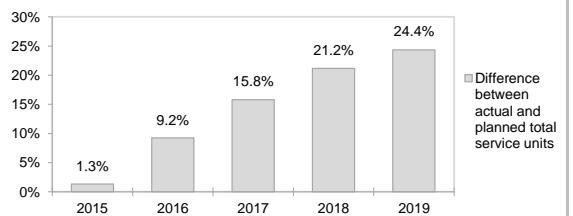
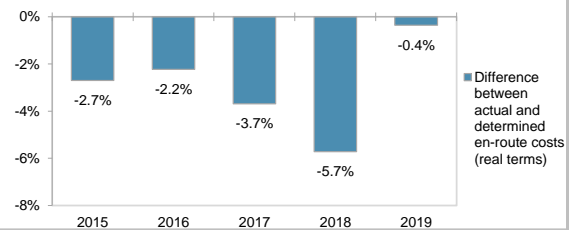
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Barcelona	LEBL	0.68	1.62	1.72	2.94	1.33	95.8%	94.1%	94.7%	95.7%	96.7%	0.50	0.73	0.79	n/a	n/a
Gran Canaria	GCLP	0.17	0.58	0.55	0.31	0.14	86.3%	85.1%	90.2%	95.7%	97.2%	0.33	0.38	0.38	0.34	0.36
Madrid/ Barajas	LEMD	0.34	0.51	0.62	0.80	1.29	95.9%	96.0%	96.1%	95.9%	95.5%	0.61	0.48	0.57	0.72	n/a
Málaga	LEMG	0.04	0.01	0.15	0.26	0.13	90.8%	89.4%	89.5%	91.0%	92.7%	0.32	0.34	0.50	0.50	n/a
Palma de Mallorca	LEPA	1.69	1.20	1.26	2.12	1.08	95.9%	96.7%	95.2%	96.0%	96.1%	0.23	0.30	0.61	0.46	n/a

## SPAIN CONTINENTAL: En-route charging zone

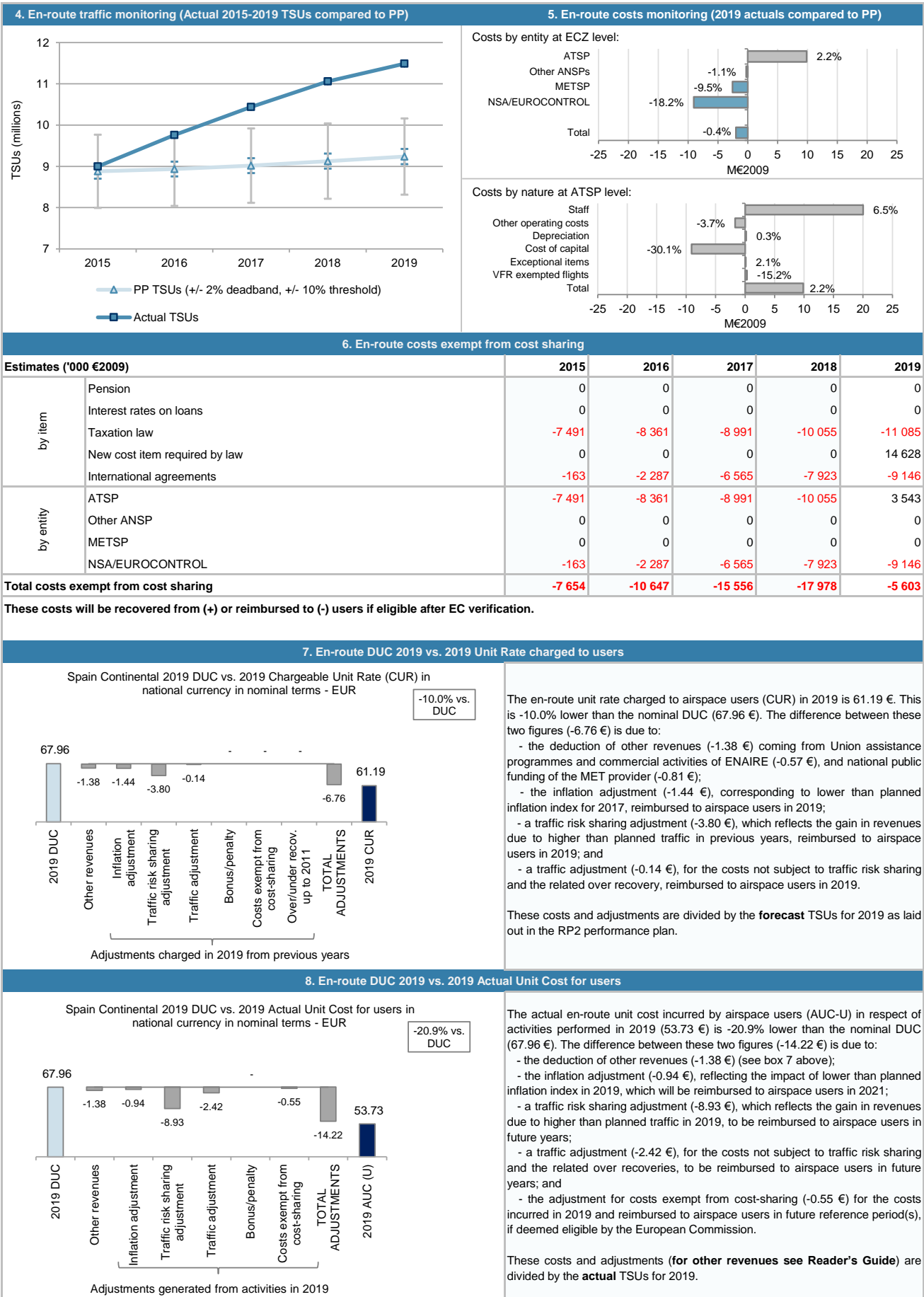
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services					
· Spain Continental ECZ represents 9.1% of the SES en-route ANS determined costs in 2019					
· ATSP:	ENAIRE				
· FAB:	SW FAB				
· National currency:	EUR				
2. En-route DUC monitoring at Charging Zone level					
Spain Continental: Data from RP2 PP (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	620 443 569	622 072 583	622 240 962	625 580 952	627 777 294
Inflation %	0.8%	0.9%	1.0%	1.0%	1.1%
Inflation index (100 in 2009)	110.6	111.6	112.7	113.9	115.1
Real en-route costs (EUR2009)	561 172 369	557 638 172	552 025 959	549 379 889	545 563 910
Total en-route Service Units	8 880 000	8 936 000	9 018 000	9 128 000	9 238 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>63.20</b>	<b>62.40</b>	<b>61.21</b>	<b>60.19</b>	<b>59.06</b>
Spain Continental: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	592 266 841	589 604 417	586 487 839	581 096 137	614 707 986
Inflation %	-0.6%	-0.3%	2.0%	1.7%	0.8%
Inflation index (100 in 2009)	108.5	108.1	110.3	112.2	113.1
Real en-route costs (EUR2009)	546 001 774	545 182 875	531 667 749	517 974 453	543 586 516
Total en-route Service Units	8 997 417	9 761 348	10 440 757	11 058 991	11 488 296
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>60.68</b>	<b>55.85</b>	<b>50.92</b>	<b>46.84</b>	<b>47.32</b>
Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)	-28 176 728	-32 468 166	-35 753 123	-44 484 815	-13 069 309
in value					
in %	-4.5%	-5.2%	-5.7%	-7.1%	-2.1%
Inflation %	-1.4 p.p.	-1.2 p.p.	1.0 p.p.	0.7 p.p.	-0.3 p.p.
in p.p.					
Inflation index (100 in 2009)	-2.1 p.p.	-3.4 p.p.	-2.4 p.p.	-1.7 p.p.	-2.0 p.p.
in p.p.					
Real en-route costs (EUR2009)	-15 170 595	-12 455 297	-20 358 210	-31 405 436	-1 977 394
in value					
in %	-2.7%	-2.2%	-3.7%	-5.7%	-0.4%
Total en-route Service Units	117 417	825 348	1 422 757	1 930 991	2 250 296
in value					
in %	1.3%	9.2%	15.8%	21.2%	24.4%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>-2.51</b>	<b>-6.55</b>	<b>-10.29</b>	<b>-13.35</b>	<b>-11.74</b>
in value					
in %	<b>-4.0%</b>	<b>-10.5%</b>	<b>-16.8%</b>	<b>-22.2%</b>	<b>-19.9%</b>
3. Focus on en-route at State/Charging Zone level					
<b>En-route unit cost</b>					
In 2019, the actual en-route unit cost in real terms (47.32 €2009) is -19.9% lower than planned in the PP (59.06 €2009). This results from the combination of much higher than planned TSUs (+24.4%) and en-route costs staying practically as planned in real terms (-0.4%).					
<b>En-route service units</b>					
The difference between actual and planned TSUs (+24.4%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (ENAIRE) retaining an amount of +20.0 M€2009.					
<b>En-route costs</b>					
In nominal terms, actual en-route costs are -2.1% (-13.1 M€) lower than planned. However, since the actual inflation index is also lower than planned (-2.0 p.p.), actual en-route costs are -0.4% (-2.0 M€2009) below plans when expressed in real terms.					
The slightly lower than planned en-route costs in real terms are driven by the NSAs/EUROCONTROL (-18.2%, or -9.1 M€2009), the MET service provider (-9.5%, or -2.6 M€2009) and the Spanish Air Force (-1.1%, or -0.2 M€2009), while the costs for ENAIRE (+2.2%, or +9.9 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.					
Costs exempt from cost-sharing are reported for a total amount of -5.6 M€2009 comprising -11.1 M€2009 for unforeseen changes in national taxation law, +14.6 M€2009 for new cost item required by law and -9.1 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.					
<b>RP2 summary</b>					
When considering the whole of RP2 (2015-2019), actual en-route TSUs are +14.5% higher than planned, while actual costs in real terms are -2.9% lower than the determined costs (some -81.4 M€2009). As a result, the weighted average actual unit cost over RP2 (51.88 €2009) is -15.2% lower than planned in the NPP (61.19 €2009).					



SPAIN CONTINENTAL: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



## SPAIN CANARIAS: En-route charging zone

## Monitoring of en-route COST-EFFICIENCY for 2019

## 1. Contextual economic information: en-route air navigation services

- Spain Canarias ECZ represents 1.4% of the SES en-route ANS determined costs in 2019
- ATSP: ENAIRE
- FAB: SW FAB
- National currency: EUR

## 2. En-route DUC monitoring at Charging Zone level

Spain Canarias: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D
En-route costs (nominal EUR)	98 528 223	98 750 683	99 003 882	98 495 359	98 326 935
Inflation %	0.8%	0.9%	1.0%	1.0%	1.1%
Inflation index (100 in 2009)	110.6	111.6	112.7	113.9	115.1
Real en-route costs (EUR2009)	89 115 786	88 522 066	87 832 072	86 497 790	85 450 091
Total en-route Service Units	1 531 000	1 528 000	1 531 000	1 537 000	1 543 000
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>58.21</b>	<b>57.93</b>	<b>57.37</b>	<b>56.28</b>	<b>55.38</b>

Spain Canarias: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
En-route costs (nominal EUR)	98 610 223	96 050 956	92 235 413	94 641 891	99 701 385
Inflation %	-0.6%	-0.3%	2.0%	1.7%	0.8%
Inflation index (100 in 2009)	108.5	108.1	110.3	112.2	113.1
Real en-route costs (EUR2009)	90 907 262	88 814 356	83 614 001	84 361 397	88 165 974
Total en-route Service Units	1 402 349	1 484 755	1 602 003	1 788 036	1 951 121
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>64.82</b>	<b>59.82</b>	<b>52.19</b>	<b>47.18</b>	<b>45.19</b>

Difference between Actuals and Planned	2015	2016	2017	2018	2019
En-route costs (nominal EUR)	82 000	-2 699 727	-6 768 469	-3 853 468	1 374 450
in %	0.1%	-2.7%	-6.8%	-3.9%	1.4%
Inflation %	-1.4 p.p.	-1.2 p.p.	1.0 p.p.	0.7 p.p.	-0.3 p.p.
Inflation index (100 in 2009)	-2.1 p.p.	-3.4 p.p.	-2.4 p.p.	-1.7 p.p.	-2.0 p.p.
Real en-route costs (EUR2009)	1 791 475	292 290	-4 218 071	-2 136 393	2 715 883
in %	2.0%	0.3%	-4.8%	-2.5%	3.2%
Total en-route Service Units	-128 651	-43 245	71 003	251 036	408 121
in %	-8.4%	-2.8%	4.6%	16.3%	26.4%
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>6.62</b>	<b>1.88</b>	<b>-5.18</b>	<b>-9.10</b>	<b>-10.19</b>
in %	<b>11.4%</b>	<b>3.3%</b>	<b>-9.0%</b>	<b>-16.2%</b>	<b>-18.4%</b>

## 3. Focus on en-route at State/Charging Zone level

**En-route unit cost**

In 2019, the actual en-route unit cost in real terms (45.19 €2009) is -18.4% lower than planned in the PP (55.38 €2009). This results from the combination of much higher than planned TSUs (+26.4%) and higher than planned en-route costs in real terms (+3.2%, or +2.7 M€2009).

**En-route service units**

The difference between actual and planned TSUs (+26.4%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (ENAIRE) retaining an amount of +3.1 M€2009.

**En-route costs**

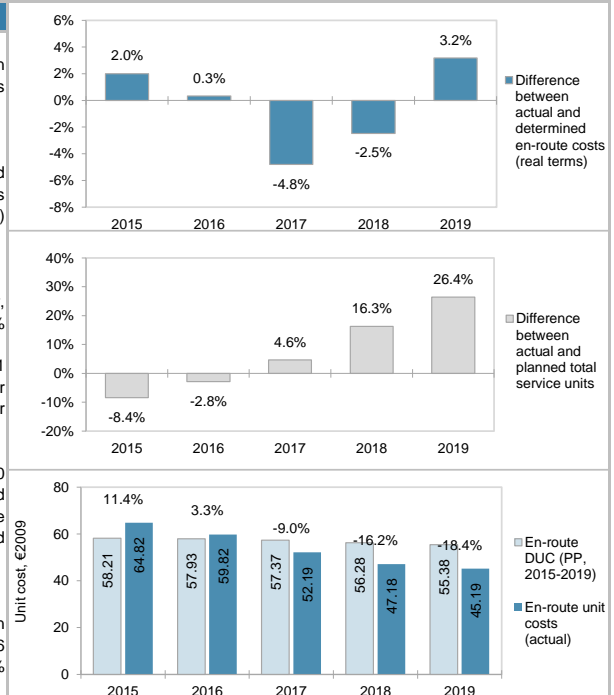
In nominal terms, actual en-route costs are +1.4% (+1.4 M€) higher than planned. However, since the actual inflation index is lower than planned (-2.0 p.p.), actual en-route costs are +3.2% (+2.7 M€2009) above plans when expressed in real terms.

The higher than planned en-route costs in real terms are driven by ENAIRE (+3.1%, or +2.1 M€2009), the other ANSPs (+7.6%, or +0.7 M€2009) and the MET service provider (+6.1%, or +0.3 M€2009), while the costs for the NSA/EUROCONTROL (-13.6%, or -0.4 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.

Costs exempt from cost-sharing are reported for a total amount of +1.2 M€2009 comprising -1.0 M€2009 for unforeseen changes in national taxation law, +2.6 M€2009 for new cost item required by law and -0.4 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.

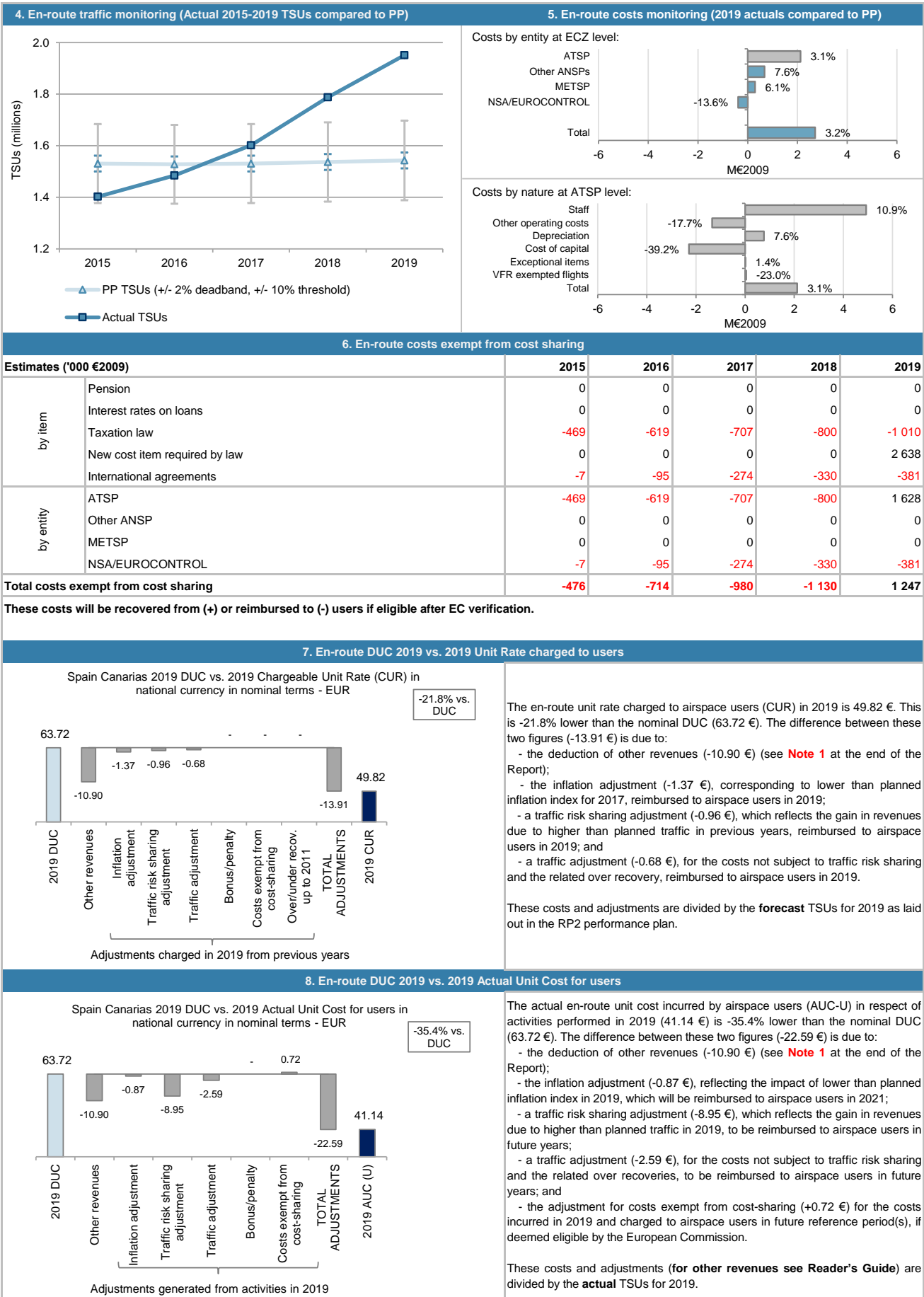
**RP2 summary**

When considering the whole of RP2 (2015-2019), actual en-route TSUs are +7.3% higher than planned, while actual costs in real terms are -0.4% lower than the determined costs (some -1.6 M€2009). As a result, the weighted average actual unit cost over RP2 (52.97 €2009) is -7.1% lower than planned in the NPP (57.03 €2009).



**SPAIN CANARIAS: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



## SPAIN: En-route ATSP (ENAIRE)

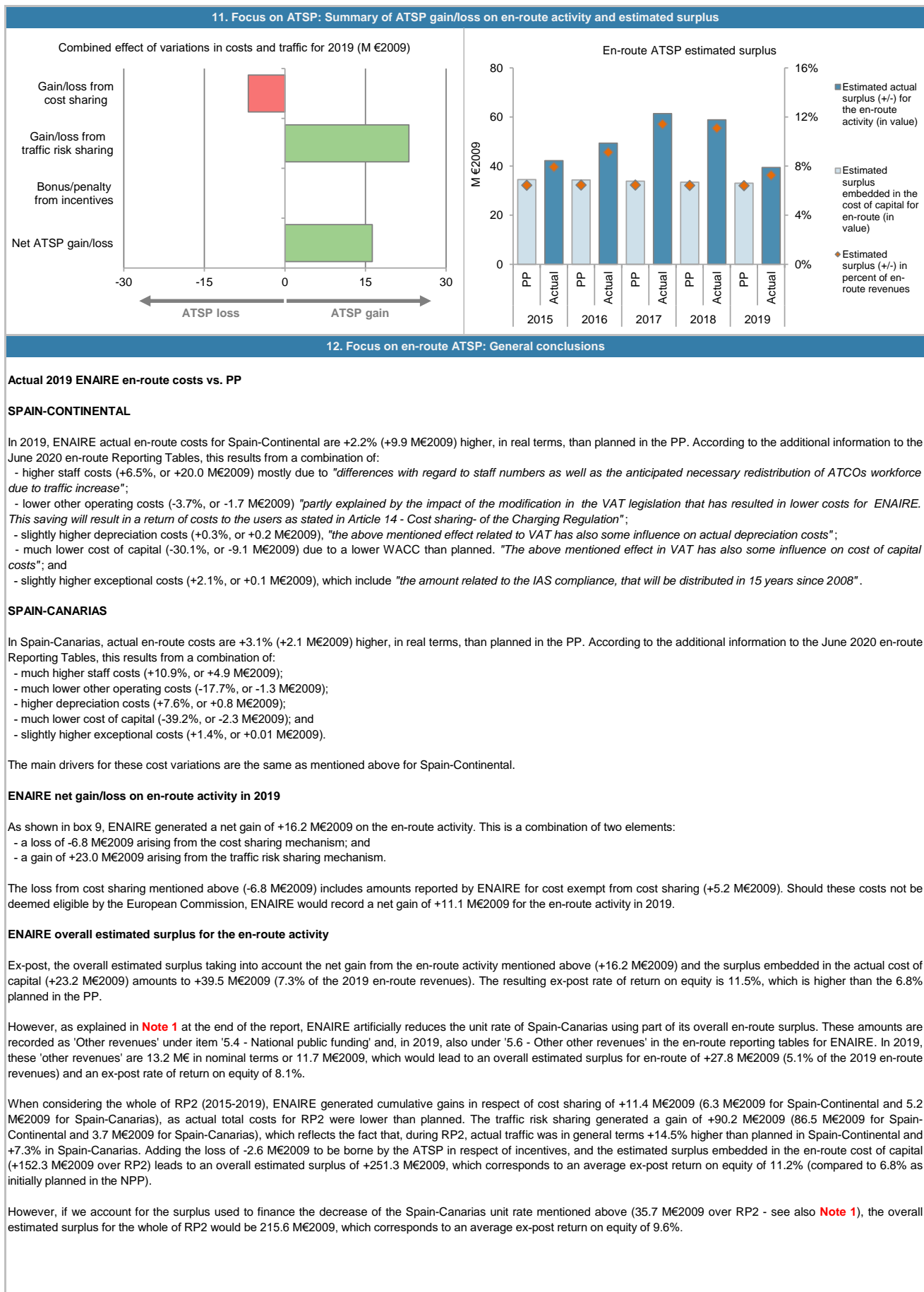
## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	536 016	531 160	524 599	520 447	515 378
Actual costs for the ATSP	525 448	524 252	509 809	496 961	527 374
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	10 568	6 908	14 789	23 487	-11 996
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-7 960	-8 979	-9 698	-10 854	5 170
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>2 608</b>	<b>-2 071</b>	<b>5 091</b>	<b>12 633</b>	<b>-6 826</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.1%	7.5%	14.2%	20.5%	24.7%
Determined costs for the ATSP (PP) - based on actual inflation	546 337	547 892	536 053	528 260	524 428
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>3 344</b>	<b>18 098</b>	<b>22 416</b>	<b>23 243</b>	<b>23 075</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-2 581</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>5 952</b>	<b>16 026</b>	<b>27 507</b>	<b>33 295</b>	<b>16 249</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	662 856	653 138	639 297	625 967	612 676
Estimated proportion of financing through equity (in %)	76.1%	76.9%	77.8%	78.7%	79.7%
Estimated proportion of financing through equity (in value)	504 175	502 502	497 579	492 931	488 193
Estimated proportion of financing through debt (in %)	23.9%	23.1%	22.2%	21.3%	20.3%
Estimated proportion of financing through debt (in value)	158 680	150 635	141 718	133 036	124 483
Cost of capital pre-tax (in value)	37 615	37 382	36 908	36 455	35 998
Average interest on debt (in %)	1.9%	2.0%	2.1%	2.2%	2.4%
Interest on debt (in value)	3 057	3 049	3 020	2 993	2 964
Determined RoE pre-tax rate (in %)	6.9%	6.8%	6.8%	6.8%	6.8%
Estimated surplus embedded in the cost of capital for en-route (in value)	34 559	34 333	33 887	33 462	33 033
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>34 559</b>	<b>34 333</b>	<b>33 887</b>	<b>33 462</b>	<b>33 033</b>
<b>Revenue/costs for the en-route activity</b>	<b>536 016</b>	<b>531 160</b>	<b>524 599</b>	<b>520 447</b>	<b>515 378</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.4%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.4%</b>	<b>6.4%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.9%</b>	<b>6.8%</b>	<b>6.8%</b>	<b>6.8%</b>	<b>6.8%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	683 007	646 922	636 747	486 868	456 752
Estimated proportion of financing through equity (in %)	77.4%	75.4%	78.2%	77.4%	75.1%
Estimated proportion of financing through equity (in value)	528 950	487 988	497 656	376 969	343 142
Estimated proportion of financing through debt (in %)	22.6%	24.6%	21.8%	22.6%	24.9%
Estimated proportion of financing through debt (in value)	154 057	158 934	139 091	109 899	113 609
Cost of capital pre-tax (in value)	37 613	34 589	34 945	26 948	24 646
Average interest on debt (in %)	0.9%	0.8%	0.8%	1.2%	1.3%
Interest on debt (in value)	1 356	1 248	1 053	1 358	1 428
Determined RoE pre-tax rate (in %)	6.9%	6.8%	6.8%	6.8%	6.8%
Estimated surplus embedded in the cost of capital for en-route (in value)	36 257	33 341	33 892	25 590	23 218
Net ATSP gain(+)/loss(-) on en-route activity	5 952	16 026	27 507	33 295	16 249
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>42 209</b>	<b>49 368</b>	<b>61 399</b>	<b>58 885</b>	<b>39 468</b>
<b>Revenue/costs for the en-route activity</b>	<b>531 400</b>	<b>540 278</b>	<b>537 316</b>	<b>530 255</b>	<b>543 623</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>7.9%</b>	<b>9.1%</b>	<b>11.4%</b>	<b>11.1%</b>	<b>7.3%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>8.0%</b>	<b>10.1%</b>	<b>12.3%</b>	<b>15.6%</b>	<b>11.5%</b>



## SPAIN: En-route ATSP (ENAIRE)

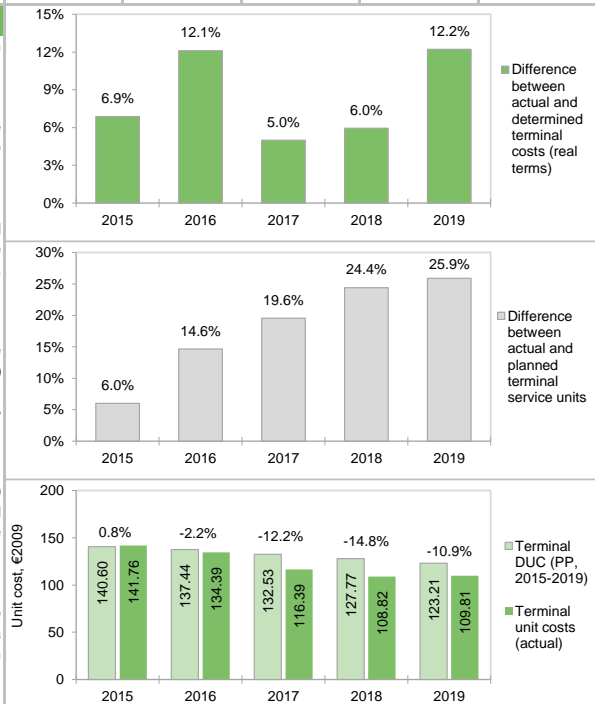
## Monitoring of en-route COST-EFFICIENCY for 2019



## SPAIN: Terminal charging zone

## Monitoring of terminal COST-EFFICIENCY for 2019

1. Contextual economic information: terminal air navigation services						
· Spain TCZ represents 7.7% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes		
· ATSP:	ENAIRES	· Airports with fewer than 70,000 IFRs ATMs:		0		
· National currency:	EUR	· Airports with between 70,000 and 225,000 IFRs ATMs:		3		
· Number of airports in charging zone in 2019:	5,	of which:	· Airports with more than 225,000 IFRs ATMs:	2		
2. Terminal DUC monitoring at Charging Zone level						
Spain: Data from RP2 Performance Plan						
	2015D	2016D	2017D	2018D	2019D	
Terminal costs (nominal EUR)	99 791 938	99 110 291	97 634 776	96 511 608	95 268 935	
Inflation %	0.8%	0.9%	1.0%	1.0%	1.1%	
Inflation index (100 in 2009)	110.6	111.6	112.7	113.9	115.1	
Real terminal costs (EUR2009)	90 258 778	88 844 426	86 617 459	84 755 676	82 792 565	
Total terminal Service Units	641 951	646 445	653 556	663 359	671 983	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>140.60</b>	<b>137.44</b>	<b>132.53</b>	<b>127.77</b>	<b>123.21</b>	
Spain: Actual data from Reporting Tables						
	2015A	2016A	2017A	2018A	2019A	
Terminal costs (nominal EUR)	104 648 408	107 715 681	100 333 656	100 744 645	105 052 170	
Inflation %	-0.6%	-0.3%	2.0%	1.7%	0.8%	
Inflation index (100 in 2009)	108.5	108.1	110.3	112.2	113.1	
Real terminal costs (EUR2009)	96 473 772	99 600 245	90 955 285	89 801 238	92 897 676	
Total terminal Service Units	680 549	741 105	781 477	825 264	846 003	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>141.76</b>	<b>134.39</b>	<b>116.39</b>	<b>108.82</b>	<b>109.81</b>	
Difference between Actuals and Planned						
	2015	2016	2017	2018	2019	
Terminal costs (nominal EUR)	in value	4 856 470	8 605 390	2 698 879	4 233 037	9 783 235
	in %	4.9%	8.7%	2.8%	4.4%	10.3%
Inflation %	in p.p.	-1.4 p.p.	-1.2 p.p.	1.0 p.p.	0.7 p.p.	-0.3 p.p.
Inflation index (100 in 2009)	in p.p.	-2.1 p.p.	-3.4 p.p.	-2.4 p.p.	-1.7 p.p.	-2.0 p.p.
Real terminal costs (EUR2009)	in value	6 214 994	10 755 819	4 337 826	5 045 562	10 105 110
	in %	6.9%	12.1%	5.0%	6.0%	12.2%
Total terminal Service Units	in value	38 598	94 660	127 921	161 905	174 020
	in %	6.0%	14.6%	19.6%	24.4%	25.9%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>1.16</b>	<b>-3.04</b>	<b>-16.14</b>	<b>-18.95</b>	<b>-13.40</b>
	<b>in %</b>	<b>0.8%</b>	<b>-2.2%</b>	<b>-12.2%</b>	<b>-14.8%</b>	<b>-10.9%</b>
3. Focus on terminal at State/Charging Zone level						
This analysis focuses on Spain Terminal Charging Zone (TCZ) comprising 5 airports (Barcelona, Gran Canaria, Madrid Barajas, Malaga and Palma de Mallorca).						
<b>Terminal unit cost</b>						
In 2019, the actual terminal unit cost in real terms (109.81 €2009) is -10.9% lower than planned in the PP (123.21 €2009). This results from the combination of much higher than planned TNSUs (+25.9%) which largely offset the also higher than planned terminal costs in real terms (+12.2%).						
<b>Terminal service units</b>						
The traffic risk sharing mechanism applies in Spain TCZ. The difference between actual and planned TNSUs (+25.9%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional revenues is therefore shared between the ATSP and the airspace users, with the ATSP (ENAIRES) retaining +3.5 M€2009.						
<b>Terminal costs</b>						
In nominal terms, actual terminal costs are +10.3% (+9.8 M€) higher than planned. However, since the actual inflation index is lower than planned (-2.0 p.p.), actual terminal costs are +12.2% (+10.1 M€2009) above plans when expressed in real terms.						
The higher than planned terminal costs in real terms are driven by ENAIRES (+14.4%, or +11.3 M€2009), while the costs for the MET service provider (-27.2%, or -0.7 M€2009) and the NSA (-36.1%, or -0.5 M€2009) are lower than planned. A detailed analysis is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +2.8 M€2009 comprising -1.0 M€2009 for unforeseen changes in national taxation law and +3.9 M€2009 for a new cost item required by law. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019), actual TNSUs are +18.2% higher than planned, while actual costs in real terms are also +8.4% higher than the determined costs (some +36.5 M€2009). As a result, the weighted average actual unit cost over RP2 (121.24 €2009) is -8.3% lower than planned in the NPP (132.20 €2009).						



SPAIN: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	14.4%
Other ANSPs	-
METSP	-27.2%
NSA	-36.1%
Total	12.2%

Costs by nature at ATSP level:

Staff	17.4%
Other operating costs	0.9%
Depreciation	14.6%
Cost of capital	-34.5%
Exceptional items	0.3%
VFR exempted flights	-
Total	14.4%

#### 6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	-747	-820	-861	-940	-1 010
	New cost item required by law	0	633	1 229	2 365	3 854
	International agreements	0	0	0	0	0
by entity	ATSP	-747	-186	368	1 425	2 843
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>-747</b>	<b>-186</b>	<b>368</b>	<b>1 425</b>	<b>2 843</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

#### 7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Spain 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

The terminal unit rate charged to airspace users (CUR) in 2019 is 18.72 €. This is -86.8% lower than the nominal DUC (141.77 €). The difference between these two figures (-123.05 €) relates to:

- the deduction of other revenues (-99.01 €) corresponding mainly to the "income related to service agreements with the airport operator";
- the inflation adjustment (-3.10 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (-21.01 €), which reflects the gain in revenues due to higher than planned traffic in previous years, reimbursed to airspace users in 2019; and
- a traffic adjustment (+0.07 €), for the costs not subject to traffic risk sharing and the related under recovery, charged to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

#### 8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Spain 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (20.17 €) is -85.8% lower than the nominal DUC (141.77 €). The difference between these two figures (-121.60 €) is mainly due to:

- the deduction of other revenues (-99.01 €) (see box 7 above);
- the inflation adjustment (-1.94 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic risk sharing adjustment (-23.02 €), which reflects the gain in revenues due to higher than planned traffic in 2019, to be reimbursed to airspace users in future years. See **Note 2**;
- a traffic adjustment (-1.43 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years; and
- the adjustment for costs exempt from cost-sharing (+3.80 €) for the costs incurred in 2019 and charged to airspace users in future reference period(s), if deemed eligible by the European Commission.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## SPAIN: Terminal ATSP (ENAIRE)

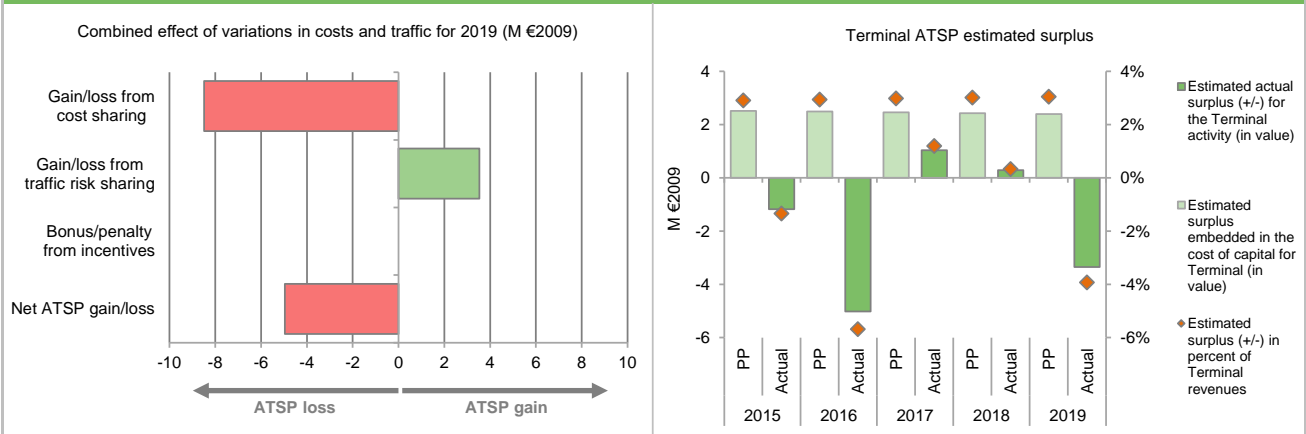
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	86 182	84 779	82 555	80 710	78 746
Actual costs for the ATSP	92 985	96 876	88 095	87 107	90 076
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-6 803	-12 097	-5 540	-6 397	-11 330
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	-747	-186	368	1 425	2 843
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-7 551</b>	<b>-12 284</b>	<b>-5 172</b>	<b>-4 972</b>	<b>-8 487</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018*	2019*
Difference in total service units (actual vs PP) %	6.0%	14.6%	19.6%	24.4%	25.9%
Determined costs for the ATSP (PP) - based on actual inflation	87 841	87 449	84 358	81 921	80 129
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>2 814</b>	<b>3 848</b>	<b>3 712</b>	<b>3 605</b>	<b>3 526</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-4 737</b>	<b>-8 436</b>	<b>-1 460</b>	<b>-1 368</b>	<b>-4 961</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	48 175	47 460	46 439	45 463	44 494
Estimated proportion of financing through equity (in %)	76.1%	76.9%	77.8%	78.7%	79.7%
Estimated proportion of financing through equity (in value)	36 642	36 514	36 145	35 801	35 454
Estimated proportion of financing through debt (in %)	23.9%	23.1%	22.2%	21.3%	20.3%
Estimated proportion of financing through debt (in value)	11 533	10 946	10 295	9 662	9 040
Cost of capital pre-tax (in value)	2 734	2 716	2 681	2 648	2 614
Average interest on debt (in %)	1.9%	2.0%	2.1%	2.2%	2.4%
Interest on debt (in value)	222	222	219	217	215
Determined RoE pre-tax rate (in %)	6.9%	6.8%	6.8%	6.8%	6.8%
Estimated surplus embedded in the cost of capital for terminal (in value)	2 512	2 495	2 462	2 430	2 399
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>2 512</b>	<b>2 495</b>	<b>2 462</b>	<b>2 430</b>	<b>2 399</b>
<b>Revenue/costs for the terminal activity</b>	<b>86 182</b>	<b>84 779</b>	<b>82 555</b>	<b>80 710</b>	<b>78 746</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>2.9%</b>	<b>2.9%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>6.9%</b>	<b>6.8%</b>	<b>6.8%</b>	<b>6.8%</b>	<b>6.8%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	67 014	66 165	46 858	31 461	31 740
Estimated proportion of financing through equity (in %)	77.4%	75.4%	78.2%	77.4%	75.1%
Estimated proportion of financing through equity (in value)	51 898	49 910	36 622	24 359	23 845
Estimated proportion of financing through debt (in %)	22.6%	24.6%	21.8%	22.6%	24.9%
Estimated proportion of financing through debt (in value)	15 115	16 255	10 236	7 102	7 895
Cost of capital pre-tax (in value)	3 690	3 538	2 572	1 741	1 713
Average interest on debt (in %)	0.9%	0.8%	0.8%	1.2%	1.3%
Interest on debt (in value)	133	128	77	88	99
Determined RoE pre-tax rate (in %)	6.9%	6.8%	6.8%	6.8%	6.8%
Estimated surplus embedded in the cost of capital for terminal (in value)	3 557	3 410	2 494	1 654	1 613
Net ATSP gain(+)/loss(-) on terminal activity	-4 737	-8 436	-1 460	-1 368	-4 961
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>-1 179</b>	<b>-5 026</b>	<b>1 034</b>	<b>286</b>	<b>-3 348</b>
<b>Revenue/costs for the terminal activity</b>	<b>88 249</b>	<b>88 440</b>	<b>86 635</b>	<b>85 740</b>	<b>85 115</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>-1.3%</b>	<b>-5.7%</b>	<b>1.2%</b>	<b>0.3%</b>	<b>-3.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>-2.3%</b>	<b>-10.1%</b>	<b>2.8%</b>	<b>1.2%</b>	<b>-14.0%</b>

**SPAIN: Terminal ATSP (ENAIRES)**

**Monitoring of terminal COST-EFFICIENCY for 2019**

**11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 ENAIRES terminal costs vs. PP**

In 2019, ENAIRES actual terminal costs are +14.4% (+11.3 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much higher staff costs (+17.4%, or +11.4 M€2009) which is partly due to "differences in staff numbers between Plan estimate and reality and besides by the necessary redistribution of ATCOs workforce, due to traffic increase, from control centers to airports";
- slightly higher other operating costs (+0.9%, or +0.04 M€2009). The containment of these costs was in part thanks to "the impact of the modification in the indirect taxes legislation that has resulted in lower costs for ENAIRES. This saving will result in a return of costs to the users as stated in Article 14 - Cost sharing- of the Charging Regulation";
- much higher depreciation costs (+14.6%, or +0.7 M€2009), "the above mentioned effect related to VAT has also some influence on actual depreciation costs";
- much lower cost of capital (-34.5%, or -0.9 M€2009) due to a lower WACC than planned. "The above mentioned effect in VAT has also some influence on cost of capital costs"; and
- slightly higher exceptional costs (+0.3%, or +0.00 M€2009), which include "the amount related to the IAS compliance, that will be distributed in 15 years since 2008".

**ENAIRES net gain/loss on terminal activity in 2019**

As shown in box 9, ENAIRES generated a net loss of -5.0 M€2009 on the terminal activity. This is a combination of two elements:

- a loss of -8.5 M€2009 arising from the cost sharing mechanism; and
- a gain of +3.5 M€2009 arising from the traffic risk sharing mechanism. See **Note 2** at the end of this Report.

The loss from cost sharing mentioned above (-8.5 M€2009) includes amounts reported by ENAIRES for cost exempt from cost sharing (+2.8 M€2009). Should these costs not be deemed eligible by the European Commission, ENAIRES would record a net loss of -7.8 M€2009 for the terminal activity in 2019.

**ENAIRES overall estimated surplus for the terminal activity**

Ex-post, the overall estimated surplus taking into account the loss from the terminal activity mentioned above (-5.0 M€2009) and the surplus embedded in the actual cost of capital (+1.6 M€2009) amounts to -3.3 M€2009 (3.9% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is -14.0%, which indicates that the surplus embedded in the cost of capital (6.8%) was not sufficient to compensate for the loss related to the terminal activity.

When considering the whole of RP2 (2015-2019), ENAIRES generated cumulative losses in respect of cost sharing of -38.5 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +17.5 M€2009, which reflects the fact that actual traffic was in general terms +18.2% higher than planned during RP2 (see also **Note 2**). Adding the estimated surplus embedded in the terminal cost of capital (+12.7 M€2009 over RP2) leads to an overall estimated surplus of -8.2 M€2009, which corresponds to an average ex-post return on equity of -4.4% (compared to 6.8% as initially planned in the NPP).

## SPAIN: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

## 1. Monitoring of gate-to-gate ANS costs

SPAIN: Data from RP2 Performance Plan	2015D	2016D	2017D	2018D	2019D	
Real en-route costs (EUR2009)	650 288 155	646 160 238	639 858 031	635 877 678	631 014 001	
Real terminal costs (EUR2009)	90 258 778	88 844 426	86 617 459	84 755 676	82 792 565	
Real gate-to-gate costs (EUR2009)	740 546 933	735 004 664	726 475 490	720 633 354	713 806 566	
En-route share (%)	87.8%	87.9%	88.1%	88.2%	88.4%	
SPAIN: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
Real en-route costs (EUR2009)	636 909 036	633 997 231	615 281 749	602 335 850	631 752 491	
Real terminal costs (EUR2009)	96 473 772	99 600 245	90 955 285	89 801 238	92 897 676	
Real gate-to-gate costs (EUR2009)	733 382 808	733 597 476	706 237 035	692 137 088	724 650 166	
En-route share (%)	86.8%	86.4%	87.1%	87.0%	87.2%	
Difference between Actuals and Planned (Actuals vs. PP)	2015	2016	2017	2018	2019	
Real gate-to-gate costs (EUR2009)						
	in value	-7 164 125	-1 407 188	-20 238 455	-28 496 266	10 843 600
	in %	-1.0%	-0.2%	-2.8%	-4.0%	1.5%
En-route share	in p.p.	-1.0 p.p.	-1.5 p.p.	-1.0 p.p.	-1.2%	-1.2%

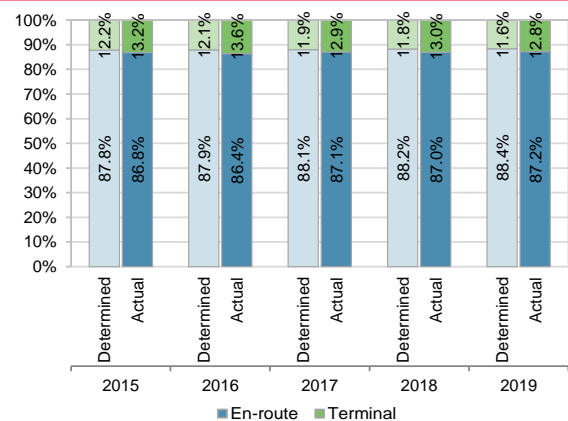
## 2. Share of en-route and terminal in gate-to-gate actual costs (2019)

In 2019, actual gate-to-gate ANS costs are +1.5% (+10.8 M€2009) higher than planned due to higher than planned terminal costs (+12.2%, or +10.1 M€2009) while en-route costs are in line with what was planned in the PP (+0.1%, or +0.7 M€2009; - 2.0 M€2009 for Spain-Continental and +2.7 M€2009 for Spain-Canarias).

The actual share of en-route in gate-to-gate ANS costs (87.2%) is slightly lower than planned in the PP for 2018 (88.4%).

For ENAIRE, the estimated gate-to-gate economic surplus in 2019 amounts to 36.1 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 5.7% of gate-to-gate ANS revenues.

The resulting ex-post rate of return on equity for gate to gate is 9.8%, as a result of a combination of the ex-post rate of return on equity for en-route of 11.5%, and the terminal ex-post rate of return of -14.0%.



## 3. Technical notes on en-route and terminal information reported by SPAIN

**Note 1: Unit rate for Spain-Canarias**

During the 2017 fact-verification, Spain pointed out that, as part of the State charging policy, the unit rates for Spain Canarias are artificially reduced by other revenues which ENAIRE does not receive, recorded in the en-route reporting tables (Route Table 2 ANSP) under item 5.4 - National public funding and, in 2019, also by the amount recorded as 5.6 - Other other revenues. These "revenues" (i.e. reductions of the unit rates) are therefore financed by (or reducing) the ENAIRE overall surplus for en-route.

In 2019, the amount of these 'Other revenues' is 13.2 M€ in nominal terms or 11.7 M€2009. For the whole of RP2 these amounts to 35.7 M€2009.

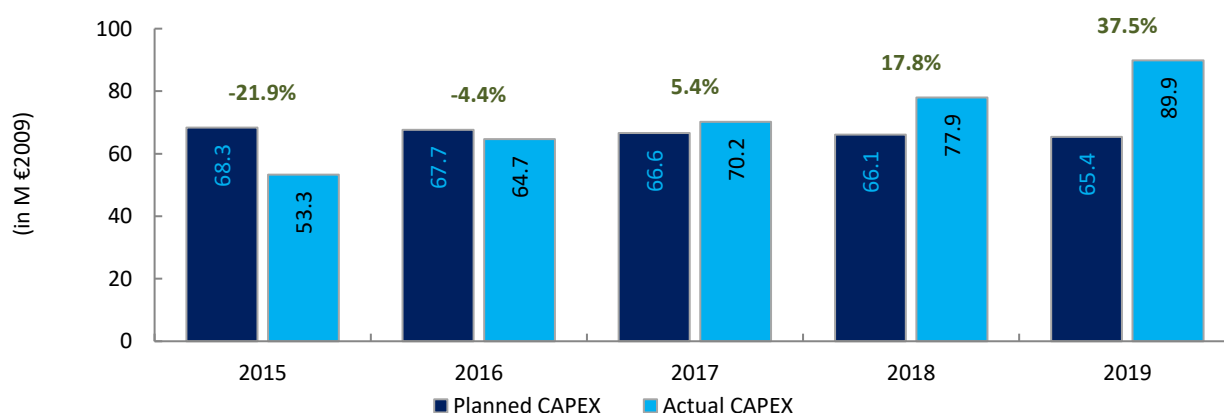
**Note 2: Traffic Risk Sharing adjustment for 2018 and 2019 for terminal**

Spain charges to airspace users only a portion of its terminal determined costs (~19% for 2018 and 2019), the rest is financed through the income related to the service agreement with the airport operator. For this reason, even though the traffic risk sharing adjustment is calculated taking into account the full determined costs, in 2018 and 2019 Spain offset this adjustment through the reporting of (positive) other revenues in year n+2 under item '13.8 Other revenues', in Table 2 of the RP3 Reporting Tables. Thus, the excess amounts resulting of the standard application of the traffic risk sharing are recovered through the unit rates of 2020 and 2021. It should be noted that, due to the fact that the details of the arrangement with the airport operator are not known, this may have an impact on the surplus calculation presented in box 12.

## SPAIN

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: ENAIRE						
FAB: SW FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	75.5	75.5	75.1	75.3	75.2	376.6
Main CAPEX (in nominal M)	49.8	49.8	49.6	50.0	50.0	249.2
Inflation %	0.8%	0.9%	1.0%	1.0%	1.1%	
Inflation index (100 in 2009)	110.6	111.6	112.7	113.9	115.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>68.3</b>	<b>67.7</b>	<b>66.6</b>	<b>66.1</b>	<b>65.4</b>	<b>334.1</b>
Main CAPEX (in M €2009)	45.0	44.6	44.0	43.9	43.5	221.0
% Main of Total CAPEX	65.9%	66.0%	66.1%	66.3%	66.5%	66.1%
Real gate-to-gate ANSP costs (in M €2009)	622.2	615.9	607.2	601.2	594.1	3 040.6
Total CAPEX as % of Real gate-to-gate ANSP costs	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	57.9	69.9	77.4	87.4	101.7	394.3
Main CAPEX (in nominal M)	37.2	45.4	52.5	58.1	69.9	263.1
Inflation %	-0.6%	-0.3%	2.0%	1.7%	0.8%	
Inflation index (100 in 2009)	108.5	108.1	110.3	112.2	113.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>53.3</b>	<b>64.7</b>	<b>70.2</b>	<b>77.9</b>	<b>89.9</b>	<b>356.0</b>
Main CAPEX (in M €2009)	34.3	41.9	47.6	51.8	61.8	237.5
% Main of Total CAPEX	64.3%	64.9%	67.8%	66.5%	68.8%	66.7%
Real gate-to-gate ANSP costs (in M €2009)	618.4	621.1	597.9	584.1	617.5	3 039.0
Total CAPEX as % of Real gate-to-gate ANSP costs	8.6%	10.4%	11.7%	13.3%	14.6%	11.7%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-17.7	-5.5	2.4	12.1	26.4	17.7
Total CAPEX (in M €2009)	-15.0	-3.0	3.6	11.8	24.5	21.9
<b>Total CAPEX (in %, M €2009)</b>	<b>-21.9%</b>	<b>-4.4%</b>	<b>5.4%</b>	<b>17.8%</b>	<b>37.5%</b>	<b>6.6%</b>



Note: According to Spain, the CAPEX results from 2016 onwards are accounted without taxes, as a consequence of the application of a Regulation from the Spanish State. In order to obtain a correct comparison between results and planned figures, it is necessary to use the Performance Plan investment figures without taxes, which is 63.4 M€ (nominal terms) in 2018 (instead of 75.3 M€ with taxes). This shows that actual result in nominal terms (87.4 M€) is higher than planned by +24.0 M€ instead of +12.1 M€ for 2018.

In the period 2015-2018, the real investment has been 10% above the planned one (taking into account the figures without taxes for 2016, 2017 and 2018). It is therefore understood that the same is also applicable to 2019 data.

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# **Annual Monitoring Report 2019**

Local level view  
UK IRELAND FAB

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## UK-IRELAND FAB

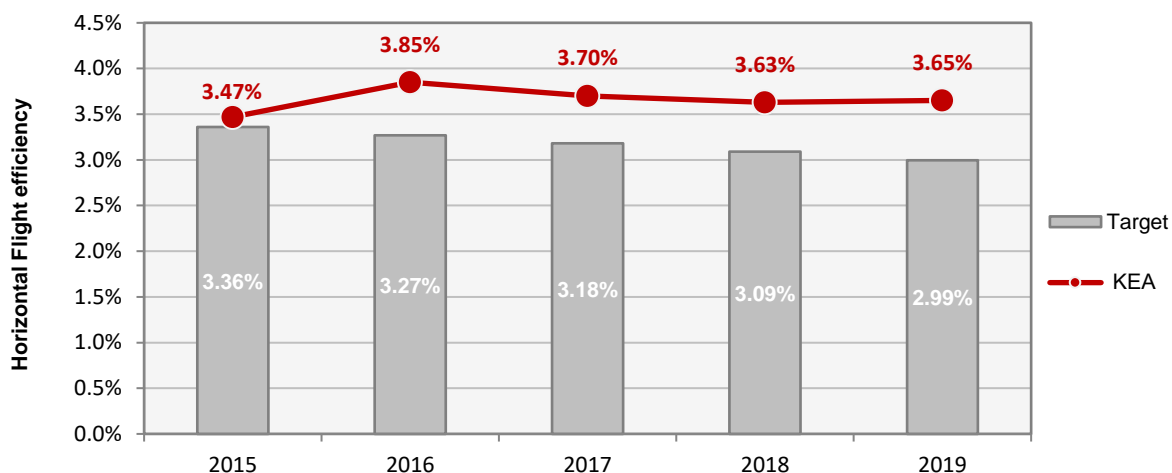
## Monitoring of SAFETY for 2019

Effectiveness of Safety Management							
			2015 Value	2016 Value	2017 Value	2018 Value	2019 Target
Union-wide targets	at State level	For all MOs					C
	at ANSP level	For Safety Culture MO					C
		For all other MOs					D
FAB level	States / Regulatory authorities	For all MOs	B	B	B	C	C
	ANSPs	For Safety Culture MO	D	D	D	D	D
	ANSPs	For all other MOs	C	D	D	D	D
Application of the severity classification of the Risk Analysis Tool (RAT)							
Ground Score			2015 Value	2016 Value	2017 Target	2018 Value	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%		100%
	Runway Incursions (RIs)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	100%	100%	100%	100%
	Runway Incursions (RIs)		100%	100%	100%	100%	80%
Overall Score			2015 Value	2016 Value	2017 Target	2018 Target	2019 Target
Union-wide targets	Separation Minima Infringements (SMIs)				>= 80%	>= 80%	>= 80%
	Runway Incursions (RIs)				>= 80%	>= 80%	>= 80%
	ATM Specific occurrences (ATM-S)				>= 80%		100%
FAB level	Separation Minima Infringements (SMIs)		100%	100%	100%	100%	100%
	Runway Incursions (RIs)		100%	100%	100%	100%	89%
	ATM Specific occurrences (ATM-S)		100%	100%	100%	100%	100%
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)							
Observations							
<p>The lowest level in each EoSM Components/areas of the States is Level "C" which meets the 2019 EoSM target level. All components have, therefore, achieve the target level.</p> <p>With regards the ANSP EoSM level, the minimum level is Level "D" for all components, which is at or above the 2019 EoSM target level.</p>							

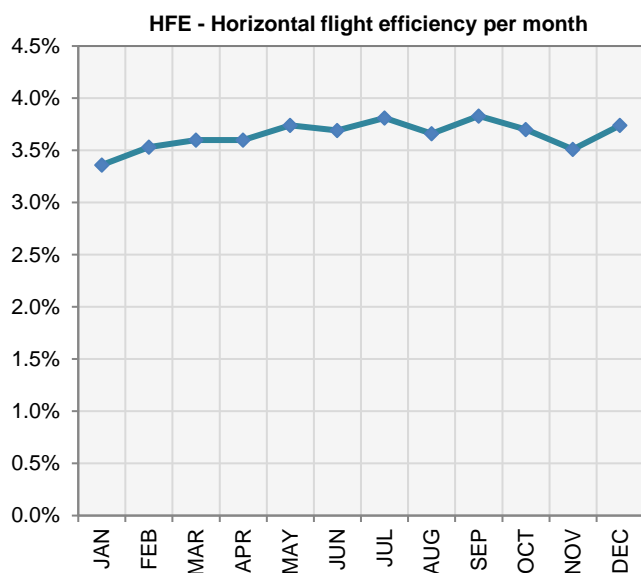
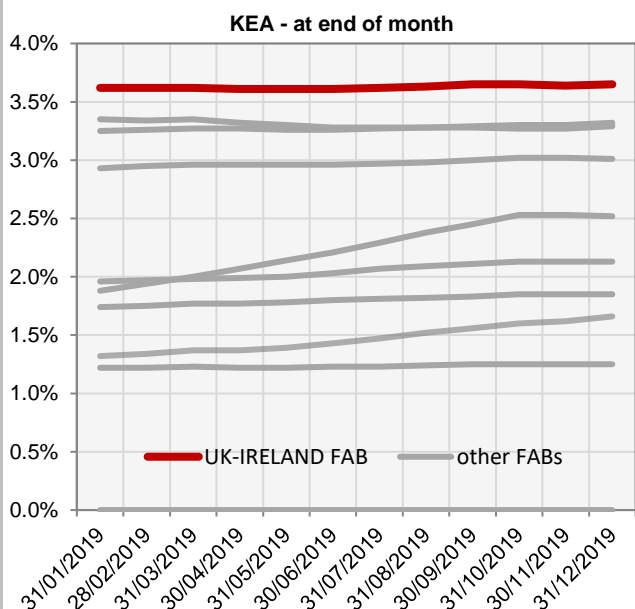
UK-IRELAND FAB

Monitoring of ENVIRONMENT for 2019

KEA					
	2015	2016	2017	2018	2019
FAB Target	3.36%	3.27%	3.18%	3.09%	2.99%
KEA Value	3.47%	3.85%	3.70%	3.63%	3.65%



Monthly KEA and HFE evolution in 2019												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
KEA (at end of month)	3.62%	3.62%	3.62%	3.61%	3.61%	3.61%	3.62%	3.63%	3.65%	3.65%	3.64%	3.65%
HFE	3.36%	3.53%	3.60%	3.60%	3.74%	3.69%	3.81%	3.66%	3.83%	3.70%	3.51%	3.74%



HFE refers to the ratio of flown distance and achieved distance over all (portions of) trajectories in the month, while KEA is the ratio over a one year rolling window, excluding the ten best and ten worst days. The rolling window stops at the last day of the month.

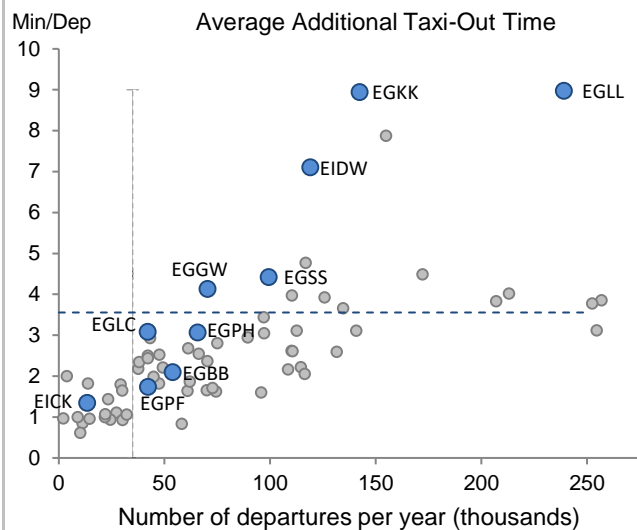
**UK-IRELAND FAB**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

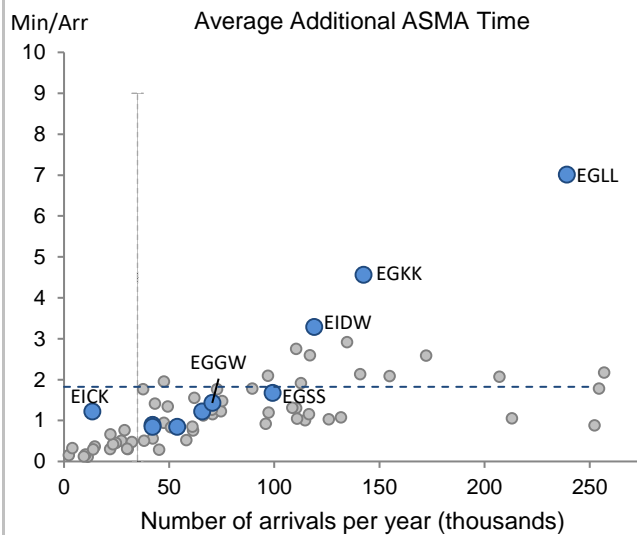
UK-Ireland FAB identifies 12 airports as subject to RP2 monitoring. Most of them have correctly established the Airport Data Flow, and only Shannon (EINN) is not providing the required data yet. While the high level of capacity utilisation at some of these airports is recognised, the level of inefficiencies across UK-Ireland FAB negatively impacts the ANS contribution to the KPA Environment.

**2. Additional Taxi-Out Time**



In general the airports in the UK-Ireland FAB sit in the higher part of the scatter plot that relate the performance regarding additional taxi-out time to the traffic levels for all airports in RP2. Heathrow, Gatwick and Dublin show additional taxi-times that almost double the values of other airports in the network.

**3. Additional ASMA Time**



Regarding additional time in terminal airspace, the airports within UK-Ireland FAB show a performance commensurate with their levels of traffic with the exception of London Gatwick (EGKK), London Heathrow (EGLL), Cork (EICK) and to some extent Dublin (EIDW). Additional ASMA time at Heathrow has improved along RP2 but it is still almost 4 times the RP2 average (1.82 min/arr.).

## UK-IRELAND FAB

## Monitoring of CAPACITY for 2019

Minutes of ATFM en-route delay						
	2015	2016	2017	2018	2019	Observations
FAB Reference Value	0.25	0.26	0.26	0.26	0.26	The total presented includes the results of NM post operations adjustment process
FAB Target	0.25	0.26	0.26	0.26	0.26	
Actual performance	0.08	0.30	0.16	0.28	0.21	

## UK - IRE FAB assessment of capacity performance

2019 performance was below the target.

The average en-route delay per flight in Ireland was 0.00

We note there appears to be a minor difference in the pre-filled figure (0.21) and that provided by the Eurocontrol dashboard (0.22).

[Note: EUROCONTROL dashboard includes 39k minutes of delay originating in the UK that were subsequently reassigned to DFS and DSNA through the NM post-operations adjustment process.]

## Monitoring process for capacity performance

NSAs monitor ANSP capacity performance on a quarterly basis.

NERL is required under its licence to provide the CAA with an operational report on a quarterly basis, setting out its performance. The 2019 Q4 report will be submitted confidentially to the Commission. The CAA uses this report, along with the Service and Investment Plan (submitted on a twice yearly basis) and the Annual Business Report (submitted once a year), to monitor NERL's capacity performance across the year and remain aware if there are any performance issues that may mean the targets may risk not being met. Actual performance is validated through the PRU dashboard and ANSP engagement with the Network Manager.

We note the delay allocation procedure that has been implemented by the Network Manager to consider cases where delay may have been misallocated, and which has stakeholder support.

## Application of Corrective Measures for Capacity

No corrective measures are required for 2019 performance.

## Capacity Planning

UK Ireland FAB capacity reference values are based on the capacity plans of the ANSPs. Those reference values, set at the beginning of RP2, have been adopted as the UK-Ireland FAB targets.

## Assessment of capacity performance

Capacity performance in UK IRL FAB improved in 2019 and the FAB provided a positive contribution to the union-wide target of 0.5 minutes average ATFM delay per flight. The UK IRL FAB target was 0.26 minutes per flight, whereas the actual result was 0.22 minutes for all causes of delay (including 39k minutes of delay subsequently reassigned to DFS and DSNA through the NM post-operations adjustment process).

Traffic levels increased by less than 1% to a level just below the high traffic scenario forecasted by STATFOR in 2014 when the FAB performance plans and associated capacity plans were being developed.

Actual delays, even though within the target, were significantly higher than predicted in the NOP 2019-2024.

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
High	2 298		2 362		2 439		2 502		2 573		2 645	
Base	2 275	<b>2 299</b>	2 327	<b>2 358</b>	2 373	<b>2 488</b>	2 410	<b>2 576</b>	2 454	<b>2 598</b>	2 500	<b>2 621</b>
Low	2 250		2 279		2 296		2 311		2 331		2 351	

Delay forecast						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.16	0.16	0.13	0.12	N/A	N/A
<b>NOP 2019 - 2024</b>	0.14	0.21	0.15 – 0.23			

### En route Capacity Incentive Scheme

The UK Ireland FAB applied a common FAB wide en route capacity incentive scheme (C2), described in Chapter 4 of the revised UK Ireland FAB performance plan, submitted in July 2015.

The UK has implemented further incentive schemes for NATS related to en route capacity (C3 & C4). These are described in Chapter 4 of the UK Ireland FAB performance plan for RP2, submitted in June 2014. The results of these additional incentive schemes are presented in the UK specific section following.

### Result of FAB Capacity Incentive Scheme

The incentive mechanism provided that no bonus will be payable to either NERL or the IAA for a relevant year unless the FAB target for that year has been met and similarly no penalty will be payable unless the FAB target for that year has been missed.

Based on 2019 actuals a FAB bonus is payable for this year if performance is outside the deadbands.

Ireland

A capacity bonus of 1% of ANSP revenue (€1 110 085) is due. The amount is foreseen to be fully charged in 2021.

UK

2019 C2 performance was 0.15 mins/flight. As this is within the deadband, no bonus is due.

### Update on Military dimension of the plan

No new information was provided on how civil military coordination and cooperation is expected to provide additional capacity for general air traffic.

### Observations on Military dimension of the plan

Nil.

### Application of FUA

New information provided:

2019, saw continued integration of the ASM tool LARA, with ongoing work to integrate the UK LARA tool into the Irish Aviation Authority. This development is expected to continue through 2020 with the potential development and trial of a 'deployable' LARA solution. A deployable solution will significantly increase the utility of this tool throughout the UK. From a strategic perspective utilising a J&I approach, as part of the UK Airspace Modernisation Strategy (AMS), a performance improvement plan was developed by the MoD, NERL and the CAA; this plan will drive coherent development and improvement of the application of FUA principals in support of the wider AMS.

### Observations of the Application of FUA

The PRB welcome the update in information on the application of FUA.

**UK-IRELAND FAB**

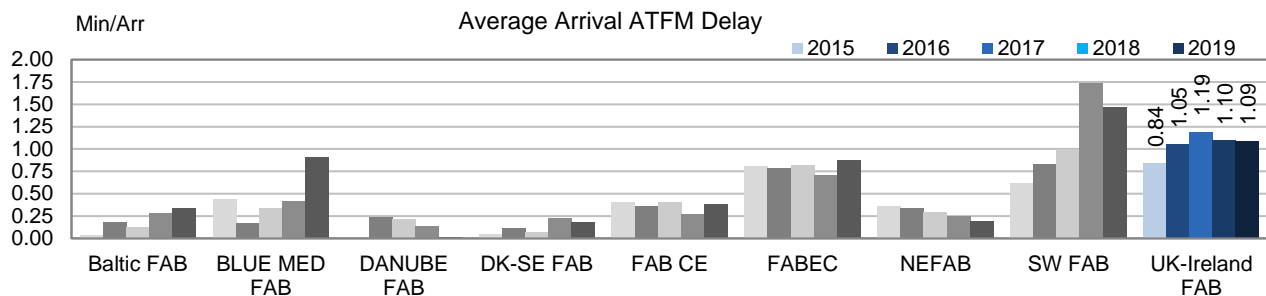
**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

Average arrival ATFM delays at UK-Ireland FAB have not changed much in 2019 but still exceed the European average of 0.86 min/arr.

Next to FABEC and SW FAB, UK-Ireland FAB performance influences the European average significantly, representing more than 19% of all arrival ATFM delay in the SES area and a traffic share of 15%.

**2. Arrival ATFM Delay**



Across Europe, UK-Ireland FAB achieves the second worst performance in terms of arrival ATFM delay (i.e. 1.09 min/arr.) after SW FAB. The performance is mostly driven by London airports, with Heathrow and Gatwick in the top 5 most contributing airports to total arrival ATFM delays in the SES area.

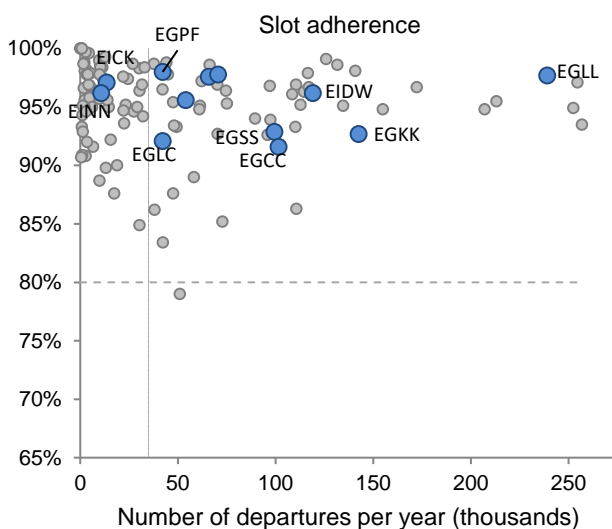
**3. Arrival ATFM Delay – National Targets and Incentive Schemes**

The UK-Ireland FAB performance plan establishes a national target on arrival ATFM delay for the United Kingdom and Ireland. The targets are consistent with the observed historic performance/performance at the beginning of the reference period. The United Kingdom established a stepwise decreasing target to induce high performance vis-à-vis the expected traffic growth. Ireland works with a stepwise increasing target to balance limitations due to the absence of airport infrastructure related enhancements with the expected traffic growth.

In 2019 United Kingdom misses the national target (also missed every year in RP2) and Ireland meets its national target on arrival ATFM delay.

The UK-Ireland FAB performance plan presents no incentive scheme for the national target on arrival ATFM delay.

**4. ATFM Slot Adherence**



Airports in the UK-Ireland FAB show very good performance regarding the adherence to ATFM slots, with values above 90% compliance. 8 of the 12 airports in UK-Ireland FAB show best-in-class adherence above the 95% mark.

**5. ATC Pre-departure Delay**

The Airport Operator Data Flow is implemented at 11 of the 12 airports subject to RP2 monitoring in the UK-Ireland FAB. However the number of delayed flights with no attributed delay causes, and/or the use of ambiguity codes vary widely. Accordingly in some cases the indicator is not representative and is disregarded (i.e. n/a label in the table in the appendix).



# Annual Monitoring Report 2019

## Local level view

### Ireland

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## IRELAND

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	85	C	D	D	D	C
IAA	92	D	D	D	D	D

Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.

Application of the severity classification of the Risk Analysis Tool (RAT)		
	RAT application (%)	
	ATM Ground	ATM Overall
Separation Minima Infringements (SMIs)	100%	100%
Runway Incursions (RIs)	100%	100%
ATM Specific Occurrences (ATM-S)		100%
<b>Source of RAT data:</b>	IAA	

Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)

Just culture		
State level	Number of questions answered	
	YES	NO
Policy and its implementation	9	0
Legal/Judiciary	7	0
Occurrence reporting and Investigation	2	0
<b>TOTAL</b>	<b>18</b>	<b>0</b>

IAA	Number of questions answered	
	YES	NO
Policy and its implementation	13	0
Legal/Judiciary	2	1
Occurrence reporting and Investigation	7	1
<b>TOTAL</b>	<b>22</b>	<b>2</b>

Observations
All safety targets have been met.

**IRELAND**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

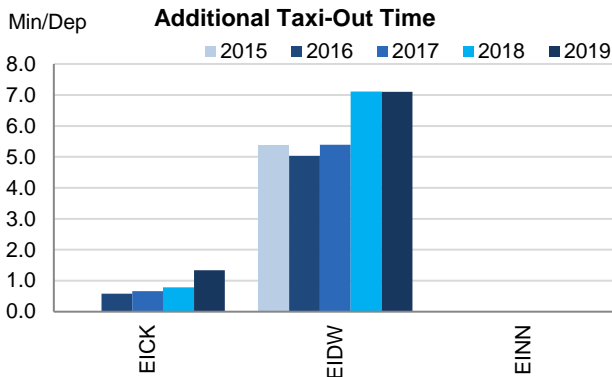
Ireland includes 3 airports under RP2 monitoring. Shannon is the only remaining airport that has not implemented the Airport Operator Data Flow required for the monitoring.

Ireland shall empower the airport reporting entity at Shannon (EINN) to establish the Airport Operator Data Flow to allow for the monitoring of all Irish airports in the UK-Ireland FAB Performance Plan.

Traffic at these Irish airports has moderately increased during RP2 (+20% with respect to 2015).

The environmental performance at Dublin, like last year, results in the 4th highest additional taxi-out times in the SES area and the 3rd highest additional ASMA times.

**2. Additional Taxi-Out Time**



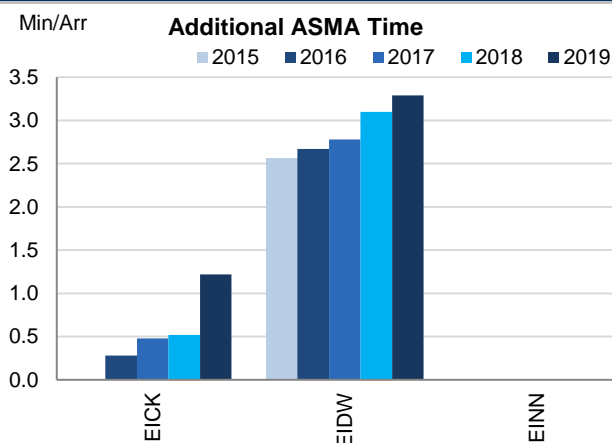
After the significant increase in 2018, additional taxi-out times at Dublin in 2019 have not changed much (EIDW; 2018: 7.11 min/dep.; 2019: 7.10 min/dep.) with additional taxi-out times averaging above 8 minutes 5 months in the Summer season. Traffic at Dublin has increased by 2.41% in 2019.

Irish NSA reports several reasons for the inefficient operation at Dublin:

Taxi out times at Dublin airport are a result of infrastructure deficiencies at the aerodrome. Dublin airport is a single runway operation, currently operating at full capacity during peak periods. The design of the taxiway, apron and stand infrastructure is such there are a number of constraints which can cause taxi-out times to increase. The aerodrome manoeuvring area is populated with several bottlenecks which restrict the service providers ability to deal efficiently with departure peaks. In order to safely operate the infrastructure, it is necessary to apply several airport restrictions on entry and exit to taxiways and the runway. These restrictions which are outside the control of the IAA significantly contribute to taxi-out times and delays. In addition, with Dublin airport operating at full capacity for extended periods, the lack of a second runway and the lack of rapid exit taxiways on the existing runway (noting the importance of preventing runway incursions) may contribute to the additional taxi-out times.

The UK-Ireland FAB monitoring report also considers that Additional Taxi-Out Time is not a useful metric for ANSP performance as there are too many contributing variables outside of the control of the ANSP.

**3. Additional ASMA Time**



Dublin shows another increase of the additional time in the terminal airspace (EIDW; 2018: 3.10 min/arr.; 2019: 3.29 min/arr.), mainly resulting from the increase during the Summer season with respect to 2018.

Additional ASMA times at Cork have drastically increased in the last year (EICK; 2018: 0.52 min/arr.; 2019: 1.22 min/arr.) and are now much higher than those at similar airports in terms of movements.

UK-Ireland FAB reports that any arrival congestion at EIDW is a result of the airport operating at or close to capacity for long periods of the day, the infrastructure deficiencies at the aerodrome (lack of rapid exit taxiways, bottlenecks at runway threshold) as well as potentially inefficient slot allocation (not optimised to reduce arrival congestion) and weather related factors.

The additional time in terminal airspace is generally attributable to the flights following the "Point Merge" legs in part or in full. However the Point Merge has been demonstrated to have considerable benefits to the Airspace Users in reduced fuel consumption and to the environment in lowering Co2 emissions around terminal areas, and maximising runway throughput compared to vertical holding. These benefits outweigh any impact on ASMA Time. As congestion levels at Dublin airport increase in the construction phase of a second runway and improvements to existing infrastructure, it is likely that ASMA times will further increase until the new runway is fully operational.

#### 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Cork	EICK	n/a	0.58	0.66	0.79	1.34	n/a	0.28	0.48	0.52	1.22
Dublin	EIDW	5.39	5.03	5.39	7.11	7.10	2.56	2.67	2.78	3.10	3.29
Shannon	EINN	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**IRELAND**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
<b>National Capacity target</b>	0.13	0.13	0.14	0.14	0.14	The figures here are all causes of delay. the FAB incentive scheme only considers C,R,S,T,M,P delays.
<b>Deadband +/-</b>	n/a	n/a	n/a	n/a	n/a	
<b>Actual performance</b>	0.00	0.00	0.00	0.00	0.01	

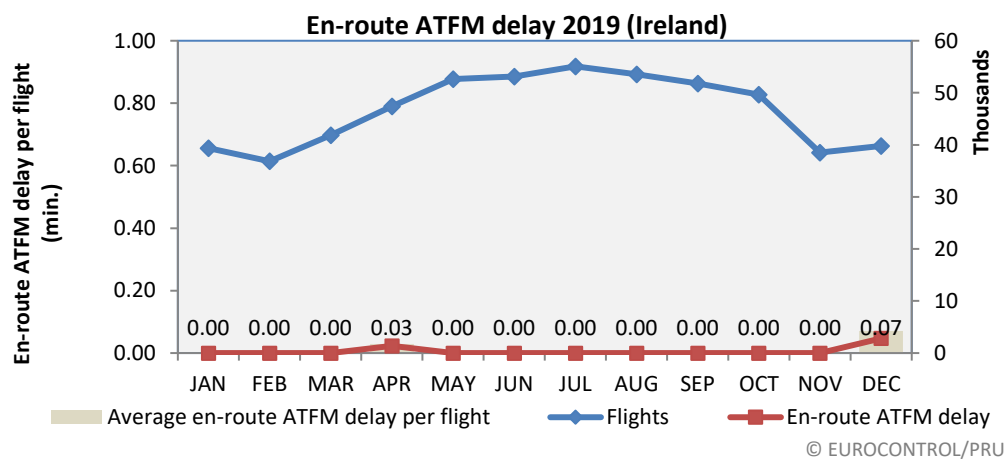
**National capacity incentive scheme**

National CRSTMP target = 0,14 minutes per flight. Deadband 0,11 - 0,15

CRSTMP performance in 2019 = 0,00

In accordance with the FAB incentive scheme, a capacity bonus of 1% of ANSP revenue (€1 110 085) is due. The amount is foreseen to be fully charged in 2021.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
		actual		actual		actual		actual		actual		actual
<b>High</b>	538		557		573		589		607		624	
<b>Base</b>	534	<b>537</b>	552	<b>566</b>	564	<b>610</b>	576	<b>621</b>	589	<b>635</b>	602	<b>647</b>
<b>Low</b>	528		540		547		553		560		568	

Ireland continues to demonstrate excellent en route capacity performance, once again providing a positive contribution to network performance. Actual delays were in line with the prediction from NOP 2019-2024.

The high performance of the IAA is recognised since traffic levels in Ireland have consistently been above the high traffic scenario predicted by STATFOR and available when the FAB performance plans and associated capacity plans were being determined.

Delay forecast - IAA						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.01	0.01	0.01	0.01	N/A	N/A
<b>NOP 2019 - 2024</b>	0.01	0.01	0.01			

**Planning and Effective Use of CDRs**

Ireland did not provide any data since there are no CDRs in Ireland.

**Observations on Planning and Effective Use of CDRs**

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

**Effective booking procedures**

Ireland did not provide any information on this indicator.

**Observations on Effective booking procedures**

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

**IRELAND**

**Monitoring of Airports Contribution to CAPACITY for 2019**

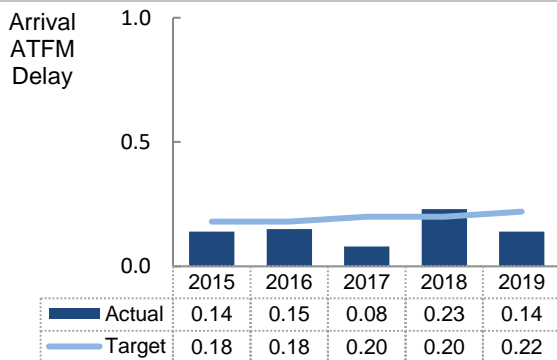
**1. Overview**

Ireland identifies 3 airports as subject to RP2, where traffic levels have significantly increased during RP2 (+19.7% with respect to 2015).

In terms of arrival ATFM delays and slot adherence, values are at the same level as in the beginning of the reference period, while ATC pre-departure delays have deteriorated at Dublin (EIDW)

The Airport Operator Data Flow, necessary for the calculation of the ATC pre-departure delay indicator, is at the time being implemented at 2 airports in Ireland (EIDW and EICK). Nonetheless, the high share of unexplained delay prevents the monitoring of the indicator at Cork (EICK).

**2. Arrival ATFM Delay**



During 2019, arrival ATFM delays in Ireland have moderately decreased with respect to the previous year (2018: 0.23 min/arr, 2019: 0.14 min/arr), reducing by 0.05 for Dublin (EIDW).

The performance is directly associated to the constraints at Dublin (EIDW). Shannon (EINN) shows some delays only in the month of August associated to ATC disruption (accident/incident), and Cork (EICK) does not register any arrival ATFM delays.

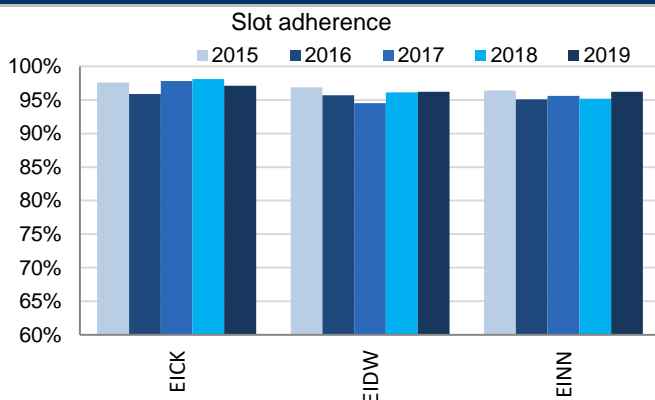
The delays at Dublin are attributed to weather (79%) and aerodrome capacity (21%, concentrated mostly in October and December). Once more, during the busiest months (July and August) the registered delays are much lower.

**3. Arrival ATFM Delay – National Target and Incentive Scheme**

Ireland established a national target on arrival ATFM delay for 2019 of 0.20 min/arr. with a breakdown for Dublin. The target is met at both national level and airport level at Dublin (EIDW: 2019: PP= 0.22 min/arr. vs Actual= 0.17 min/arr.)

The UK-Ireland FAB performance plan presents no (capacity) incentive scheme for the national target on arrival ATFM delay for Ireland.

**4. ATFM Slot Adherence**



The performance regarding ATFM slot adherence at the 3 Irish airports under RP2 monitoring is consistently around the 95% threshold, which marks the best-in-class performance group.

**5. ATC Pre-departure Delay**

The ATC pre-departure delay at Dublin has increased in 2019 and is closer now to 1 min/dep. According to UK-Ireland FAB's monitoring report this is mainly due to Dublin airport operating at full capacity for long periods throughout the day.

In line with the reporting observed last year, the high share of pre-departure delay attributed to ambiguity codes does not allow for the calculation of the indicator at Cork (EICK). At Dublin this share is lower, but the share of ambiguity delay codes is still high and it risks the calculation of the ATC pre-departure delay indicator in the future.

The Airport Operator Data Flow, required for the monitoring of the ATC pre-departure delay, is not established for Shannon.

Ireland shall encourage the implementation of the Airport Operator Data Flow and a proper reporting of the pre-departure delays through this data flow at all monitored airports.



## 6. Appendix

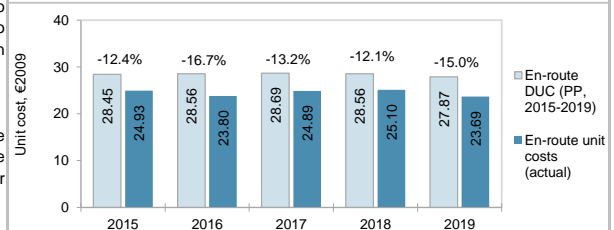
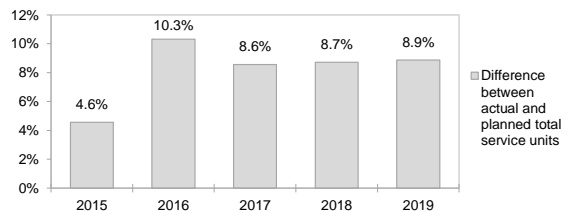
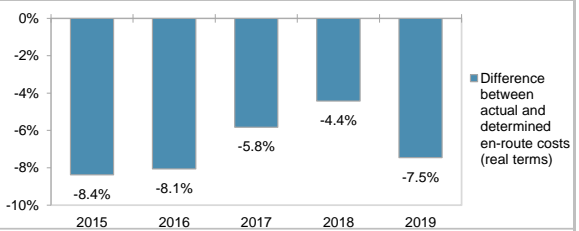
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Cork	EICK	0.00	0.00	0.00	0.00	0.00	97.6%	95.9%	97.8%	98.1%	97.1%	n/a	n/a	n/a	n/a	n/a
Dublin	EIDW	0.17	0.19	0.10	0.27	0.17	96.9%	95.7%	94.5%	96.1%	96.2%	0.53	0.66	0.38	0.70	0.94
Shannon	EINN	0.00	0.00	0.00	0.00	0.02	96.4%	95.1%	95.6%	95.2%	96.2%	n/a	n/a	n/a	n/a	n/a

## IRELAND: En-route charging zone

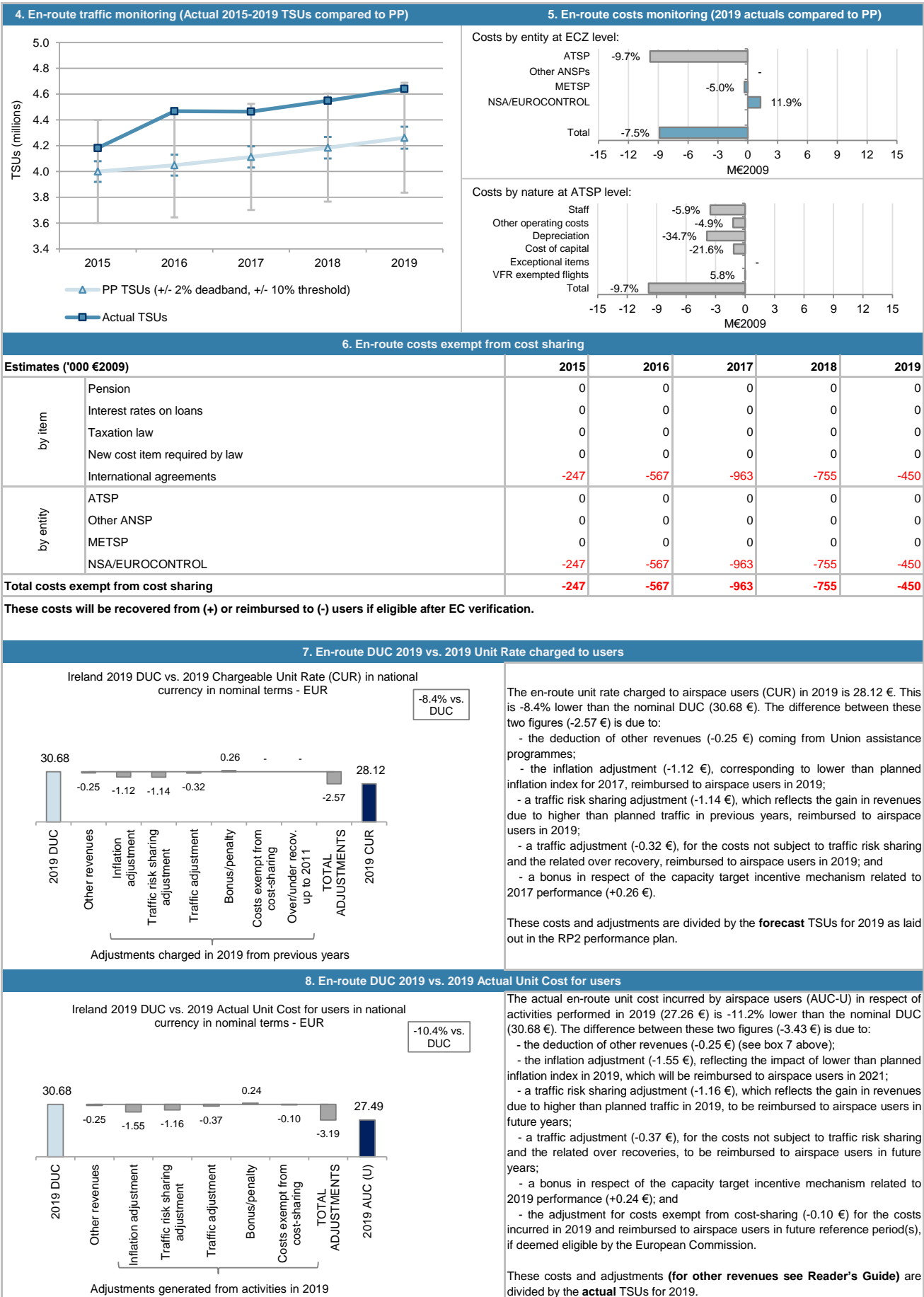
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· Ireland ECZ represents 2.0% of the SES en-route ANS determined costs in 2019						
· ATSP:	IAA					
· FAB:	UK-Ireland FAB					
· National currency:	EUR					
2. En-route DUC monitoring at Charging Zone level						
Ireland: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D	
En-route costs (nominal EUR)	118 046 200	121 386 700	125 595 100	129 364 400	130 778 800	
Inflation %	1.1%	1.2%	1.4%	1.7%	1.7%	
Inflation index (100 in 2009)	103.7	105.0	106.4	108.2	110.1	
Real en-route costs (EUR2009)	113 811 728	115 644 664	118 001 964	119 511 684	118 798 780	
Total en-route Service Units	4 000 000	4 049 624	4 113 288	4 184 878	4 262 135	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>28.45</b>	<b>28.56</b>	<b>28.69</b>	<b>28.56</b>	<b>27.87</b>	
Ireland: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
En-route costs (nominal EUR)	106 657 766	108 543 638	113 784 000	117 767 000	114 371 000	
Inflation %	0.0%	-0.2%	0.3%	0.7%	0.9%	
Inflation index (100 in 2009)	102.3	102.1	102.4	103.1	104.0	
Real en-route costs (EUR2009)	104 273 918	106 330 301	111 130 414	114 220 979	109 937 794	
Total en-route Service Units	4 182 450	4 467 595	4 465 253	4 549 883	4 640 860	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>24.93</b>	<b>23.80</b>	<b>24.89</b>	<b>25.10</b>	<b>23.69</b>	
Difference between Actuals and Planned	2015	2016	2017	2018	2019	
En-route costs (nominal EUR)	-11 388 434	-12 843 062	-11 811 100	-11 597 400	-16 407 800	
in %	-9.6%	-10.6%	-9.4%	-9.0%	-12.5%	
Inflation %	-1.1 p.p.	-1.4 p.p.	-1.1 p.p.	-1.0 p.p.	-0.8 p.p.	
Inflation index (100 in 2009)	-1.4 p.p.	-2.9 p.p.	-4.0 p.p.	-5.1 p.p.	-6.1 p.p.	
Real en-route costs (EUR2009)	-9 537 810	-9 314 363	-6 871 550	-5 290 705	-8 860 986	
in %	-8.4%	-8.1%	-5.8%	-4.4%	-7.5%	
Total en-route Service Units	182 450	417 971	351 965	365 005	378 725	
in %	4.6%	10.3%	8.6%	8.7%	8.9%	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-3.52</b>	<b>-4.76</b>	<b>-3.80</b>	<b>-3.45</b>	<b>-4.18</b>
	<b>in %</b>	<b>-12.4%</b>	<b>-16.7%</b>	<b>-13.2%</b>	<b>-12.1%</b>	<b>-15.0%</b>
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (23.69 €2009) is -15.0% lower than planned in the PP (27.87 €2009). This results from the combination of higher than planned TSUs (+8.9%) and lower than planned en-route costs in real terms (-7.5%, or -8.9 M€2009).						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+8.9%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (IAA) retaining an amount of +4.4 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are -12.5% (-16.4 M€) lower than planned. However, since the actual inflation index is also lower than planned (-6.1 p.p.), actual en-route costs are -7.5% (-8.9 M€2009) below plans when expressed in real terms.						
The lower than planned en-route costs in real terms are driven by IAA (-9.7%, or -9.8 M€2009) and the MET service provider (-5.0%, or -0.3 M€2009), while the costs for the NSA/EUROCONTROL (+11.9%, or +1.3 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of -0.5 M€2009 corresponding to the variation in EUROCONTROL costs. These costs will be eligible for carry-over (reimbursed to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the Ireland charging zone, actual en-route TSUs are +8.2% higher than planned, while actual costs in real terms are -6.8% lower than the determined costs (some -39.9 M€2009). As a result, the weighted average actual unit cost over RP2 (24.47 €2009) is -13.9% lower than planned in the NPP (28.42 €2009).						



**IRELAND: En-route charging zone**

**Monitoring of en-route COST-EFFICIENCY for 2019**



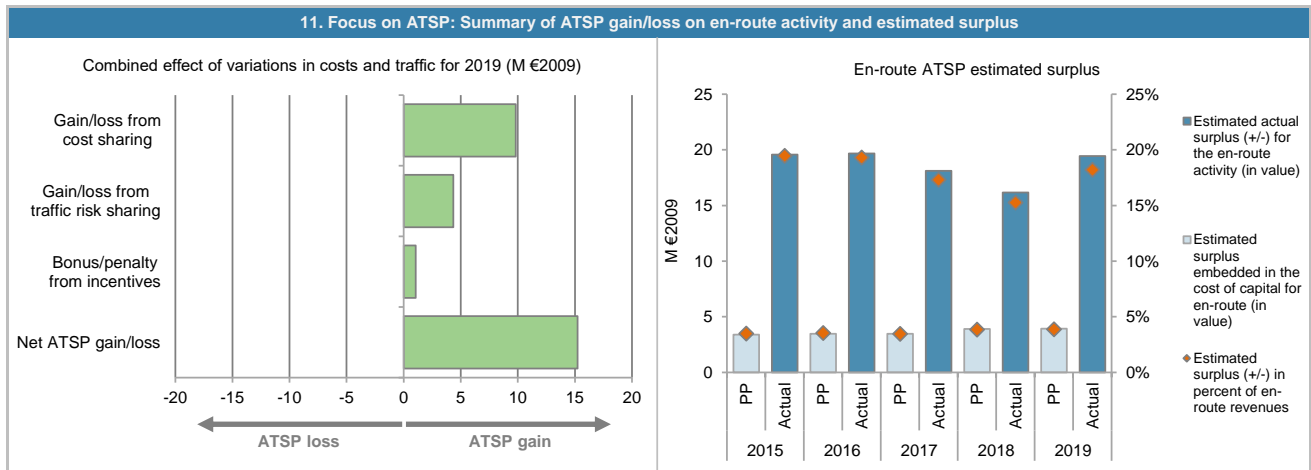
## IRELAND: En-route ATSP (IAA)

## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	96 844	97 378	99 417	101 495	101 272
Actual costs for the ATSP	87 495	88 091	92 092	95 053	91 459
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	9 349	9 287	7 325	6 442	9 814
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>9 349</b>	<b>9 287</b>	<b>7 325</b>	<b>6 442</b>	<b>9 814</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	4.6%	10.3%	8.6%	8.7%	8.9%
Determined costs for the ATSP (PP) - based on actual inflation	98 202	100 129	103 346	106 555	107 164
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>2 719</b>	<b>4 406</b>	<b>4 100</b>	<b>4 280</b>	<b>4 357</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>1 014</b>	<b>0</b>	<b>1 087</b>	<b>0</b>	<b>1 067</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>13 081</b>	<b>13 693</b>	<b>12 512</b>	<b>10 722</b>	<b>15 238</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	63 266	64 174	63 062	69 602	69 651
Estimated proportion of financing through equity (in %)	50.1%	49.9%	49.7%	49.4%	49.5%
Estimated proportion of financing through equity (in value)	31 674	32 047	31 358	34 418	34 444
Estimated proportion of financing through debt (in %)	49.9%	50.1%	50.3%	50.6%	50.5%
Estimated proportion of financing through debt (in value)	31 592	32 126	31 704	35 184	35 207
Cost of capital pre-tax (in value)	4 492	4 621	4 667	5 359	5 363
Average interest on debt (in %)	3.5%	3.6%	3.8%	4.1%	4.1%
Interest on debt (in value)	1 106	1 157	1 205	1 443	1 443
Determined RoE pre-tax rate (in %)	10.7%	10.8%	11.0%	11.4%	11.4%
Estimated surplus embedded in the cost of capital for en-route (in value)	3 386	3 464	3 462	3 917	3 920
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>3 386</b>	<b>3 464</b>	<b>3 462</b>	<b>3 917</b>	<b>3 920</b>
<b>Revenue/costs for the en-route activity</b>	<b>96 844</b>	<b>97 378</b>	<b>99 417</b>	<b>101 495</b>	<b>101 272</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>3.5%</b>	<b>3.6%</b>	<b>3.5%</b>	<b>3.9%</b>	<b>3.9%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>10.7%</b>	<b>10.8%</b>	<b>11.0%</b>	<b>11.4%</b>	<b>11.4%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	60 751	55 239	50 816	47 787	36 971
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	60 751	55 239	50 816	47 787	36 971
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	6 494	5 971	5 610	5 438	4 207
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	10.7%	10.8%	11.0%	11.4%	11.4%
Estimated surplus embedded in the cost of capital for en-route (in value)	6 494	5 971	5 610	5 438	4 207
Net ATSP gain(+)/loss(-) on en-route activity	13 081	13 693	12 512	10 722	15 238
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>19 575</b>	<b>19 664</b>	<b>18 122</b>	<b>16 160</b>	<b>19 445</b>
<b>Revenue/costs for the en-route activity</b>	<b>100 576</b>	<b>101 784</b>	<b>104 604</b>	<b>105 775</b>	<b>106 697</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>19.5%</b>	<b>19.3%</b>	<b>17.3%</b>	<b>15.3%</b>	<b>18.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>32.2%</b>	<b>35.6%</b>	<b>35.7%</b>	<b>33.8%</b>	<b>52.6%</b>

**IRELAND: En-route ATSP (IAA)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



**12. Focus on en-route ATSP: General conclusions**

**Actual 2019 IAA en-route costs vs. PP**

In 2019, IAA actual en-route costs are -9.7% (-9.8 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 en-route Reporting Tables, this results from a combination of:

- lower staff costs (-5.9%, or -3.5 M€2009) "due to higher than expected departures, retirements and recruitment occurring later than anticipated . There is significant recruitment of ATCO programmes and recruitment in other operational areas ongoing";
- lower other operating costs (-4.9%, or -1.2 M€2009) "because of decreases across a range of ANSP technical and administrative expenses. The IAA has strong procurement and budgeting procedures with competitive quotes being sought on significant tangible transactions. Operating budgets are actively monitored throughout the year";
- much lower depreciation costs (-34.7%, or -3.9 M€2009) "as result from lower capex spend compared to the plan (...). Capex spend during the RP2 period was lower due to staff being redeployed from project development to dealing with the higher than forecast traffic"; and
- much lower cost of capital (-21.6%, or -1.2 M€2009). "Similar to depreciation, the lower cost of capital results from the lower capex spend."

**IAA net gain/loss on en-route activity in 2019**

As shown in box 9, IAA generated a net gain of +15.2 M€2009 on the en-route activity. This is a combination of three elements:

- a gain of +9.8 M€2009 arising from the cost sharing mechanism;
- a gain of +4.4 M€2009 arising from the traffic risk sharing mechanism; and
- a gain of +1.1 M€2009 (or +1.11 M€ in nominal terms), corresponding to a bonus as part of the en-route capacity target incentive mechanism. This amount corresponds to 1.0% of IAA en-route revenues (based on the ATSP chargeable unit rate in 2019 times the actual TSUs). The inclusion of this bonus in the chargeable cost base will be examined by the European Commission.

**IAA overall estimated surplus for the en-route activity**

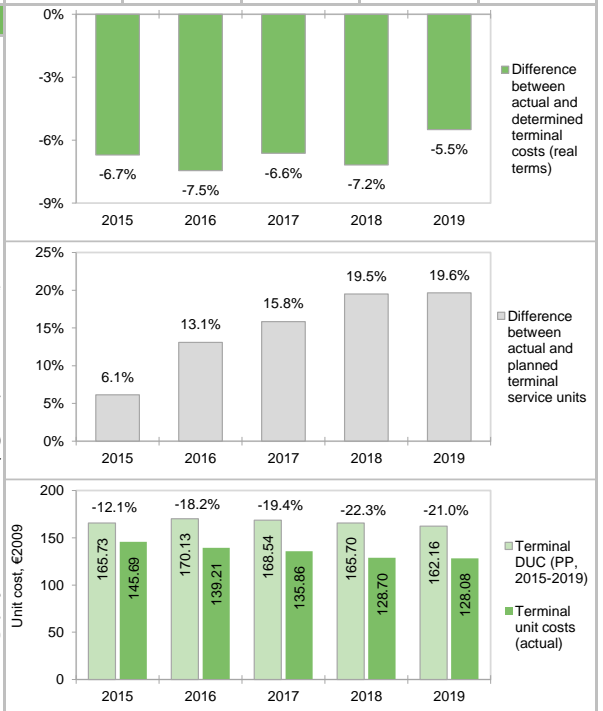
Ex-post, the overall estimated surplus taking into account the net gain from the en-route activity mentioned above (+15.2 M€2009) and the surplus embedded in the actual cost of capital (+4.2 M€2009) amounts to +19.4 M€2009 (18.2% of the 2019 en-route revenues). The resulting ex-post rate of return on equity is 52.6%, which is much higher than the 11.4% planned in the PP.

When considering the whole of RP2 (2015-2019), IAA generated cumulative gains in respect of cost sharing of +42.2 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +19.9 M€2009, which reflects the fact that actual traffic was in general terms +8.2% higher than planned during RP2. Adding the gain of +3.2 M€2009 to be retained by the ATSP in respect of incentives, and the estimated surplus embedded in the en-route cost of capital (+27.7 M€2009 over RP2) leads to an overall estimated surplus of +93.0 M€2009, which corresponds to an average ex-post return on equity of 37.0% (compared to 11.1% as initially planned in the NPP).

**IRELAND: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services						
Ireland TCZ represents 2.4% of the SES terminal ANS determined costs in 2019		Is this TCZ applying traffic risk sharing?		Yes		
ATSP:	IAA	Airports with fewer than 70,000 IFRs ATMs:		2		
National currency:	EUR	Airports with between 70,000 and 225,000 IFRs ATMs:		1		
Number of airports in charging zone in 2019:	3,	of which:	Airports with more than 225,000 IFRs ATMs:		0	
2. Terminal DUC monitoring at Charging Zone level						
Ireland: Data from RP2 Performance Plan						
	2015D	2016D	2017D	2018D	2019D	
Terminal costs (nominal EUR)	24 272 300	25 787 100	26 584 700	27 424 700	28 007 800	
Inflation %	1.1%	1.2%	1.4%	1.7%	1.7%	
Inflation index (100 in 2009)	103.7	105.0	106.4	108.2	110.1	
Real terminal costs (EUR2009)	23 401 621	24 567 276	24 977 462	25 335 966	25 442 140	
Total terminal Service Units	141 200	144 400	148 200	152 900	156 900	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>165.73</b>	<b>170.13</b>	<b>168.54</b>	<b>165.70</b>	<b>162.16</b>	
Ireland: Actual data from Reporting Tables						
	2015A	2016A	2017A	2018A	2019A	
Terminal costs (nominal EUR)	22 332 565	23 207 720	23 880 000	24 245 000	25 011 000	
Inflation %	0.0%	-0.2%	0.3%	0.7%	0.9%	
Inflation index (100 in 2009)	102.3	102.1	102.4	103.1	104.0	
Real terminal costs (EUR2009)	21 833 422	22 734 486	23 323 088	23 514 971	24 041 533	
Total terminal Service Units	149 863	163 305	171 665	182 711	187 709	
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>145.69</b>	<b>139.21</b>	<b>135.86</b>	<b>128.70</b>	<b>128.08</b>	
Difference between Actuals and Planned						
	2015	2016	2017	2018	2019	
Terminal costs (nominal EUR)	in value		-1 939 735	-2 579 380	-2 704 700	-3 179 700
	in %		-8.0%	-10.0%	-10.2%	-11.6%
Inflation %	in p.p.		-1.1 p.p.	-1.4 p.p.	-1.1 p.p.	-1.0 p.p.
Inflation index (100 in 2009)	in p.p.		-1.4 p.p.	-2.9 p.p.	-4.0 p.p.	-5.1 p.p.
Real terminal costs (EUR2009)	in value		-1 568 198	-1 832 789	-1 654 373	-1 820 995
	in %		-6.7%	-7.5%	-6.6%	-7.2%
Total terminal Service Units	in value		8 663	18 905	23 465	29 811
	in %		6.1%	13.1%	15.8%	19.5%
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	in value		<b>-20.04</b>	<b>-30.92</b>	<b>-32.67</b>	<b>-37.00</b>
	in %		<b>-12.1%</b>	<b>-18.2%</b>	<b>-19.4%</b>	<b>-22.3%</b>
3. Focus on terminal at State/Charging Zone level						
This analysis focuses on Ireland Terminal Charging Zone (TCZ) comprising Dublin (EIDW), Cork (EICK) and Shannon (EINN) airports.						
<b>Terminal unit cost</b>						
In 2019, the actual terminal unit cost in real terms (128.08 €2009) is -21.0% lower than planned in the PP (162.16 €2009). This results from the combination of much higher than planned TNSUs (+19.6%) and lower than planned terminal costs in real terms (-5.5%, or -1.4 M€2009).						
<b>Terminal service units</b>						
The traffic risk sharing mechanism applies in Ireland TCZ. The difference between actual and planned TNSUs (+19.6%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (IAA) retaining an amount of +1.1 M€2009.						
<b>Terminal costs</b>						
In nominal terms, actual terminal costs are -10.7% (-3.00 M€) lower than planned. However, since the actual inflation index is also lower than planned (-6.1 p.p.), actual terminal costs are -5.5% (-1.4 M€2009) below plans when expressed in real terms.						
The lower than planned terminal costs in real terms are driven by IAA (-6.2%, or -1.4 M€2009) and the MET service provider (-5.0%, or -0.1 M€2009), while the costs for the NSA (+16.5%, or +0.1 M€2009) are higher than planned. A detailed analysis at ATSP level is provided in box 12.						
There are no costs exempt from cost-sharing reported.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for Ireland TCZ, actual TNSUs are +15.0% higher than planned, while actual costs in real terms are -6.7% lower than the determined costs (some -8.3 M€2009). As a result, the weighted average actual unit cost over RP2 (134.99 €2009) is -18.9% lower than planned in the NPP (166.39 €2009).						



IRELAND: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019

#### 4. Terminal traffic monitoring (Actual 2015-2019 TNSUs compared to PP)

Legend: ▲ PP TNSUs (+/- 2% deadband, +/- 10% threshold) ■ Actual TNSUs

#### 5. Terminal costs monitoring (2019 actuals compared to PP)

Costs by entity at TCZ level:

ATSP	-6.2%
Other ANSPs	-
METSP	-5.0%
NSA	16.5%
Total	-5.5%

Costs by nature at ATSP level:

Staff	-14.6%
Other operating costs	57.5%
Depreciation	-41.7%
Cost of capital	-
Exceptional items	-
VFR exempted flights	-
Total	-6.2%

6. Terminal costs exempt from cost sharing

Estimates ('000 €2009)		2015	2016	2017	2018	2019
by item	Pension	0	0	0	0	0
	Interest rates on loans	0	0	0	0	0
	Taxation law	0	0	0	0	0
	New cost item required by law	0	0	0	0	0
	International agreements	0	0	0	0	0
by entity	ATSP	0	0	0	0	0
	Other ANSP	0	0	0	0	0
	METSP	0	0	0	0	0
	NSA	0	0	0	0	0
<b>Total costs exempt from cost sharing</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

These costs will be recovered from (+) or reimbursed to (-) users if eligible after EC verification.

7. Terminal DUC 2019 vs. 2019 Unit Rate charged to users

Ireland 2019 DUC vs. 2019 Chargeable Unit Rate (CUR) in national currency in nominal terms - EUR

Adjustments charged in 2019 from previous years

The terminal unit rate charged to airspace users (CUR) in 2019 is 150.44 €. This is -15.7% lower than the nominal DUC (178.51 €). The difference between these two figures (-28.07 €) relates to:

- the deduction of other revenues (-2.62 €) coming from Union assistance programmes;
- the inflation adjustment (-6.44 €), corresponding to lower than planned inflation index for 2017, reimbursed to airspace users in 2019;
- a traffic risk sharing adjustment (-17.33 €), which reflects the gain in revenues due to higher than planned traffic in previous years, reimbursed to airspace users in 2019; and
- a traffic adjustment (-1.67 €), for the costs not subject to traffic risk sharing and the related over recovery, reimbursed to airspace users in 2019.

These costs and adjustments are divided by the **forecast** TNSUs for 2019 as laid out in the RP2 performance plan.

8. Terminal DUC 2019 vs. 2019 Actual Unit Cost for users

Ireland 2019 DUC vs. 2019 Actual Unit Cost for users in national currency in nominal terms - EUR

Adjustments generated from activities in 2019

The actual terminal unit cost incurred by airspace users (AUC-U) in respect of activities performed in 2019 (144.35 €) is -19.1% lower than the nominal DUC (178.51 €). The difference between these two figures (-34.16 €) is due to:

- the deduction of other revenues (-2.62 €) (see box 7 above);
- the inflation adjustment (-8.20 €), reflecting the impact of lower than planned inflation index in 2019, which will be reimbursed to airspace users in 2021;
- a traffic risk sharing adjustment (-20.65 €), which reflects the gain in revenues due to higher than planned traffic in 2019, to be reimbursed to airspace users in future years; and
- a traffic adjustment (-2.68 €), for the costs not subject to traffic risk sharing and the related over recoveries, to be reimbursed to airspace users in future years.

These costs and adjustments (**for other revenues see Reader's Guide**) are divided by the **actual** TNSUs in 2019.

## IRELAND: Terminal ATSP (IAA)

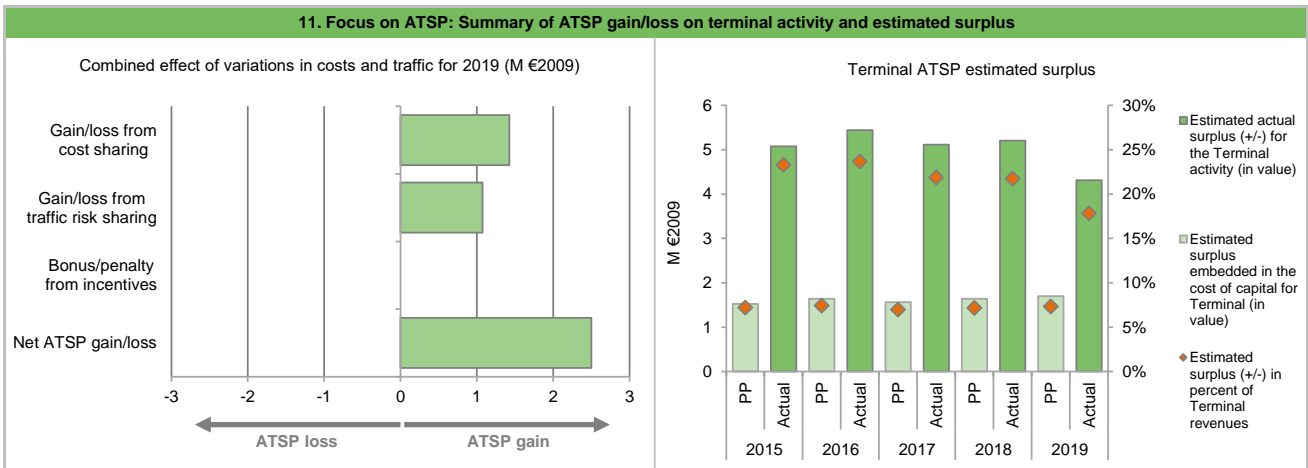
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	21 113	21 994	22 350	22 866	23 111
Actual costs for the ATSP	19 584	20 241	20 710	20 956	21 686
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	1 529	1 752	1 639	1 910	1 425
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>1 529</b>	<b>1 752</b>	<b>1 639</b>	<b>1 910</b>	<b>1 425</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	6.1%	13.1%	15.8%	19.5%	19.6%
Determined costs for the ATSP (PP) - based on actual inflation	21 409	22 615	23 233	24 006	24 455
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>694</b>	<b>995</b>	<b>1 022</b>	<b>1 056</b>	<b>1 076</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>2 223</b>	<b>2 748</b>	<b>2 662</b>	<b>2 966</b>	<b>2 501</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	28 500	30 343	28 431	29 203	30 204
Estimated proportion of financing through equity (in %)	50.0%	50.0%	49.7%	49.3%	49.3%
Estimated proportion of financing through equity (in value)	14 246	15 168	14 135	14 407	14 896
Estimated proportion of financing through debt (in %)	50.0%	50.0%	50.3%	50.7%	50.7%
Estimated proportion of financing through debt (in value)	14 253	15 176	14 296	14 796	15 308
Cost of capital pre-tax (in value)	2 023	2 184	2 104	2 249	2 326
Average interest on debt (in %)	3.5%	3.6%	3.8%	4.1%	4.1%
Interest on debt (in value)	499	546	543	607	628
Determined RoE pre-tax rate (in %)	10.7%	10.8%	11.0%	11.4%	11.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	1 524	1 638	1 560	1 642	1 698
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>1 524</b>	<b>1 638</b>	<b>1 560</b>	<b>1 642</b>	<b>1 698</b>
<b>Revenue/costs for the terminal activity</b>	<b>21 113</b>	<b>21 994</b>	<b>22 350</b>	<b>22 866</b>	<b>23 111</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>7.2%</b>	<b>7.4%</b>	<b>7.0%</b>	<b>7.2%</b>	<b>7.3%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>10.7%</b>	<b>10.8%</b>	<b>11.0%</b>	<b>11.4%</b>	<b>11.4%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	26 685	24 950	22 241	19 653	15 885
Estimated proportion of financing through equity (in %)	100.0%	100.0%	100.0%	100.0%	100.0%
Estimated proportion of financing through equity (in value)	26 685	24 950	22 241	19 653	15 886
Estimated proportion of financing through debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated proportion of financing through debt (in value)	0	0	0	0	0
Cost of capital pre-tax (in value)	2 855	2 695	2 455	2 240	1 811
Average interest on debt (in %)	0.0%	0.0%	0.0%	0.0%	0.0%
Interest on debt (in value)	0	0	0	0	0
Determined RoE pre-tax rate (in %)	10.7%	10.8%	11.0%	11.4%	11.4%
Estimated surplus embedded in the cost of capital for terminal (in value)	2 855	2 695	2 455	2 240	1 811
Net ATSP gain(+)/loss(-) on terminal activity	2 223	2 748	2 662	2 966	2 501
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>5 078</b>	<b>5 442</b>	<b>5 117</b>	<b>5 207</b>	<b>4 312</b>
<b>Revenue/costs for the terminal activity</b>	<b>21 807</b>	<b>22 989</b>	<b>23 372</b>	<b>23 923</b>	<b>24 187</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>23.3%</b>	<b>23.7%</b>	<b>21.9%</b>	<b>21.8%</b>	<b>17.8%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>19.0%</b>	<b>21.8%</b>	<b>23.0%</b>	<b>26.5%</b>	<b>27.1%</b>



**IRELAND: Terminal ATSP (IAA)**

**Monitoring of terminal COST-EFFICIENCY for 2019**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 IAA terminal costs vs. PP**

In 2019, IAA actual terminal costs are -6.2% (-1.4 M€2009) lower, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- lower staff costs (-14.6%, or -1.6 M€2009) "due to higher than expected departures, retirements and recruitment occurring later than anticipated . There is significant recruitment of ATCO programmes and recruitment in other operational areas ongoing";
- much higher other operating costs (+57.5%, or +2.7 M€2009) mostly due to "a write off of terminal debtors of €2.7million in 2019". Otherwise "the IAA has strong procurement and budgeting procedures with competitive quotes being sought on significant tangible transactions. Operating budgets are actively monitored throughout the year";
- much lower depreciation costs (-41.7%, or -2.0 M€2009) "because the actual capital spend was 35% lower than the amount allowed in the RP2 plan (...). Lower capex spend during the RP2 period was due to staff being redeployed from project development to dealing with the higher than forecast traffic"; and
- much lower cost of capital (-22.1%, or -0.5 M€2009) "similar to the depreciation cost, the lower actual cost of capital is the result of lower actual capital spend".

**IAA net gain/loss on terminal activity in 2019**

As shown in box 9, IAA generated a net gain of +2.5 M€2009 on the terminal activity. This is a combination of two elements:

- a gain of +1.4 M€2009 arising from the cost sharing mechanism; and
- a gain of +1.1 M€2009 arising from the traffic risk sharing mechanism.

**IAA overall estimated surplus for the terminal activity**

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+2.5 M€2009) and the surplus embedded in the actual cost of capital (+1.8 M€2009) amounts to +4.3 M€2009 (17.8% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 27.1%, which is much higher than the 11.4% planned in the PP.

When considering the whole of RP2 (2015-2019), IAA generated cumulative gains in respect of cost sharing of +8.3 M€2009, as actual total costs for RP2 were lower than planned. The traffic risk sharing generated a gain of +4.8 M€2009, which reflects the fact that actual traffic was in general terms +15.0% higher than planned during RP2. Adding the estimated surplus embedded in the terminal cost of capital (+12.1 M€2009 over RP2) leads to an overall estimated surplus of +25.2 M€2009, which corresponds to an average ex-post return on equity of 23.0% (compared to 11.1% as initially planned in the NPP).

## IRELAND: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																																												
<b>Ireland: Data from RP2 Performance Plan</b>																																												
	<b>2015D</b>	<b>2016D</b>	<b>2017D</b>	<b>2018D</b>	<b>2019D</b>																																							
Real en-route costs (EUR2009)	113 811 728	115 644 664	118 001 964	119 511 684	118 798 780																																							
Real terminal costs (EUR2009)	23 401 621	24 567 276	24 977 462	25 335 966	25 442 140																																							
Real gate-to-gate costs (EUR2009)	137 213 349	140 211 940	142 979 426	144 847 650	144 240 920																																							
En-route share (%)	82.9%	82.5%	82.5%	82.5%	82.4%																																							
<b>Ireland: Actual data from Reporting Tables</b>																																												
	<b>2015A</b>	<b>2016A</b>	<b>2017A</b>	<b>2018A</b>	<b>2019A</b>																																							
Real en-route costs (EUR2009)	104 273 918	106 330 301	111 130 414	114 220 979	109 937 794																																							
Real terminal costs (EUR2009)	21 833 422	22 734 486	23 323 088	23 514 971	24 041 533																																							
Real gate-to-gate costs (EUR2009)	126 107 341	129 064 787	134 453 503	137 735 950	133 979 327																																							
En-route share (%)	82.7%	82.4%	82.7%	82.9%	82.1%																																							
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																																												
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>																																							
Real gate-to-gate costs (EUR2009) in value	-11 106 008	-11 147 153	-8 525 923	-7 111 700	-10 261 593																																							
in %	-8.1%	-8.0%	-6.0%	-4.9%	-7.1%																																							
En-route share in p.p.	-0.3 p.p.	-0.1 p.p.	0.1 p.p.	0.4 p.p.	-0.3 p.p.																																							
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																																												
<p>In 2019, actual gate-to-gate ANS costs are -7.1% (-10.3 M€2009) lower than planned due to lower than planned en-route costs (-7.5%, or -8.9 M€2009) and terminal costs (-5.5%, or -1.4 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (82.1%) is in line with that planned in the PP for 2019 (82.4%).</p> <p>For IAA, the estimated gate-to-gate economic surplus in 2019 amounts to 23.8 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 18.2% of gate-to-gate ANS revenues.</p>																																												
<table border="1"> <caption>Data for Figure 2: Share of en-route and terminal in gate-to-gate actual costs (2019)</caption> <thead> <tr> <th>Year</th> <th>Type</th> <th>En-route (%)</th> <th>Terminal (%)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2015</td> <td>Determined</td> <td>82.9%</td> <td>17.1%</td> </tr> <tr> <td>Actual</td> <td>82.7%</td> <td>17.3%</td> </tr> <tr> <td rowspan="2">2016</td> <td>Determined</td> <td>82.5%</td> <td>17.5%</td> </tr> <tr> <td>Actual</td> <td>82.4%</td> <td>17.6%</td> </tr> <tr> <td rowspan="2">2017</td> <td>Determined</td> <td>82.5%</td> <td>17.5%</td> </tr> <tr> <td>Actual</td> <td>82.7%</td> <td>17.3%</td> </tr> <tr> <td rowspan="2">2018</td> <td>Determined</td> <td>82.5%</td> <td>17.5%</td> </tr> <tr> <td>Actual</td> <td>82.9%</td> <td>17.1%</td> </tr> <tr> <td rowspan="2">2019</td> <td>Determined</td> <td>82.4%</td> <td>17.6%</td> </tr> <tr> <td>Actual</td> <td>82.1%</td> <td>17.9%</td> </tr> </tbody> </table>						Year	Type	En-route (%)	Terminal (%)	2015	Determined	82.9%	17.1%	Actual	82.7%	17.3%	2016	Determined	82.5%	17.5%	Actual	82.4%	17.6%	2017	Determined	82.5%	17.5%	Actual	82.7%	17.3%	2018	Determined	82.5%	17.5%	Actual	82.9%	17.1%	2019	Determined	82.4%	17.6%	Actual	82.1%	17.9%
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<b>3. Technical notes on en-route and terminal information reported by Ireland</b>																																												

## IRELAND

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: IAA						
FAB: UK-Ireland FAB						
Currency: EUR						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	14.2	18.1	40.0	21.4	16.8	110.4
Main CAPEX (in nominal M)	8.1	11.5	37.6	21.0	15.8	93.8
Inflation %	1.1%	1.2%	1.4%	1.7%	1.7%	
Inflation index (100 in 2009)	103.7	105.0	106.4	108.2	110.1	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>13.7</b>	<b>17.2</b>	<b>37.6</b>	<b>19.8</b>	<b>15.2</b>	<b>103.4</b>
Main CAPEX (in M €2009)	7.8	10.9	35.3	19.4	14.3	87.7
% Main of Total CAPEX	56.8%	63.4%	94.0%	98.0%	94.1%	84.8%
Real gate-to-gate ANSP costs (in M €2009)	118.0	119.4	121.8	124.4	124.4	607.8
Total CAPEX as % of Real gate-to-gate ANSP costs	11.6%	14.4%	30.9%	15.9%	12.2%	17.0%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	10.5	5.5	7.2	9.6	7.4	40.3
Main CAPEX (in nominal M)	7.9	3.3	3.9	7.0	4.8	26.9
Inflation %	0.0%	-0.2%	0.3%	0.7%	0.9%	
Inflation index (100 in 2009)	102.3	102.1	102.4	103.1	104.0	
Exchange rate 2009	1	1	1	1	1	
<b>Total CAPEX (in M €2009)</b>	<b>10.3</b>	<b>5.4</b>	<b>7.1</b>	<b>9.3</b>	<b>7.2</b>	<b>39.2</b>
Main CAPEX (in M €2009)	7.7	3.3	3.8	6.7	4.6	26.1
% Main of Total CAPEX	75.6%	60.6%	53.3%	72.8%	64.4%	66.8%
Real gate-to-gate ANSP costs (in M €2009)	107.1	108.3	112.8	116.0	113.1	557.4
Total CAPEX as % of Real gate-to-gate ANSP costs	9.6%	5.0%	6.3%	8.0%	6.3%	7.0%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-3.7	-12.6	-32.7	-11.8	-9.3	-70.1
Total CAPEX (in M €2009)	-3.4	-11.8	-30.5	-10.5	-8.1	-64.3
<b>Total CAPEX (in %, M €2009)</b>	<b>-25.1%</b>	<b>-68.6%</b>	<b>-81.2%</b>	<b>-53.0%</b>	<b>-52.9%</b>	<b>-62.1%</b>

Year	Planned CAPEX (M €2009)	Actual CAPEX (M €2009)	Percentage Difference
2015	13.7	10.3	-25.1%
2016	17.2	5.4	-68.6%
2017	37.6	7.1	-81.2%
2018	19.8	9.3	-53.0%
2019	15.2	7.2	-52.9%

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# **Annual Monitoring Report 2019**

Local level view  
United Kingdom

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## UNITED KINGDOM

## Monitoring of SAFETY for 2019

Effectiveness of Safety Management						
	Score	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion	Safety Culture
State level	89	C	C	D	C	E
NATS NERL	87	D	D	D	D	D
Note: For State level, Q3.8 and Safety Culture is self-assessed. ANSP results are verified by the State.						
Application of the severity classification of the Risk Analysis Tool (RAT)						
	RAT application (%)					
	ATM Ground	ATM Overall				
Separation Minima Infringements (SMIs)	100%	100%				
Runway Incursions (RIs)	67%	80%				
ATM Specific Occurrences (ATM-S)		100%				
Source of RAT data:	UK CAA					
Note: The No of reported occurrences applicable to the RP2 Scope for the RAT application (AA-A to C and airports above 70k ATM movements)						
Just culture						
State level	Number of questions answered					
	YES	NO				
Policy and its implementation	9	0				
Legal/Judiciary	7	0				
Occurrence reporting and Investigation	2	0				
<b>TOTAL</b>	<b>18</b>	<b>0</b>				
NATS NERL	Number of questions answered					
	YES	NO				
Policy and its implementation	12	1				
Legal/Judiciary	3	0				
Occurrence reporting and Investigation	7	1				
<b>TOTAL</b>	<b>22</b>	<b>2</b>				
Observations						
Targets on both State and ANSP EoSM were met.						
With regards application of RAT, data recieved from the AST mechanism show performance below targets in the application of RAT to RI ground (ANPS's responsibility)						

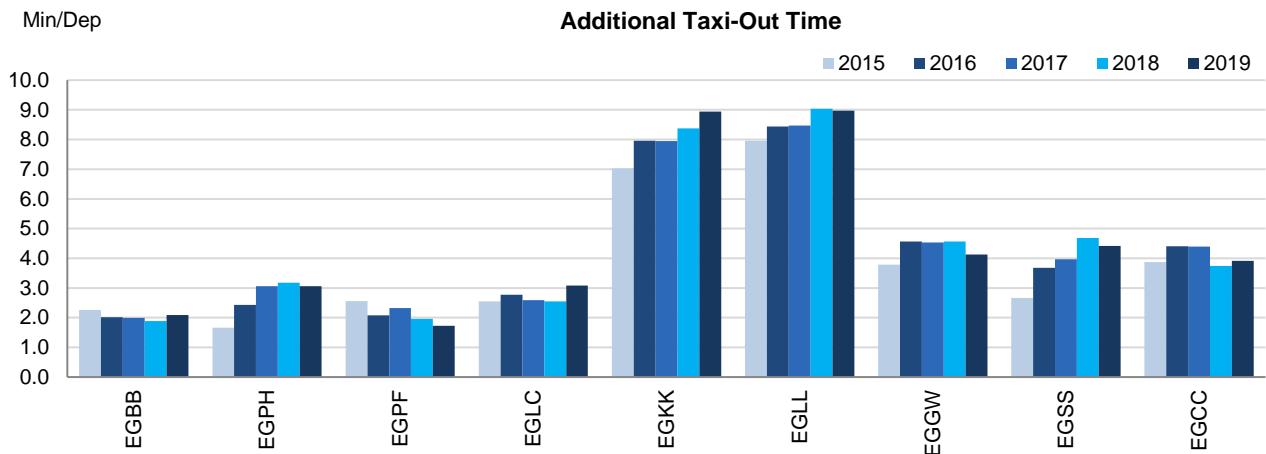
**UNITED KINGDOM**

**Monitoring of Airports Contribution to ENVIRONMENT for 2019**

**1. Overview**

There are nine airports in the United Kingdom subject to RP2 monitoring and all of them have at this point implemented the Airport Operator Data Flow that allows for the correct monitoring. The evolution of traffic at these airports during RP2 varies from one airport to another, with Luton showing the highest increase (+22%) with respect to 2015 while at Heathrow there has been almost no change (+1%) or at Glasgow there is a decrease (-2%) in traffic with respect to 2015. The performance shown is directly related at some airports to the airport capacity/utilisation objectives, that are prioritised over other operational measures such as taxi-out time and time in the terminal area.

**2. Additional Taxi-Out Time**

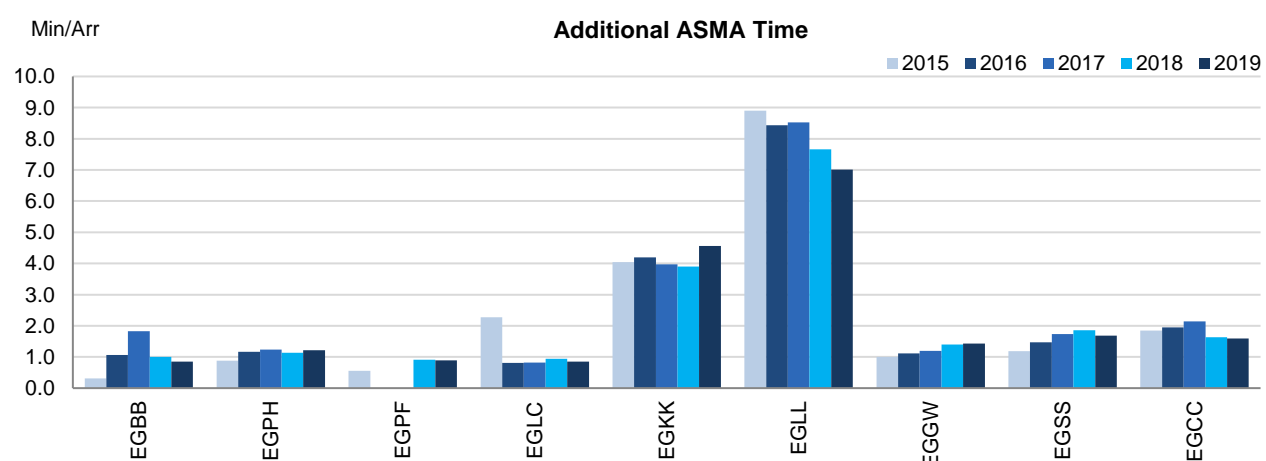


There is little variation in the additional taxi-out times at most UK airports with respect to 2017. The only noticeable changes are the increase observed once more at Gatwick (EGKK; 2018: 8.37 min/dep.; 2019: 8.94 min/dep.), and London City (EGLC; 2018: 2.55 min/dep.; 2019: 3.08 min/dep.); and the improvement at Luton (EGGW; 2018: 4.56 min/dep.; 2019: 4.13 min/dep.) and Stansted (EGSS; 2018: 4.68 min/dep.; 2019: 4.42 min/dep.).

Heathrow and Gatwick stand out once more with the highest times of SES airports in RP2 and up to 5 minutes above the RP2 average (3.56 min/dep.); and Stansted (EGSS), Luton (EGGW), London City (EGLC) and Edinburgh (EGPH) show also higher additional taxi-out times than similar airports in terms of movements.

UK-Ireland FAB's monitoring report notes that taxi out time is affected by a number of factors. Where airport operators have capacity and utilisation performance objectives, the ANSP may be required to prioritise these over other operational measures like taxi out time.

**3. Additional ASMA Time**





UK-Ireland FAB monitoring report mentions that additional time in terminal airspace decreased at 5 out of the 8 recorded airports in 2019 (Birmingham, Manchester, Heathrow, Glasgow and Stansted) compared to 2018.

Nevertheless, in fact the additional ASMA times at UK airports have not changed significantly in general with respect to 2018. The most noticeable is the improvement once more at Heathrow (EGLL; 2018: 7.66 min/arr.; 2019: 7.01 min/arr.) probably thanks to the implementation of the enhanced Time Based Separations (eTBS) using the RECAT-EU in March 2018, having the first trimester of 2018 much longer additional times than the first trimester of 2019. Gatwick on the other hand shows a significant deterioration (EGKK; 2018: 3.9 min/arr.; 2019: 4.56 min/arr.) in line with the deterioration of additional taxi-out times and even ATFM delays.

Despite the progressive improvements observed in the last years at Heathrow, it remains (followed by Gatwick) the airport in Europe with the longest additional ASMA times.

#### 4. Appendix

n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Additional taxi-out time					Additional ASMA time				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Birmingham	EGBB	2.26	2.01	1.99	1.89	2.09	0.31	1.06	1.83	1.00	0.85
Edinburgh	EGPH	1.66	2.43	3.06	3.18	3.06	0.88	1.17	1.24	1.13	1.22
Glasgow	EGPF	2.56	2.08	2.32	1.96	1.73	0.56	n/a	n/a	0.91	0.89
London/ City	EGLC	2.55	2.77	2.59	2.55	3.08	2.27	0.81	0.82	0.94	0.85
London/ Gatwick	EGKK	7.03	7.96	7.95	8.37	8.94	4.04	4.20	3.97	3.90	4.56
London/ Heathrow	EGLL	7.96	8.44	8.47	9.04	8.97	8.90	8.43	8.53	7.66	7.01
London/ Luton	EGGW	3.79	4.56	4.53	4.56	4.13	1.00	1.11	1.20	1.40	1.43
London/ Stansted	EGSS	2.67	3.68	3.97	4.68	4.42	1.19	1.47	1.73	1.86	1.68
Manchester	EGCC	3.87	4.41	4.39	3.74	3.91	1.85	1.95	2.14	1.63	1.59

**UNITED KINGDOM**

**Monitoring of CAPACITY for 2019**

En route Capacity incentive scheme						
	2015	2016	2017	2018	2019	Observations
National Capacity target	0.22	0.23	0.23	0.23	0.23	Actual performance reported here is for all causes of delay and includes NM post operations adjustment. The FAB incentive scheme only considers CRSTMP delays.
Deadband +/-	n/a	n/a	n/a	n/a	n/a	
Actual performance	0.08	0.31	0.16	0.28	0.21	

**National capacity incentive scheme**

NERL C2 incentive par value based on CRSTMP delays only =0,18. Deadband 0,14-0,20

Actual CRSTMP performance in 2019 = 0,15 - falls within deadband.

No bonus is due.

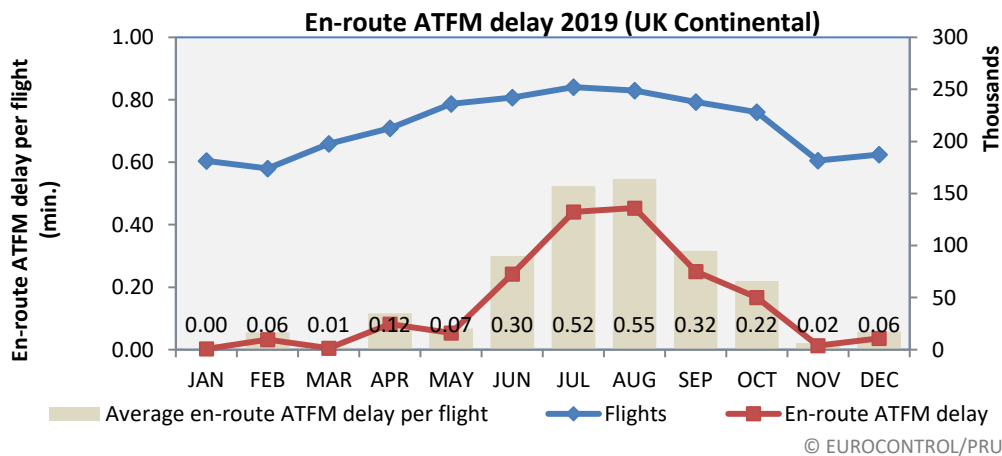
**Additional national capacity incentive schemes**

The UK IRL FAB performance plan also contains details of two further capacity related incentive schemes in the United Kingdom: C3 - related to high impact of long and early delays; C4 - related to days with severe disruption (penalty only).

C3: The United Kingdom report the achievement of a value of 15,95, better than the deadband of 16.0 – 27.0, which means that a bonus is due. Maximum bonus associated with C3 is 0,75% of ANSP revenue- in 2019 the bonus is equivalent to 0,025% of NERL 2019 revenue = £184,248

No penalty was incurred because of severe disruption in accordance with the C4 incentive scheme.

**Observations regarding national capacity performance**



En-route ATFM delay per flight											
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0.54	0.17	0.15	0.19	0.07	0.13	0.06	0.08	0.31	0.16	0.28	0.21

EUROCONTROL 7 year traffic forecast February 2014												
	2014		2015		2016		2017		2018		2019	
	actual		actual		actual		actual		actual		actual	
High	2 265		2 329		2 405		2 468		2 537		2 608	
Base	2 242	<b>2 269</b>	2 294	<b>2 322</b>	2 339	<b>2 449</b>	2 377	<b>2 534</b>	2 420	<b>2 558</b>	2 465	<b>2 580</b>
Low	2 218		2 248		2 265		2 279		2 298		2 318	

Traffic growth in the UK was marginal for 2019, at less than 1%, to just below the high traffic scenario forecasted by STATFOR in 2014 when the FAB performance plans and associated capacity plans were developed.

38% of delays were attributed to ATC staffing; 33% to adverse weather and 24% were attributed to ATC capacity. Actual delays, even though achieving the national target, were significantly higher than predicted in the NOP 2019 - 2024.

Delay forecast - NATS						
	2019	2020	2021	2022	2023	2024
<b>NOP 2018 - 2022</b>	0.16	0.16	0.13	0.12	N/A	N/A
<b>NOP 2019 - 2024</b>	0.14	0.21	0.15 - 0.24			

### Planning and Effective Use of CDRs

The United Kingdom did not provide any data on this indicator reporting that the Network Manager holds the data.

### Observations on Planning and Effective Use of CDRs

The PRB has previously suggested that the use of such indicators should be reviewed in light of the increasing irrelevance as Free Route Airspace operations becomes more widespread through the network.

### Effective booking procedures

share of restricted/segregated time that was actually used				
2015	2016	2017	2018	2019
38%	39%	32%	34%	46%

share of restricted/segregated time released with 3 hours' notice				
2015	2016	2017	2018	2019
7%	9%	9%	6%	16%

share of restricted/segregated time (via UUP process) that was actually used				
2015	2016	2017	2018	2019
N/A	N/A	N/A	N/A	N/A

### Observations on Effective booking procedures

The PRB is not aware of any performance related benefits from monitoring this specific indicator and is unaware of any national efforts to change the value of the indicator.

**UNITED KINGDOM**

**Monitoring of Airports Contribution to CAPACITY for 2019**

**1. Overview**

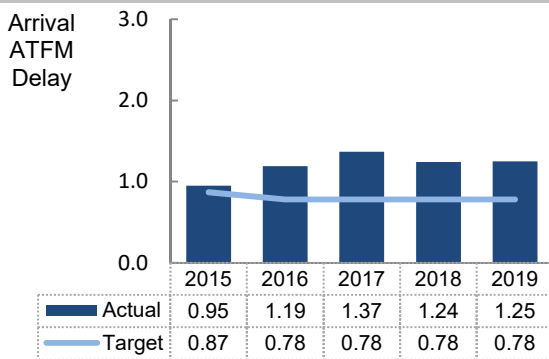
The United Kingdom identifies 9 airports as subject to RP2 monitoring, where traffic levels have moderately increased during RP2 (+8.4% with respect to 2015).

In terms of arrival ATFM delays, values are significantly higher than those in the beginning of the reference period (+31.8% in 2019 with respect to 2015). On the positive side, ATFM slot adherence has improved by more than 4 points (2015: 90.7%; 2019: 95.0%) reaching the best-in-class performance threshold of 95% compliance.

The established national target on arrival ATFM delay has been missed every year of RP2.

The analysis of ATC pre-departure delay at three airports is still not possible due to data quality issues.

**2. Arrival ATFM Delay**



During 2019, arrival ATFM delays in United Kingdom have not changed much with respect to the previous year (2018: 1.24 min/arr, 2019: 1.25 min/arr)

At airport level, the most significant evolutions are observed at London City where delays have drastically increased (EGLC; 2018: 1.25 min/arr.;2019: 2.74 min/arr.) and Stansted where the delays have significantly reduced in the past year (EGSS; 2018: 1.25 min/arr.;2019: 0.37 min/arr.).

Most of the delays are concentrated at London airports, with Gatwick and London City showing the highest values (and the 6th and 7th highest arrival ATFM delays in the SES monitored airports)

58% of the arrival ATFM delays in UK are attributed to Weather, 21% are attributed to Aerodrome Capacity and 14% to ATC Capacity issues. At Gatwick (EGKK), London City (EGLC) and Luton (EGGW), the delays are quite equally distributed between Aerodrome Capacity and Weather, while at Heathrow (EGLL) and Stansted (EGSS) weather is the main contributor. According to the Network Operations Report for 2019, the airport capacity issues at London City can be traced back to stand availability issues. Stand allocation and schedule adherence are also generating some of the delays at Gatwick.

Delays associated to ATC Capacity constraints are observed at all London airports except London City, where on the other hand 17% of the delays are related to ATC Staffing issues.

**3. Arrival ATFM Delay – National Target and Incentive Scheme**

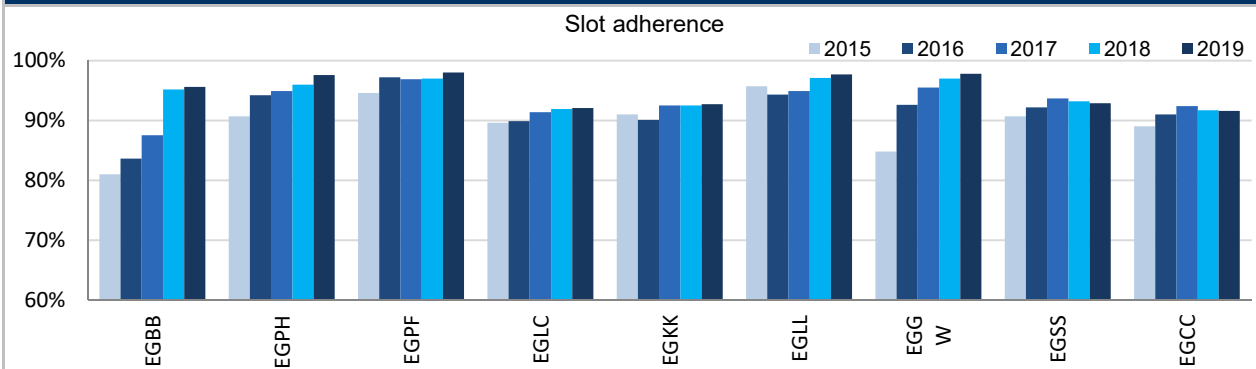
The UK-Ireland FAB PP establishes a national target on arrival ATFM delay for the United Kingdom with a breakdown per airport.

Despite the slight improvement, the national target is missed for the fourth year in a row (2018: PP= 0.78 min/arr. vs Actual= 1.24 min/arr.).

Heathrow (EGLL), Manchester (EGCC), London City (EGLC), Glasgow (EGPF) and Edinburgh (EGPH) meet their PP's reference value. Gatwick (EGKK), which performance has significantly improved in 2018, still exceeds its reference value by a factor of 4.7, with 2.71 min/arr.

The UK-Ireland FAB performance plan presents no (capacity) incentive scheme for the national target on arrival ATFM delay for The United Kingdom.

**4. ATFM Slot Adherence**



Overall adherence to ATFM slots in the UK has increased over RP2, and currently all of them surpass the 90% compliance.

### 5. ATC Pre-departure Delay

The Airport Operator Data Flow required for the monitoring of the ATC pre-departure delay is now finally established for all British airports under RP2 after the implementation at London City (EGLC) in 2018. Nevertheless, at Heathrow (EGLL), Edinburgh (EGPH) and Stansted (EGSS) the quality of the pre-departure delay reporting does not allow for the calculation of this indicator, due to a high share of unreported delay and/or associated to ambiguity codes. Attention should be paid to the quality of the reporting by the airports on a monthly basis, as the share of unidentified delay is putting at risk the calculation of the indicator at some airports.

Regarding the observed performance, the most significant evolution is observed at Gatwick where ATC pre-departure delay, in line with the capacity issues identified, has significantly deteriorated in 2019 and is now the 5th highest in the SES area.

### 6. Appendix

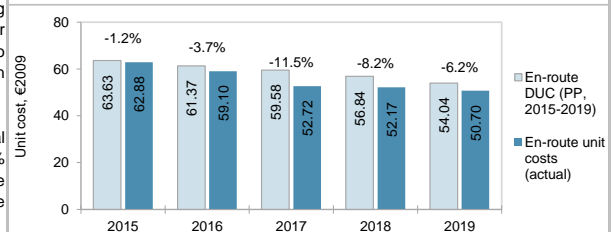
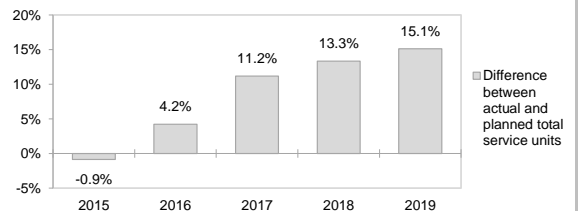
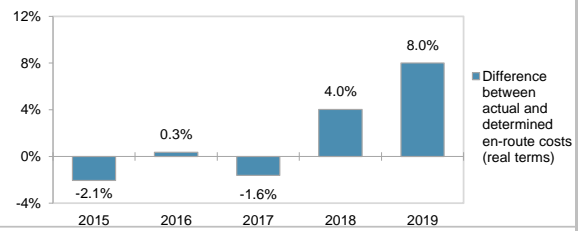
n/a: airport operator data flow not established, or more than two months of missing / non-validated data

Airport Name	ICAO Code	Avg arrival ATFM delay					Slot adherence					ATC pre-departure delay				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Birmingham	EGBB	0.00	0.06	0.23	0.08	0.02	81.0%	83.6%	87.5%	95.2%	95.6%	0.19	0.23	0.30	0.25	0.25
Edinburgh	EGPH	0.00	0.02	0.00	0.07	0.07	90.7%	94.2%	94.9%	96.0%	97.6%	0.20	0.24	0.33	0.34	n/a
Glasgow	EGPF	0.02	0.00	0.04	0.00	0.05	94.6%	97.2%	96.9%	97.0%	98.0%	n/a	n/a	n/a	0.13	0.12
London/ City	EGLC	0.97	1.77	1.57	1.25	2.74	89.6%	89.9%	91.4%	91.9%	92.1%	n/a	n/a	n/a	0.35	0.29
London/ Gatwick	EGKK	1.03	2.41	3.18	2.71	2.86	91.0%	90.1%	92.5%	92.5%	92.7%	0.74	1.21	n/a	0.94	1.48
London/ Heathrow	EGLL	2.12	1.86	1.92	1.84	1.82	95.7%	94.3%	94.9%	97.1%	97.7%	n/a	n/a	n/a	n/a	n/a
London/ Luton	EGGW	0.28	0.83	0.55	0.55	0.76	84.8%	92.6%	95.5%	97.0%	97.8%	n/a	n/a	n/a	0.37	0.35
London/ Stansted	EGSS	0.34	0.81	0.93	1.25	0.37	90.7%	92.2%	93.7%	93.2%	92.9%	0.56	0.99	1.13	1.33	n/a
Manchester	EGCC	0.25	0.10	0.52	0.14	0.12	89.0%	91.0%	92.4%	91.7%	91.6%	0.69	0.68	0.94	n/a	0.85

## UNITED KINGDOM: En-route charging zone

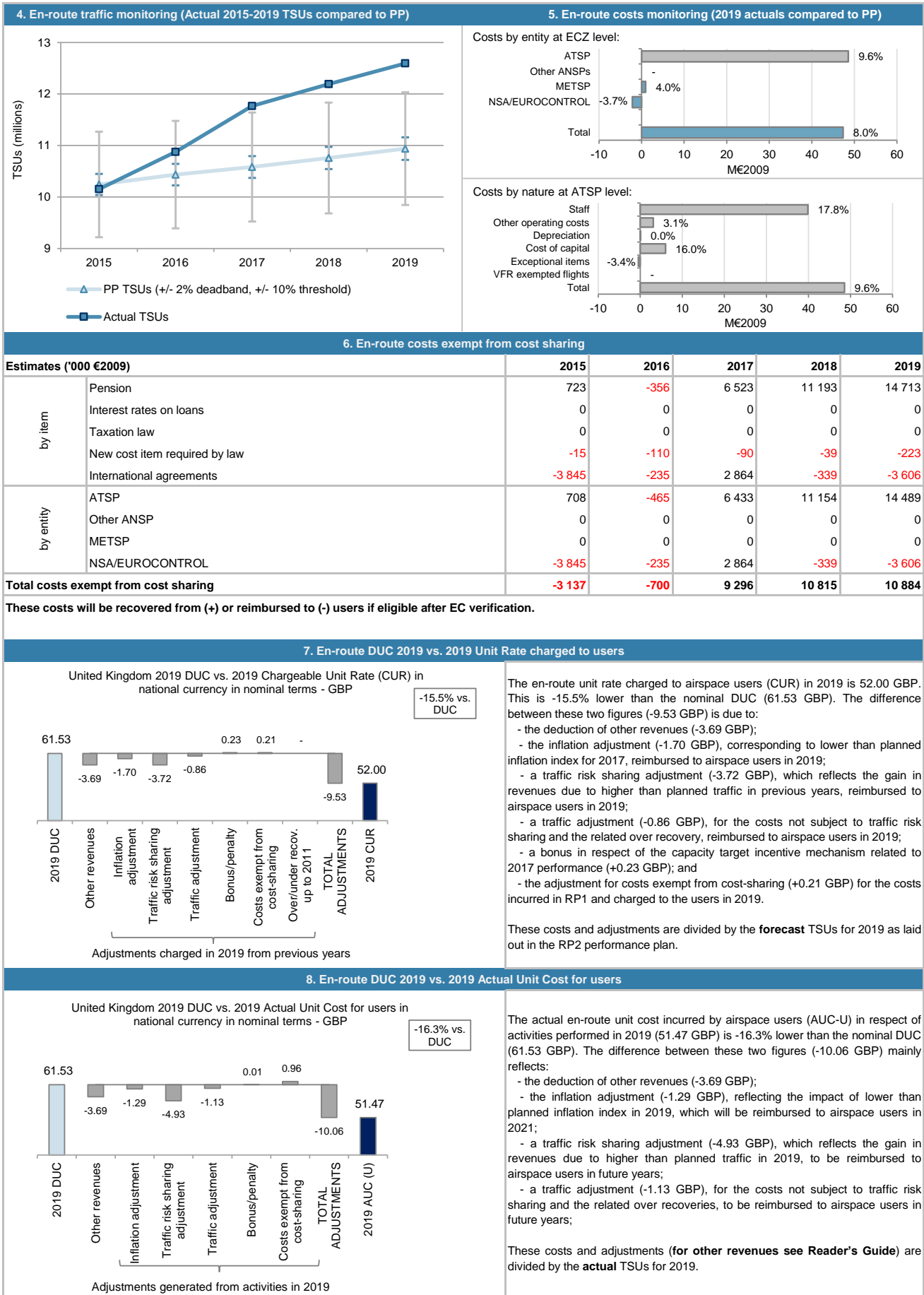
## Monitoring of en-route COST-EFFICIENCY for 2019

1. Contextual economic information: en-route air navigation services						
· United Kingdom ECZ represents 9.8% of the SES en-route ANS determined costs in 2019						
· ATSP: NATS						
· FAB: UK-Ireland FAB						
· National currency: GBP Exchange rate 2009: 1 EUR = 0.890647 GBP						
2. En-route DUC monitoring at Charging Zone level						
United Kingdom: Data from RP2 Performance Plan (EC Decision 2015/348 of 2 March 2015)	2015D	2016D	2017D	2018D	2019D	
En-route costs (nominal GBP)	686 348 218	687 119 724	690 004 230	682 569 359	673 089 111	
Inflation %	1.9%	1.9%	2.0%	2.0%	2.0%	
Inflation index (100 in 2009)	118.2	120.5	122.9	125.3	127.8	
Real en-route costs (GBP2009)	580 582 809	570 397 867	561 561 156	544 617 914	526 523 219	
Total en-route Service Units	10 244 000	10 435 000	10 583 000	10 758 000	10 940 000	
<b>Real en-route unit cost per Service Unit (GBP2009)</b>	<b>56.68</b>	<b>54.66</b>	<b>53.06</b>	<b>50.62</b>	<b>48.13</b>	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>63.63</b>	<b>61.37</b>	<b>59.58</b>	<b>56.84</b>	<b>54.04</b>	
United Kingdom: Actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A	
En-route costs (nominal GBP)	657 371 514	666 364 998	660 595 580	694 359 079	709 483 445	
Inflation %	0.0%	0.7%	2.7%	2.5%	1.8%	
Inflation index (100 in 2009)	115.6	116.4	119.6	122.5	124.8	
Real en-route costs (GBP2009)	568 620 282	572 392 813	552 518 998	566 593 782	568 698 620	
Total en-route Service Units	10 153 900	10 874 798	11 767 621	12 194 153	12 593 899	
<b>Real en-route unit cost per Service Unit (GBP2009)</b>	<b>56.00</b>	<b>52.63</b>	<b>46.95</b>	<b>46.46</b>	<b>45.16</b>	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>62.88</b>	<b>59.10</b>	<b>52.72</b>	<b>52.17</b>	<b>50.70</b>	
Difference between Actuals and Planned	2015	2016	2017	2018	2019	
En-route costs (nominal GBP)	-28 976 704	-20 754 726	-29 408 650	11 789 720	36 394 334	
in %	-4.2%	-3.0%	-4.3%	1.7%	5.4%	
Inflation %	-1.9 p.p.	-1.2 p.p.	0.7 p.p.	0.5 p.p.	-0.2 p.p.	
Inflation index (100 in 2009)	-2.6 p.p.	-4.0 p.p.	-3.3 p.p.	-2.8 p.p.	-3.1 p.p.	
Real en-route costs (GBP2009)	-11 962 527	1 994 945	-9 042 158	21 975 868	42 175 401	
in %	-2.1%	0.3%	-1.6%	4.0%	8.0%	
Total en-route Service Units	-90 100	439 798	1 184 621	1 436 153	1 653 899	
in %	-0.9%	4.2%	11.2%	13.3%	15.1%	
<b>Real en-route unit cost per Service Unit (GBP2009)</b>	<b>in value</b>	<b>-0.68</b>	<b>-2.03</b>	<b>-6.11</b>	<b>-4.16</b>	<b>-2.97</b>
<b>in %</b>	<b>-1.2%</b>	<b>-3.7%</b>	<b>-11.5%</b>	<b>-8.2%</b>	<b>-6.2%</b>	
<b>Real en-route unit cost per Service Unit (EUR2009)</b>	<b>in value</b>	<b>-0.76</b>	<b>-2.28</b>	<b>-6.86</b>	<b>-4.67</b>	<b>-3.34</b>
<b>in %</b>	<b>-1.2%</b>	<b>-3.7%</b>	<b>-11.5%</b>	<b>-8.2%</b>	<b>-6.2%</b>	
3. Focus on en-route at State/Charging Zone level						
<b>En-route unit cost</b>						
In 2019, the actual en-route unit cost in real terms (45.16 GBP2009 or 50.70 €2009) is -6.2% lower than planned in the PP (48.13 GBP2009 or 54.04 €2009). This results from the combination of much higher than planned TSUs (+15.1%) and higher than planned en-route costs in real terms (+8.0%, or +47.4 M€2009).						
<b>En-route service units</b>						
The difference between actual and planned TSUs (+15.1%) exceeds the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en-route revenues is therefore shared between the ATSP and the airspace users, with the ATSP (NATS) retaining an amount of +22.9 M€2009.						
<b>En-route costs</b>						
In nominal terms, actual en-route costs are +5.4% (+36.4 MGBP) higher than planned. However, since the actual inflation index is lower than planned (-3.1 p.p.), actual en-route costs are +8.0% (+47.4 M€2009) above plans when expressed in real terms.						
The higher than planned en-route costs in real terms are driven by NATS (+9.6%, or +48.6 M€2009) and the MET service provider (+4.0%, or +1.0 M€2009), while the costs for the NSAEUROCONTROL (-3.7%, or -2.2 M€2009) are lower than planned. A detailed analysis at ATSP level is provided in box 12.						
Costs exempt from cost-sharing are reported for a total amount of +10.9 M€2009 comprising +14.7 M€2009 for pension, -0.2 M€2009 for new cost item required by law and -3.6 M€2009 for the variation in EUROCONTROL costs. These costs will be eligible for carry-over (charged to airspace users) to the following reference period(s), if deemed allowed by the European Commission.						
<b>RP2 summary</b>						
When considering the whole of RP2 (2015-2019) for the United Kingdom charging zone, actual en-route TSUs are +8.7% higher than planned, while actual costs in real terms are also +1.6% higher than the determined costs (some +50.7 M€2009). As a result, the weighted average actual unit cost over RP2 (49.12 GBP2009 or 55.16 €2009) is -6.5% lower than planned in the NPP (52.56 GBP2009 or 59.02 €2009).						



UNITED KINGDOM: En-route charging zone

Monitoring of en-route COST-EFFICIENCY for 2019



## UNITED KINGDOM: En-route ATSP (NATS)

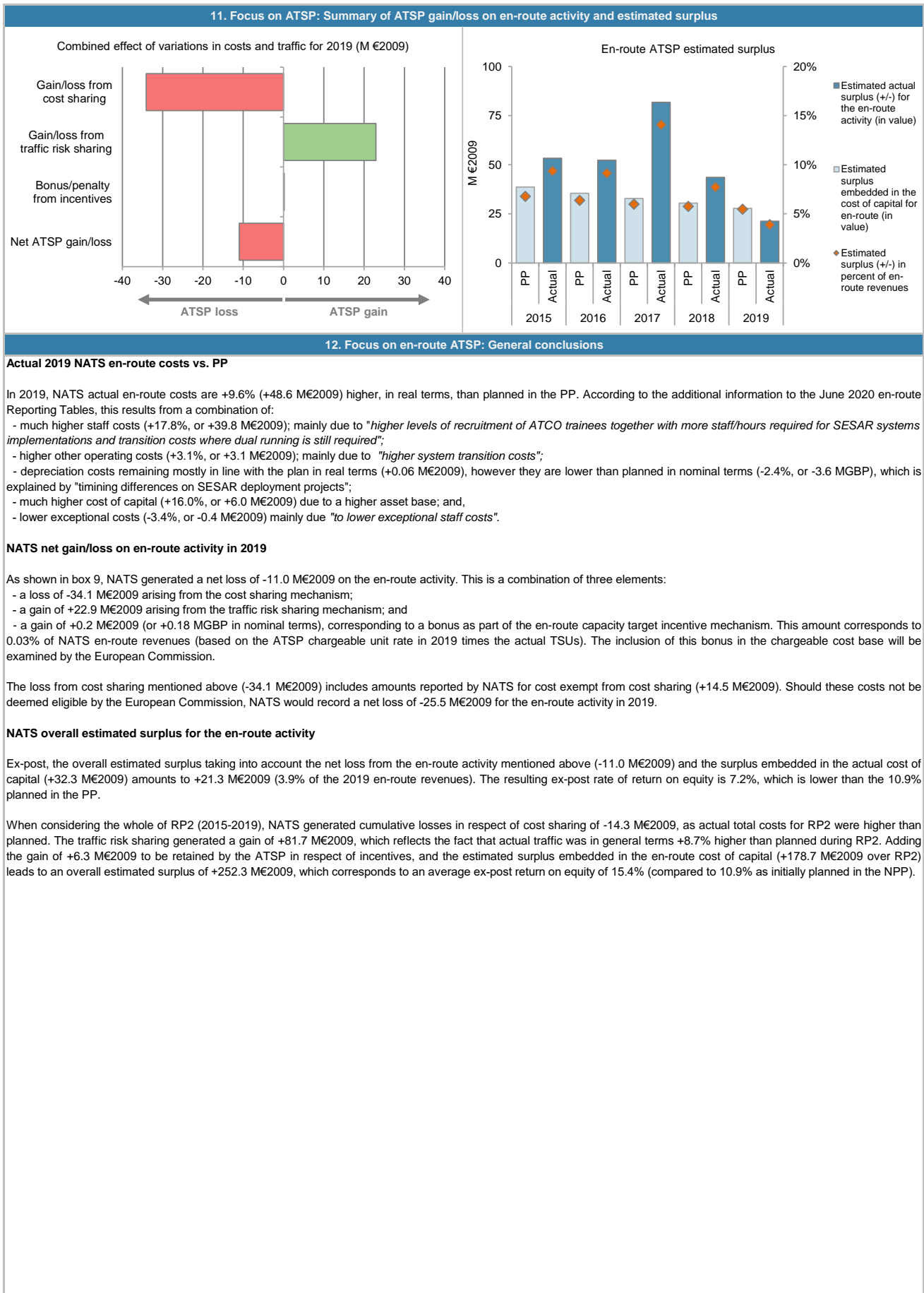
## Monitoring of en-route COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on en-route activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	568 718	556 914	547 025	528 185	508 537
Actual costs for the ATSP	556 567	556 642	533 276	552 454	557 107
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	12 151	272	13 748	-24 269	-48 570
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	708	-465	6 433	11 154	14 489
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>12 859</b>	<b>-193</b>	<b>20 181</b>	<b>-13 115</b>	<b>-34 081</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	-0.9%	4.2%	11.2%	13.3%	15.1%
Determined costs for the ATSP (PP) - based on actual inflation	581 552	576 269	562 177	540 168	521 096
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>-5 115</b>	<b>15 354</b>	<b>24 736</b>	<b>23 767</b>	<b>22 928</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>4 565</b>	<b>-614</b>	<b>2 384</b>	<b>-242</b>	<b>166</b>
<b>Net ATSP gain(+)/loss(-) on en-route activity ('000 €2009)</b>	<b>12 309</b>	<b>14 547</b>	<b>47 301</b>	<b>10 410</b>	<b>-10 987</b>
10. Focus on ATSP: En-route ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	885 353	814 071	751 630	697 425	637 957
Estimated proportion of financing through equity (in %)	40.0%	40.0%	40.0%	40.0%	40.0%
Estimated proportion of financing through equity (in value)	354 451	325 913	300 915	279 214	255 406
Estimated proportion of financing through debt (in %)	60.0%	60.0%	60.0%	60.0%	60.0%
Estimated proportion of financing through debt (in value)	530 902	488 158	450 715	418 211	382 551
Cost of capital pre-tax (in value)	51 908	47 728	44 068	40 890	37 403
Average interest on debt (in %)	2.5%	2.5%	2.5%	2.5%	2.5%
Interest on debt (in value)	13 273	12 204	11 268	10 455	9 564
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	38 635	35 525	32 800	30 434	27 839
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>38 635</b>	<b>35 525</b>	<b>32 800</b>	<b>30 434</b>	<b>27 839</b>
<b>Revenue/costs for the en-route activity</b>	<b>568 718</b>	<b>556 914</b>	<b>547 025</b>	<b>528 185</b>	<b>508 537</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>6.8%</b>	<b>6.4%</b>	<b>6.0%</b>	<b>5.8%</b>	<b>5.5%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	940 369	865 853	791 273	760 799	740 573
Estimated proportion of financing through equity (in %)	40.0%	40.0%	40.0%	40.0%	40.0%
Estimated proportion of financing through equity (in value)	376 148	346 341	316 509	304 320	296 224
Estimated proportion of financing through debt (in %)	60.0%	60.0%	60.0%	60.0%	60.0%
Estimated proportion of financing through debt (in value)	564 221	519 512	474 764	456 480	444 349
Cost of capital pre-tax (in value)	55 106	50 739	46 369	44 583	43 397
Average interest on debt (in %)	2.5%	2.5%	2.5%	2.5%	2.5%
Interest on debt (in value)	14 106	12 988	11 869	11 412	11 109
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for en-route (in value)	41 000	37 751	34 500	33 171	32 288
Net ATSP gain(+)/loss(-) on en-route activity	12 309	14 547	47 301	10 410	-10 987
<b>Overall estimated surplus (+/-) for the en-route activity</b>	<b>53 309</b>	<b>52 298</b>	<b>81 801</b>	<b>43 581</b>	<b>21 302</b>
<b>Revenue/costs for the en-route activity</b>	<b>568 876</b>	<b>571 189</b>	<b>580 578</b>	<b>562 864</b>	<b>546 121</b>
<b>Estimated surplus (+/-) in percent of en-route revenues</b>	<b>9.4%</b>	<b>9.2%</b>	<b>14.1%</b>	<b>7.7%</b>	<b>3.9%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>14.2%</b>	<b>15.1%</b>	<b>25.8%</b>	<b>14.3%</b>	<b>7.2%</b>



**UNITED KINGDOM: En-route ATSP (NATS)**

**Monitoring of en-route COST-EFFICIENCY for 2019**



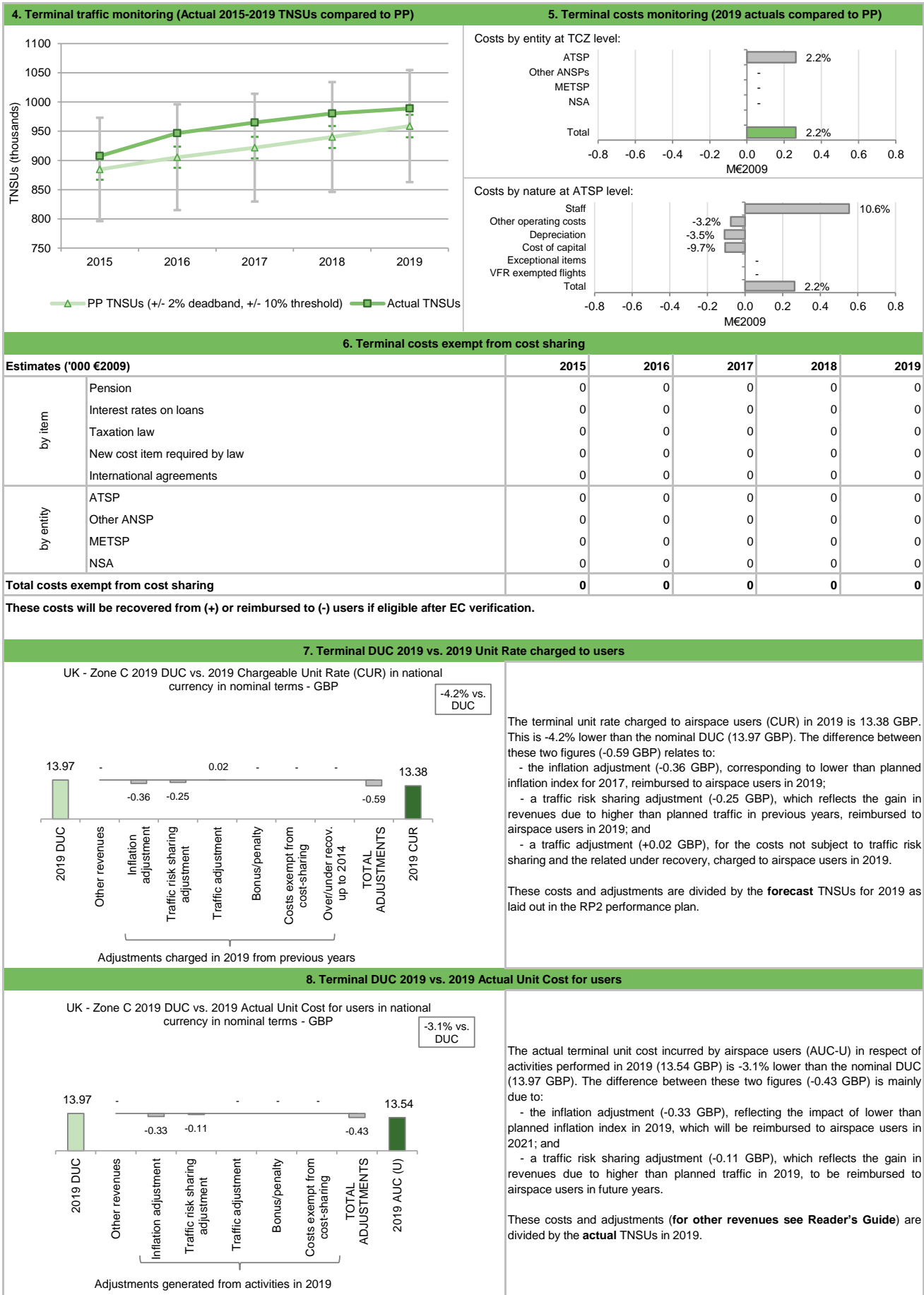
**UK - ZONE C: Terminal charging zone**

**Monitoring of terminal COST-EFFICIENCY for 2019**

1. Contextual economic information: terminal air navigation services					
· UK - Zone C TCZ represents 1.1% of the SES terminal ANS determined costs in 2019		· Is this TCZ applying traffic risk sharing?		Yes	
· ATSP: NATS		· Airports with fewer than 70,000 IFRs ATMs:		0	
· National currency: GBP		· Airports with between 70,000 and 225,000 IFRs ATMs:		3	
· Number of airports in charging zone in 2019: 5, of which:		· Airports with more than 225,000 IFRs ATMs:		2	
2. Terminal DUC monitoring at Charging Zone level					
UK - Zone C: Data from RP2 Performance Plan					
	2015D	2016D	2017D	2018D	2019D
Terminal costs (nominal GBP)	12 011 867	12 371 198	12 749 490	13 092 087	13 398 855
Inflation %	1.9%	1.9%	2.0%	2.0%	2.0%
Inflation index (100 in 2009)	118.2	120.5	122.9	125.3	127.8
Real terminal costs (GBP2009)	10 160 853	10 269 688	10 376 195	10 446 096	10 481 239
Total terminal Service Units	884 691	905 513	921 933	940 093	958 830
<b>Real terminal unit cost per Service Unit (GBP2009)</b>	<b>11.49</b>	<b>11.34</b>	<b>11.25</b>	<b>11.11</b>	<b>10.93</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>12.90</b>	<b>12.73</b>	<b>12.64</b>	<b>12.48</b>	<b>12.27</b>
UK - Zone C: Actual data from Reporting Tables					
	2015A	2016A	2017A	2018A	2019A
Terminal costs (nominal GBP)	12 019 496	12 474 203	12 634 000	13 114 833	13 368 000
Inflation %	0.0%	0.7%	2.7%	2.5%	1.8%
Inflation index (100 in 2009)	115.6	116.4	119.6	122.5	124.8
Real terminal costs (GBP2009)	10 396 753	10 715 065	10 567 017	10 701 643	10 715 350
Total terminal Service Units	907 600	946 771	964 876	980 375	988 877
<b>Real terminal unit cost per Service Unit (GBP2009)</b>	<b>11.46</b>	<b>11.32</b>	<b>10.95</b>	<b>10.92</b>	<b>10.84</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>12.86</b>	<b>12.71</b>	<b>12.30</b>	<b>12.26</b>	<b>12.17</b>
Difference between Actuals and Planned					
	2015	2016	2017	2018	2019
Terminal costs (nominal GBP)	in value 7 629	103 005	-115 490	22 745	-30 855
	in % 0.1%	0.8%	-0.9%	0.2%	-0.2%
Inflation %	in p.p. -1.9 p.p.	-1.2 p.p.	0.7 p.p.	0.5 p.p.	-0.2 p.p.
Inflation index (100 in 2009)	in p.p. -2.6 p.p.	-4.0 p.p.	-3.3 p.p.	-2.8 p.p.	-3.1 p.p.
Real terminal costs (GBP2009)	in value 235 900	445 377	190 823	255 546	234 110
	in % 2.3%	4.3%	1.8%	2.4%	2.2%
Total terminal Service Units	in value 22 909	41 258	42 943	40 282	30 047
	in % 2.6%	4.6%	4.7%	4.3%	3.1%
<b>Real terminal unit cost per Service Unit (GBP2009)</b>	<b>in value -0.03</b>	<b>-0.02</b>	<b>-0.30</b>	<b>-0.20</b>	<b>-0.10</b>
	<b>in % -0.3%</b>	<b>-0.2%</b>	<b>-2.7%</b>	<b>-1.8%</b>	<b>-0.9%</b>
<b>Real terminal unit cost per Service Unit (EUR2009)</b>	<b>in value -0.03</b>	<b>-0.03</b>	<b>-0.34</b>	<b>-0.22</b>	<b>-0.11</b>
	<b>in % -0.3%</b>	<b>-0.2%</b>	<b>-2.7%</b>	<b>-1.8%</b>	<b>-0.9%</b>
3. Focus on terminal at State/Charging Zone level					
<p>This analysis focuses on UK Terminal Charging Zone C (TCZ C), which corresponds to the London approach services provided at the five London airports (Heathrow, Gatwick, Stansted, Luton and London City). These airports are common to TCZ B, for which UK has to submit information to the European Commission on a confidential basis. The monitoring of TCZ B is therefore excluded from this report. Additional information on the particularities of the UK TCZs are presented at the end of this report (see technical <a href="#">Note 1</a>).</p> <p><b>Terminal unit cost</b>                      In 2019, the actual terminal unit cost in real terms (10.84 GBP2009 or 12.17 €2009) is -0.9% lower than planned in the PP (10.93 GBP2009 or 12.27 €2009). This results from the combination of higher than planned TNSUs (+3.1%) and slightly higher than planned terminal costs in real terms (+2.2%, or +0.3 M€2009).</p> <p><b>Terminal service units</b>                      The traffic risk sharing mechanism applies in UK TCZ C. The difference between actual and planned TNSUs (+3.1%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (NATS) retaining an amount of +0.3 M€2009.</p> <p><b>Terminal costs</b>                      In nominal terms, actual terminal costs are -0.2% (-0.03 MGBP) lower than planned. However, since the actual inflation index is also lower than planned (-3.1 p.p.), actual terminal costs are +2.2% (+0.3 M€2009) above plans when expressed in real terms. The slightly higher than planned terminal costs in real terms are driven by NATS (+2.2%, or +0.3 M€2009). A detailed analysis at ATSP level is provided in box 12. There are no costs exempt from cost-sharing reported.</p> <p><b>RP2 summary</b>                      When considering the whole of RP2 (2015-2019) for UK TCZ C actual TNSUs are +3.8% higher than planned, while actual costs in real terms are also +2.6% higher than the determined costs (some +1.5 M€2009). As a result, the weighted average actual unit cost over RP2 (11.09 GBP2009 or 12.45 €2009) is -1.2% lower than planned in the NPP (11.22 GBP2009 or 12.60 €2009).</p>					

UK - ZONE C: Terminal charging zone

Monitoring of terminal COST-EFFICIENCY for 2019



## UNITED KINGDOM: Terminal ATSP (NATS)

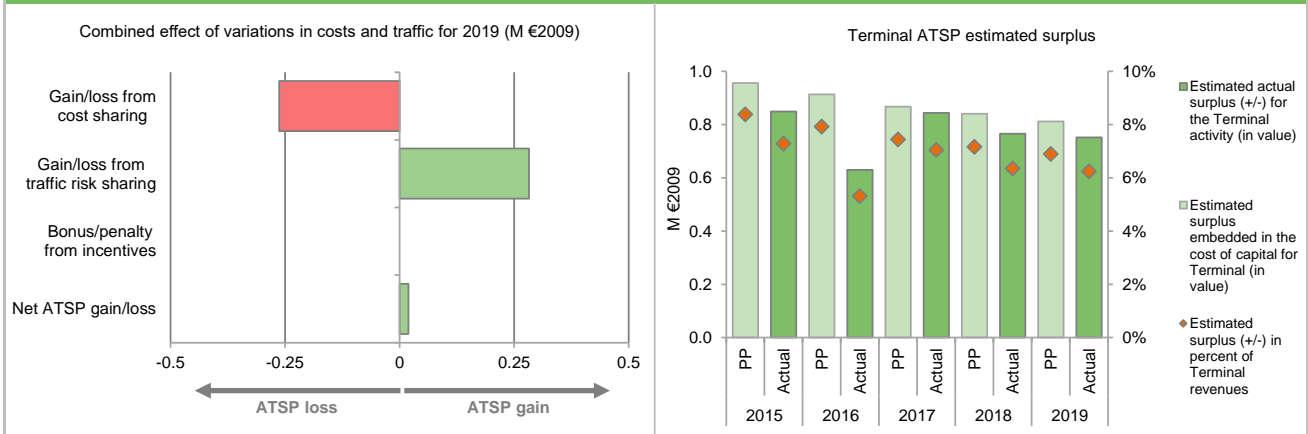
## Monitoring of terminal COST-EFFICIENCY for 2019

9. Focus on ATSP: Net ATSP gain/loss on terminal ANS activity					
Cost sharing ('000 €2009)	2015	2016	2017	2018	2019
Determined costs for the ATSP (PP) - based on planned inflation	11 408	11 531	11 650	11 729	11 768
Actual costs for the ATSP	11 673	12 031	11 864	12 016	12 031
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	-265	-500	-214	-287	-263
Amounts excluded from cost sharing to be recovered from (+) or reimbursed to (-) users	0	0	0	0	0
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing</b>	<b>-265</b>	<b>-500</b>	<b>-214</b>	<b>-287</b>	<b>-263</b>
Traffic risk sharing ('000 €2009)	2015	2016	2017	2018	2019
Difference in total service units (actual vs PP) %	2.6%	4.6%	4.7%	4.3%	3.1%
Determined costs for the ATSP (PP) - based on actual inflation	11 666	11 931	11 973	11 995	12 059
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing</b>	<b>254</b>	<b>330</b>	<b>335</b>	<b>322</b>	<b>282</b>
Incentives ('000 €2009)	2015	2016	2017	2018	2019
<b>Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives (bonus/penalty)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net ATSP gain(+)/loss(-) on terminal activity ('000 €2009)</b>	<b>-11</b>	<b>-170</b>	<b>121</b>	<b>35</b>	<b>19</b>
10. Focus on ATSP: Terminal ATSP estimated surplus *					
* This calculation of the economic surplus retained by the ATSP is based on the determined RoE and on the information provided in the Reporting Tables. This is different from the accounting profit/loss reported in the P&L accounts of the ATSP.					
ATSP estimated surplus ('000 €2009) from RP2 Performance Plan	2015P	2016P	2017P	2018P	2019P
Total asset base	21 911	20 928	19 885	19 265	18 591
Estimated proportion of financing through equity (in %)	40.0%	40.0%	40.0%	40.0%	40.0%
Estimated proportion of financing through equity (in value)	8 772	8 379	7 961	7 713	7 443
Estimated proportion of financing through debt (in %)	60.0%	60.0%	60.0%	60.0%	60.0%
Estimated proportion of financing through debt (in value)	13 139	12 550	11 924	11 552	11 148
Cost of capital pre-tax (in value)	1 285	1 227	1 166	1 130	1 090
Average interest on debt (in %)	2.5%	2.5%	2.5%	2.5%	2.5%
Interest on debt (in value)	328	314	298	289	279
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	956	913	868	841	811
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>956</b>	<b>913</b>	<b>868</b>	<b>841</b>	<b>811</b>
<b>Revenue/costs for the terminal activity</b>	<b>11 408</b>	<b>11 531</b>	<b>11 650</b>	<b>11 729</b>	<b>11 768</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>8.4%</b>	<b>7.9%</b>	<b>7.4%</b>	<b>7.2%</b>	<b>6.9%</b>
<b>Estimated ex-ante RoE pre-tax rate (in %)</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>	<b>10.9%</b>
ATSP estimated surplus ('000 €2009) based on actual data from Reporting Tables	2015A	2016A	2017A	2018A	2019A
Total asset base	19 730	18 349	16 571	16 746	16 801
Estimated proportion of financing through equity (in %)	40.0%	40.0%	40.1%	40.0%	40.0%
Estimated proportion of financing through equity (in value)	7 892	7 340	6 639	6 699	6 721
Estimated proportion of financing through debt (in %)	60.0%	60.0%	59.9%	60.0%	60.0%
Estimated proportion of financing through debt (in value)	11 838	11 009	9 932	10 048	10 080
Cost of capital pre-tax (in value)	1 156	1 075	972	981	985
Average interest on debt (in %)	2.5%	2.5%	2.5%	2.5%	2.5%
Interest on debt (in value)	296	275	248	251	252
Determined RoE pre-tax rate (in %)	10.9%	10.9%	10.9%	10.9%	10.9%
Estimated surplus embedded in the cost of capital for terminal (in value)	860	800	724	730	733
Net ATSP gain(+)/loss(-) on terminal activity	-11	-170	121	35	19
<b>Overall estimated surplus (+/-) for the terminal activity</b>	<b>849</b>	<b>630</b>	<b>844</b>	<b>765</b>	<b>752</b>
<b>Revenue/costs for the terminal activity</b>	<b>11 662</b>	<b>11 861</b>	<b>11 985</b>	<b>12 051</b>	<b>12 050</b>
<b>Estimated surplus (+/-) in percent of terminal revenues</b>	<b>7.3%</b>	<b>5.3%</b>	<b>7.0%</b>	<b>6.4%</b>	<b>6.2%</b>
<b>Estimated ex-post RoE pre-tax rate (in %)</b>	<b>10.8%</b>	<b>8.6%</b>	<b>12.7%</b>	<b>11.4%</b>	<b>11.2%</b>

**UNITED KINGDOM: Terminal ATSP (NATS)**

**Monitoring of terminal COST-EFFICIENCY for 2019**

**11. Focus on ATSP: Summary of ATSP gain/loss on terminal activity and estimated surplus**



**12. Focus on terminal ATSP: General conclusions**

**Actual 2019 NATS terminal costs vs. PP**

In 2019, NATS actual terminal costs are +2.2% (+0.3 M€2009) higher, in real terms, than planned in the PP. According to the additional information to the June 2020 terminal Reporting Tables, this results from a combination of:

- much higher staff costs (+10.6%, or +0.6 M€2009) mainly due to additional staff;
- lower other operating costs (-3.2%, or -0.08 M€2009);
- lower depreciation costs (-3.5%, or -0.1 M€2009) due to "timing of SESAR projects (phased introduction of EXCDS)"; and,
- lower cost of capital (-9.7%, or -0.1 M€2009) due to a lower asset base.

**NATS net gain/loss on terminal activity in 2019**

As shown in box 9, NATS generated a net gain of +0.02 M€2009 on the terminal activity. This is a combination of two elements:

- a loss of -0.26 M€2009 arising from the cost sharing mechanism; and
- a gain of +0.28 M€2009 arising from the traffic risk sharing mechanism.

**NATS overall estimated surplus for the terminal activity**

Ex-post, the overall estimated surplus taking into account the gain from the terminal activity mentioned above (+0.02 M€2009) and the surplus embedded in the actual cost of capital (+0.73 M€2009) amounts to +0.75 M€2009 (6.2% of the 2019 terminal revenues). The resulting ex-post rate of return on equity is 11.2%, which is slightly higher than the 10.9% planned in the PP.

When considering the whole of RP2 (2015-2019), NATS generated cumulative losses in respect of cost sharing of -1.5 M€2009, as actual total costs for RP2 were higher than planned. The traffic risk sharing generated a gain of +1.5 M€2009, which reflects the fact that actual traffic was in general terms +3.8% higher than planned during RP2. Adding the estimated surplus embedded in the terminal cost of capital (+3.8 M€2009 over RP2) leads to an overall estimated surplus of +3.8 M€2009, which corresponds to an average ex-post return on equity of 10.9% (compared to 10.9% as initially planned in the NPP).

## UNITED KINGDOM: Gate-to-gate

## Monitoring of gate-to-gate COST-EFFICIENCY for 2019

1. Monitoring of gate-to-gate ANS costs																							
<b>United Kingdom: Data from RP2 Performance Plan</b>																							
	2015D	2016D	2017D	2018D	2019D																		
Real en-route costs (EUR2009)	651 866 349	640 430 909	630 509 232	611 485 711	591 169 362																		
Real terminal costs (EUR2009)	11 408 395	11 530 593	11 650 176	11 728 661	11 768 119																		
Real gate-to-gate costs (EUR2009)	663 274 745	651 961 502	642 159 408	623 214 372	602 937 480																		
En-route share (%)	98.3%	98.2%	98.2%	98.1%	98.0%																		
<b>United Kingdom: Actual data from Reporting Tables</b>																							
	2015A	2016A	2017A	2018A	2019A																		
Real en-route costs (EUR2009)	638 435 072	642 670 792	620 356 884	636 159 761	638 523 029																		
Real terminal costs (EUR2009)	11 673 259	12 030 653	11 864 428	12 015 583	12 030 973																		
Real gate-to-gate costs (EUR2009)	650 108 331	654 701 445	632 221 312	648 175 343	650 554 001																		
En-route share (%)	98.2%	98.2%	98.1%	98.1%	98.2%																		
<b>Difference between Actuals and Planned (Actuals vs. PP)</b>																							
	2015	2016	2017	2018	2019																		
Real gate-to-gate costs (EUR2009)																							
in value	-13 166 414	2 739 943	-9 938 096	24 960 971	47 616 521																		
in %	-2.0%	0.4%	-1.5%	4.0%	7.9%																		
En-route share																							
in p.p.	-0.1 p.p.	-0.1 p.p.	-0.1 p.p.	0.0 p.p.	0.1 p.p.																		
<b>2. Share of en-route and terminal in gate-to-gate actual costs (2019)</b>																							
<p>As noted in the introduction of the terminal analysis (see box 3), only TCZ C is included in this report since the actual data relating to TCZ B (airports where terminal ANS are provided on a contractual basis) has to be provided to the European Commission on a confidential basis. Therefore, the gate-to-gate results shown in this page only reflect the aggregate view of UK en-route and London Approach services, not the results of terminal ANS services provided at the nine airports comprised in TCZ B.</p> <p>In 2019, actual gate-to-gate ANS costs are +7.9% (+47.6 M€2009) higher than planned due to higher than planned en-route costs (+8.0%, or +47.4 M€2009) and terminal costs (+2.2%, or +0.3 M€2009).</p> <p>The actual share of en-route in gate-to-gate ANS costs (98.2%) is in line with that planned in the PP for 2019 (98.0%).</p> <p>For NATS, the estimated gate-to-gate economic surplus in 2019 amounts to 22.1 M€2009 (see boxes 10 for the detailed analysis at charging zone level), corresponding to 4.0% of gate-to-gate ANS revenues.</p>																							
<table border="1"> <thead> <tr> <th>Year</th> <th>Determined (%)</th> <th>Actual (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>98.3%</td> <td>98.2%</td> </tr> <tr> <td>2016</td> <td>98.2%</td> <td>98.2%</td> </tr> <tr> <td>2017</td> <td>98.2%</td> <td>98.1%</td> </tr> <tr> <td>2018</td> <td>98.1%</td> <td>98.1%</td> </tr> <tr> <td>2019</td> <td>98.0%</td> <td>98.2%</td> </tr> </tbody> </table>						Year	Determined (%)	Actual (%)	2015	98.3%	98.2%	2016	98.2%	98.2%	2017	98.2%	98.1%	2018	98.1%	98.1%	2019	98.0%	98.2%
Year	Determined (%)	Actual (%)																					
2015	98.3%	98.2%																					
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2017	98.2%	98.1%																					
2018	98.1%	98.1%																					
2019	98.0%	98.2%																					
<b>3. Technical notes on en-route and terminal information reported by United Kingdom</b>																							
<b>Note 1: Information relating to UK TCZ B and TCZ C</b>																							
<p>Information relating to UK TCZ B has to be provided to the European Commission on a confidential basis (nine airports – airports where terminal ANS are provided on a contractual basis) and is not part of this Monitoring Report.</p> <p>UK TCZ C (London Approach) is not directly comparable with other TCZs since the service provided is of a hybrid nature, making the transition between en-route and terminal services for the five London Airports (which are also part of TCZ B).</p>																							

## UNITED KINGDOM

## Monitoring of CAPEX for 2019

Contextual Information						
ANSP: NATS (Continental)						
FAB: UK-Ireland FAB						
Currency: GBP						
Data from RP2 National Performance Plan	2015P	2016P	2017P	2018P	2019P	RP2P
Total CAPEX (in nominal M)	136.5	134.9	118.1	109.4	101.6	600.5
Main CAPEX (in nominal M)	122.7	123.5	107.6	98.8	87.3	540.0
Inflation %	1.9%	1.9%	2.0%	2.0%	2.0%	
Inflation index (100 in 2009)	118.2	120.5	122.9	125.3	127.8	
Exchange rate 2009 (1 EUR =)	0.890647	0.890647	0.890647	0.890647	0.890647	
<b>Total CAPEX (in M €2009)</b>	<b>129.7</b>	<b>125.7</b>	<b>107.9</b>	<b>98.0</b>	<b>89.2</b>	<b>550.5</b>
Main CAPEX (in M €2009)	116.6	115.1	98.3	88.5	76.7	495.2
% Main of Total CAPEX	89.9%	91.6%	91.1%	90.3%	86.0%	90.0%
Real gate-to-gate ANSP costs (in M €2009)	580.1	568.4	558.7	539.9	520.3	2 767.5
Total CAPEX as % of Real gate-to-gate ANSP costs	22.4%	22.1%	19.3%	18.2%	17.2%	19.9%
Actual data from FAB Monitoring Report	2015A	2016A	2017A	2018A	2019A	RP2A
Total CAPEX (in nominal M)	132.8	146.7	176.5	149.3	142.9	748.1
Main CAPEX (in nominal M)	116.1	138.2	160.6	129.0	128.1	672.0
Inflation %	0.0%	0.7%	2.7%	2.5%	1.8%	
Inflation index (100 in 2009)	115.6	116.4	119.6	122.5	124.8	
Exchange rate 2009 (1 EUR =)	0.890647	0.890647	0.890647	0.890647	0.890647	
<b>Total CAPEX (in M €2009)</b>	<b>129.0</b>	<b>141.5</b>	<b>165.7</b>	<b>136.8</b>	<b>128.6</b>	<b>701.5</b>
Main CAPEX (in M €2009)	112.7	133.3	150.8	118.2	115.3	630.3
% Main of Total CAPEX	87.4%	94.2%	91.0%	86.4%	89.7%	89.8%
Real gate-to-gate ANSP costs (in M €2009)	568.2	568.7	545.1	564.5	569.1	2 815.7
Total CAPEX as % of Real gate-to-gate ANSP costs	22.7%	24.9%	30.4%	24.2%	22.6%	24.9%
Actuals vs Planned in absolute value & percentage	2015	2016	2017	2018	2019	RP2
Total CAPEX (in nominal M)	-3.7	11.8	58.4	39.9	41.3	147.7
Total CAPEX (in M €2009)	-0.7	15.8	57.8	38.7	39.4	151.0
<b>Total CAPEX (in %, M €2009)</b>	<b>-0.5%</b>	<b>12.5%</b>	<b>53.6%</b>	<b>39.5%</b>	<b>44.1%</b>	<b>27.4%</b>

